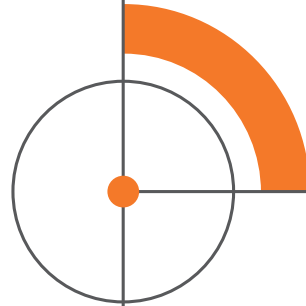


CIPD

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FINANCIAL WELLBEING

An evidence
review

Scientific summary

November 2021

The CIPD is the professional body for HR and people development. The registered charity champions better work and working lives and has been setting the benchmark for excellence in people and organisation development for more than 100 years. It has more than 160,000 members across the world, provides thought leadership through independent research on the world of work, and offers professional training and accreditation for those working in HR and learning and development.

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Financial wellbeing: An evidence review

Scientific summary

1 Rationale for this review

The Chartered Institute of Personnel and Development (CIPD) approached the Center for Evidence-Based Management (CEBMa) to update an REA commissioned by Capita Employee Benefits in 2017 to understand what is known in the scientific literature about the relationship between financial distress and employee performance, and how financial distress may be alleviated and measured. This review will present an overview of the evidence.

2 Main question: What does the review answer?

What is known in the scientific literature about the impact of financial distress on workplace performance?

Supplementary questions

Other issues raised, which will form the basis of our conclusion to the main question above, are:

- 1 *What is meant by financial distress? (What is it?)*
- 2 *What is the effect of financial distress on workplace performance?*
- 3 *What is known about possible moderators and/or mediators that affect the relationship between financial distress and workplace performance?*
- 4 *What is known about strategies that may be beneficial to relieving financial distress and what is known about their effect?*
- 5 *What is known about measuring (causes of) financial distress?*

3 Search strategy: How was the research evidence sought?

The following three databases were used to identify studies: ABI/INFORM Global, Business Source Elite, PsycINFO, and PsychTests. The following generic search filters were applied to all databases during the search:

- 1 scholarly journals, peer-reviewed
- 2 published in the period 1990–2021 for meta-analyses and systematic reviews and the period 2000–2021 for primary studies
- 3 articles in English.

A search was conducted using combinations of different search terms, such as 'financial distress', 'financial wellbeing', 'financial wellness programmes' and 'questionnaire'. In addition, the references listed in the studies retrieved were screened in order to identify additional articles for possible inclusion in the rapid evidence assessment (REA).

We conducted 19 different search queries. The initial review yielded 1,184 articles, the update another 624 that were published in the last four years, and we screened the titles and abstracts of more than 1,800 studies. An overview of all search terms and queries is provided in Annex I.

4 Selection process: How were the studies selected?

Selection took place in two phases. First, the titles and abstracts of the 1,800+ studies identified were screened for their relevance to this review. In case of doubt or lack of information, the study was included. Duplicate publications were removed. This first phase yielded 105 studies.

Second, studies were selected based on the full text of the article according to the following inclusion criteria:

- 1 type of studies: only articles reporting on research by the authors were included
- 2 measurement: (1) studies in which the effect of financial distress on workplace performance was measured or (2) studies in which the effect of moderators and/or mediators on financial distress was measured
- 3 context:
 - studies related to *workplace settings*
 - studies that measured stress on the *individual level*
 - studies concerning *Western employees*.

This second phase yielded 48 studies. In addition, ten studies were added after screening the references listed in studies retrieved for additional relevant articles, yielding a total of 58 articles included in the REA. An overview of the selection process is provided in Annex II.

5 Critical appraisal and classification: How was the quality of the evidence judged?

In almost any situation it is possible to find a scientific study to support or refute a theory or a claim, and sometimes to quite a large degree. It is therefore important to determine which studies are trustworthy (that is, valid and reliable) and which are not. The trustworthiness of a scientific study is first determined by its methodological appropriateness. For cause-and-effect claims (that is, if we do A, will it result in B?), a study has a high methodological appropriateness when it fulfils the three conditions required for causal inference: co-variation, time–order relationship, and elimination of plausible alternative causes (Shaughnessy and Zechmeister 1985). A study that uses a control group, random assignment and a before-and-after measurement is therefore regarded as the 'gold standard'.¹ Non-randomised studies and before–after studies come next in terms of appropriateness. Cross-sectional studies (surveys) and case studies are regarded as having the greatest chance of showing bias in the outcome and therefore sit lower down in the ranking in terms of appropriateness. Meta-analyses in which statistical analysis techniques are used to pool the results of controlled studies are therefore regarded as the most appropriate design.

To determine the methodological appropriateness of the research design of the studies included, the classification system of Shadish, Cook and Campbell (2002), and Petticrew and Roberts (2006) was used. The following levels of appropriateness were used for the

classification:

<i>Design</i>	<i>Level</i>
Systematic review or meta-analysis of randomised controlled studies ²	AA
Systematic review or meta-analysis of controlled and/or before–after studies	A
Randomised controlled study	
Systematic review or meta-analysis of cross-sectional studies	B
Non-randomised, controlled before–after study	
Interrupted time series	
Controlled study without a pre-test or uncontrolled study with a pre-test	C
Cross-sectional study	D

It should be noted, however, that the level of methodological appropriateness as explained above is only relevant in assessing the validity of a cause-and-effect relationship that might exist between an intervention (for example financial education) and its outcomes (financial distress). A case study, for instance, is a strong design for assessing why an effect has occurred or how an intervention might be (un)suitable in a particular context; it does a poor job of assessing the existence or strength of a cause-and-effect relationship (Donnelly and Trochim 2007).

In addition, a study's trustworthiness is determined by its methodological quality (its strengths and weaknesses). For instance, was the sample size large enough and were reliable measurement methods used? To determine methodological quality, all the studies included were systematically assessed on explicit quality criteria. Based on a tally of the number of weaknesses, the trustworthiness was downgraded, and the final level was determined as follows: a downgrade of one level if two weaknesses were identified; a downgrade of two levels if four weaknesses were identified, and so on.

Finally, the effect sizes were identified. An effect (for example a correlation, Cohen's *d* or ω) can be statistically significant but may not necessarily be of practical relevance: even a trivial effect can be statistically significant if the sample size is big enough. For this reason, the effect size – a standard measure of the magnitude of the effect – of the studies included was assessed. To determine the magnitude of an effect, Cohen's rules of thumb (Cohen 1988) were applied. According to Cohen a 'small' effect is an effect that is only visible through careful examination. A 'medium' effect, however, is one that is 'visible to the naked eye of the careful observer'. Finally, a 'large' effect is one that anybody can easily see because it is substantial.

The effects of the factors and relationships described can differ both in magnitude (impact) as well as evidence base. For instance, the effect found may be large, but the evidence base may be small due to:

- 1 the limited number of studies (quantity)

- 2 the limited robustness/level of evidence (quality)
- 3 varying population demographics (generalisability).

With regard to this rapid evidence assessment, the limited number of studies and the limited robustness of the research designs of the included studies affect the evidence base.

Outcome of the critical appraisal

The overall quality of the studies included was low to moderate. Most of the studies were primary studies, and most of these were cross-sectional in nature. Of the 58 studies included, only two were secondary studies. Of the 56 primary studies, one qualified as randomised controlled study and was therefore graded level A. The remaining 55 studies concerned quasi-experimental, longitudinal, or cross-sectional designs and were graded level B or lower. An overview of all the studies included and information regarding year of publication, research design, sample size, population, main findings, effect sizes and limitations is provided in Annex III.

6 Main findings

Question 1: What is meant by financial distress?

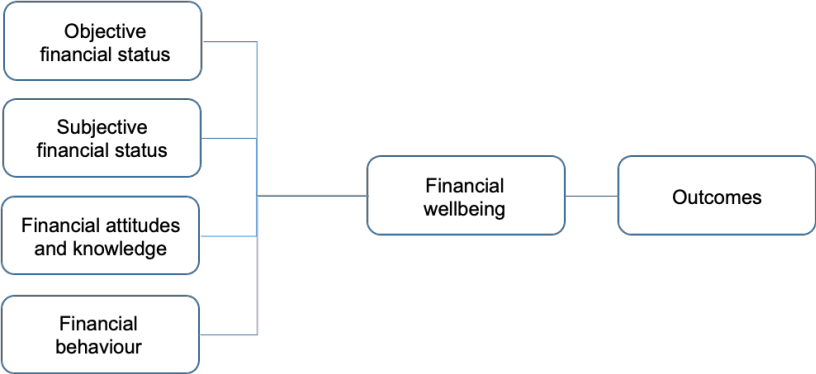
A substantial chunk of the labour force is affected by financial stress. In 2018, the CIPD's [Good Work Index](#)³ found that 47% of UK workers experienced financial difficulties to some degree and 16% were constantly struggling or even falling behind with bills. Research also highlights how financial issues can take up a substantial amount of time: for example, a survey by PwC⁴ indicated: *'46% of the respondents say that at work each week, they spend three hours or more thinking about or dealing with issues related to their personal finances (up from 37% the previous year).'* In the current environment of COVID-19, a CIPD survey⁵ found that a third of UK workers reported that their financial security had become 'worse' or 'much worse' during the lockdown. Data from the US is even starker: the most recent survey by PwC⁶ found that *'63% of employees say that their financial stress has increased since the start of the pandemic'*. This makes it a highly relevant subject for employers aiming to optimise their business results as well as employee wellbeing. Giarda (2013) shows that financial distress can be persistent over time as well, as there is evidence of true state dependence, that is, the probability of experiencing financial distress at time t strongly positively depends upon the probability of having experienced financial fragility at time $t-1$.

It is not surprising, then, that an increasing number of scientific research articles, as well as information from consultancy firms and educational institutes, can be found on financial distress. The initial review yielded 1,184 articles that were screened for relevance; the update yielded another 624 articles that were published just in the last four years.

Financial distress has been conceptualised by many researchers, and many definitions of it have been put forward. It has been referred to by academics as 'economic stress', 'economic hardship', 'economic strain' and 'economic pressure'. Economic strain is an evaluation of current financial status as perceived financial adequacy, financial concerns and worries, adjustments to changes in one's financial situation, and one's projected financial situation (Voydanoff 1984). As a positive label of financial (dis)stress, researchers refer to expressions as perceived economic or financial wellbeing, financial satisfaction, and financial wellness (Gerrans et al 2014). Prawitz et al (2006) propose a perceived financial distress/financial wellbeing measure to represent the *'continuum extending from negative to positive feelings about, and reactions to, the financial condition'*. Most authors see financial wellbeing or wellness as a continuum, where low wellbeing represents high distress. Netemeyer et al (2018) conceptualise perceived financial wellbeing as two related, but separate, constructs: (1) stress related to the management of money today (current money management stress); and (2) a sense of security in one's financial future (expected future financial security).

When examined closely, most definitions seem to have the following common elements with financial wellness as the overarching construct – although some authors suggest a more sequential model (Gerrans et al 2014) (Figure 1).

Figure 1: Links in the financial wellness chain



As the model suggests, financial wellness can be seen as a complex, multidimensional construct (Joo 2004 Rutherford and Fox 2010). In this model financial wellness is mainly a facet of one’s objective financial status (for example, Brown and Gray 2016), subjective financial status such as financial satisfaction (feeling fortunate in financial affairs; for example, Rutherford and Fox 2010), financial behaviour (for example, O’Neill et al 2005) and financial wellbeing, although in the literature these terms are sometimes used interchangeably. As with stress in general, financial distress can have negative consequences in one’s personal life as well as at work. Porcelli and Delgado (2009, level C) show a large effect of stress on financial decision-making processes.

Question 2: What is the effect of financial distress on employee wellbeing and workplace performance?

To measure the effect of (determinants of) financial distress on workplace performance would require an evaluation of a large number of populations and contexts where financial distress was apparent, and the measurement of a wide range of performance outcomes, preferably by means of a meta-analysis of a large number of double-blind, randomised controlled studies. Such studies do not exist and might well be too difficult to carry out.

The relationship between financial stress and workplace performance, however, is increasingly recognised. Various studies (level D) link financial stress to outcome measures such as absenteeism, presenteeism (being at work but underperforming) and organisational commitment⁷ (for example, Kim and Garman 2003, 2004; Merrill et al 2012; Callen et al 2013). Stress in general is also shown to have an effect on health outcomes (level A), including dysregulated patterns of cortisol production (Miller et al 2007). Financial stress is associated with higher levels of absenteeism and presenteeism, and lower levels of (perceived) health (level A/D).

The most reported outcome measures included in this REA are presenteeism, absenteeism, and health. Most results are based on cross-sectional research designs, meaning that they indicate an association (not necessarily a causal relationship) between these variables.

1 Employees experiencing financial distress show higher levels of absenteeism (level D – small to medium effect)

Absenteeism is defined as non-attendance of an employee from scheduled work. Absenteeism is expensive for employers because in many instances replacement workers must be hired and, of course, some work simply does not get accomplished as scheduled. When employees experience financial stress, they are more prone to being absent from work than employees who do not. Absenteeism can be the result of stress-related illness or time needed to handle personal finances. Some studies report on the negative effects of financial stress on absenteeism. Kim noted a relationship between perceived financial wellbeing and self-reported absenteeism (Kim and Garman 2003; Kim et al 2006). Financial stress affects absenteeism both directly and indirectly through health outcomes such as emotional exhaustion. Respondents of the survey by Kim and Garman (2004) were absent for personal reasons for almost two days a year. Employees experiencing higher financial stress levels reported more days absent (Kim and Garman 2004; Kim et al 2006). Allen (2008) found that financial concerns have a small association with absenteeism.

2 Employees experiencing financial distress show higher levels of presenteeism (level D – small to medium effect)

Employees experiencing financial stress typically bring those issues to work, affecting their productivity. Besides productivity loss due to absenteeism, employers also experience productivity loss due to employees who do come to work but perform suboptimally there because of health problems or personal issues. This phenomenon is also known as presenteeism and is associated with financial wellbeing (Kim and Garman 2004; Merrill et al 2012; Callen et al 2013; Sabri and Aw 2020). Employees use work time, for example, to handle personal financial matters, worry about personal finances or receive telephone calls from creditors regarding overdue debts.

A survey by Callen et al (2013) indicated that employees of a US government security complex (sample n=1,728) reported on average about half a day of productivity loss in the past four weeks, with higher productivity loss for women. Almost a third of the respondents reported financial stress. A survey by Merrill et al (2012, n=19,803) also found a positive relationship between financial stress and presenteeism. Over 50% of the respondents of a survey by Kim and

Garman (2004) took some time at work dealing with matters resulting from financial stress. In addition, Allen (2008) found that financial concerns have a small effect on presenteeism.

Bernstein et al (2018, n=166,011 innovative US workers) found that a negative wealth shock during the 2008 financial crisis was negatively associated with lower productivity in terms of number and quality of patents. This was particularly the case with respect to projects that are high impact, complex, or exploratory in nature. The effects were more pronounced among those with little home equity before the crisis and those with fewer outside labour market opportunities.

3 The health of employees experiencing (financial) distress is impacted (level A/D)

Various studies (level A–D) indicated that stress affects health outcomes, including dysregulated patterns of cortisol production (level A, Miller et al 2007), or self-reported health (level C, O’Neill et al 2006; level D, Arber et al 2014), which in turn could influence workplace performance and absenteeism (level D, Kim and Garman 2004). The relationship between health and financial stress is two-sided: financial stress influences health outcomes, and chronic health issues can then lead to financial stress, as employees’ capacity to work may be affected. Self-reported health status was positively associated with self-reported financial stress levels (level C, O’Neill et al 2006).

Mental, as well as physical, health can also be affected by financial stress. By using a large UK household survey, Bridges and Disney (2010, level D) measured the perceived financial and psychological wellbeing of respondents several times and found a strong relationship between those variables. They also noticed that this relationship is moderated by a person-specific response to financial situations.

In addition, data from two waves of large household surveys in Australia, the US, Canada and the UK suggest that smokers experiencing higher levels of financial distress are more likely to be interested in giving up smoking; however, follow-up data found that the same group was less likely to have actually tried to give up. Among those who made an attempt at stopping smoking, financial stress was associated with a lower probability of abstinence at follow-up (level D, Siahpush and Carlin 2006; Siahpush et al 2009). Another finding from this survey is the association between prolonged financial stress and subsequent obesity (level D, Siahpush et al 2014).

Odle-Dusseau et al (2018, level C) find that financial insecurity of workers is negatively associated with health outcomes. This seems to occur because of increased work–family conflict (WFC) and stress associated with financial insecurity. Financial insecurity at time 1 is positively related to WFC at time 1, perceived stress at time 2 as well as negative health outcomes at time 2 (physical health symptoms, sleep disturbance symptoms and general health).

Question 3: What is known about possible moderators and/or mediators that affect the relationship between financial distress and workplace performance?

Research regarding the association between financial distress and employee performance sometimes leads to inconclusive results. In addition to the research taking place in different settings and the relatively low level of trustworthiness of the studies involved, this may also suggest that the effect of financial distress is moderated and/or mediated by several factors.⁸

Not every employee has an equal chance of experiencing financial stress and not all employees who do will show a negative impact on workplace performance. Most of the outcomes reported above are moderated by a number of variables, including age, gender and number of dependants.

Moderators and mediators: main findings

1 Middle-aged respondents are more likely to report financial difficulties (level D)

The assumed relationship between age and financial wellbeing generates mixed results. Some studies suggest a negative relationship between age and financial difficulties (Kim et al 2006; Gianetti et al 2014), while others do not find a significant relationship (Kim and Garman 2003). With regard to the relationship between health and financial stress, O'Neill et al (2005) found an inverse U-pattern, with middle-aged respondents more likely to report financial problems affecting health. Merrill et al (2012) noted the same pattern regarding presenteeism and financial stress: there was a tendency for this to increase among the younger age groups, peak in the age groups 30–39 and 40–49, and then decrease. Giarda (2013) did not find a significant relationship between financial hardship and age.

2 Women report higher levels of financial distress than men (level D – small to medium effect)

In general, women report higher levels of financial distress than men. Gender differences have been repeatedly reported in the studies included in this REA. For instance, women tend to report higher levels of financial distress/lower levels of financial wellbeing (Kim and Garman 2003). Related to higher levels of financial stress, studies indicate that women also reported higher levels of absenteeism and presenteeism (Kim and Garman 2003, 2004; Kim et al 2006; Merrill et al 2012; Callen et al 2013). Gianetti et al (2014), however, did not find a significant relationship between gender and financial distress.

3 Higher levels of education and financial literacy are associated with lower levels of financial distress (level D – small to medium effect)

A higher level of financial literacy can mediate the negative relationship between job insecurity and financial distress (Gianetti et al 2014). Higher levels of education are associated with lower levels of financial distress in Italian households (Giarda 2013).

4 Separated, divorced, widowed or single individuals are more prone to financial distress than married individuals (level D – small to medium effect)

Separated, divorced, widowed or single individuals in general report higher levels of presenteeism and absenteeism than married individuals (Kim et al 2006; Merrill et al 2012). Gianetti et al (2014) found that divorced individuals have the highest chance of experiencing financial difficulties. In addition, Brown and Gray (2016) found that, compared with being married, never being married, being divorced, or being widowed are all inversely related to financial wellbeing.

5 Personality variables moderate the associations within the financial wellness model (level A/D – small to medium effect)

Britt et al (2013, level D) looked at the impact of locus of control on financial behaviours in a group of almost 1,000 US students. Locus of control relates to how confident we are that we can affect things in our lives: people have an external locus if they attribute outcomes or events to luck, chance, fate or control of others, and an internal locus of control if they believe they attribute it to themselves by their own behaviour. Students with an external locus of control exhibit worse financial behaviours.

In a longitudinal study in the US, Brook et al (2013, level B) studied the relationship between ADHD in adolescence and impaired general physical health, impaired general mental health, antisocial personality disorder, impaired work performance and high financial stress in adulthood. With regard to financial stress, they concluded that adults with ADHD were more than three times more likely to experience high financial stress in their late thirties than adults without ADHD.

In a large sample of UK households, the relationship between the Big Five personality traits and household finances was studied. Brown and Taylor (2014, level D) found that certain personality traits were associated with household finances in terms of the levels of debt. The magnitude and statistical significance of the association between personality traits and household finances differed across the various types of debt held in the household portfolio. For example, conscientiousness was negatively associated with all types of unsecured debt (except for hire purchase in single households). Extraversion, agreeableness, neuroticism, and openness to experience were mostly positively associated with all types of unsecured debt. In addition, Xu et al (2015, level D) examined how the Big Five personality traits are related to measures of young adults' financial distress. They found that more conscientious young adults were less likely to experience financial distress, while more neurotic ones were more likely. These patterns persisted across all six individual – and the one aggregate – financial indicators that were examined. The patterns within the remaining personality traits were less consistent across measures of financial distress. However, to the extent to which there were significant effects, the more extraverted young adults were less likely to experience financial distress, while the ones who were more agreeable or more open to experience were more likely to go through financial distress.

In two samples of Icelandic adults and full-time employees, Gardarsdóttir and Dittmar (2012, level D) investigated the relationship between materialism and debt and financial wellbeing. Respondents who reported higher levels of materialism also noted a greater tendency to spend. Materialism was also related to higher levels of compulsive buying, greater financial worry, and lower money management skills.

6 Other moderators (level D)

Allen (2008) compared predictors of financial concerns for 20 countries. He noticed that employees in Europe were less prone to financial concerns than those in the US and Canada. Sunal et al (2013) concluded that financial wellbeing was higher in French students than in surveys of Turkish students. These results indicate that national differences may have a moderating impact on financial wellbeing

Some studies indicated that the more family members they have to support, the more likely consumers were to report their health being affected by financial problems and having lower levels of financial wellbeing (Gianetti et al 2014; O'Neill et al 2005).

When looking into predictors for financial stress in Italian households, higher income was associated with less financial vulnerability (Giarda 2013), a relationship also confirmed by Kim and Garman (2003). Interestingly, Kim and Garman (2003) also found that workers who had higher incomes were more frequently absent than those with lower incomes.

Vlaev and Elliott (2014) conducted an empirical investigation into the determinants of financial wellbeing for two population groups: young workers and families with young children in the UK. The most significant finding from the regression is the significance for both groups of having control over their finances; control is even more important than the amount of available money for this population. Being in control is about control of overall and monthly finances and adjusting spending habits accordingly. Factors contributing to being in control found by the authors are feeling on top of monthly outgoings, always knowing the detail of their financial situation, feeling comfortable dealing with financial matters, and only spending within means.

Question 4: What is known about strategies that may be beneficial to relieving financial distress and what is known about their effect?

Finding ways of alleviating employees' financial stress could be a first step to improving workplace performance. Despite the relevance of the subject, however, only a few of the included studies have looked directly at interventions aiming to alleviate financial stress and their effectiveness. To measure the effect of financial education, credit counselling or debt management programmes on workplace performance would require an evaluation of a large number of populations and contexts where the intervention was applied, and the measurement of a wide range of performance outcomes, preferably by means of a meta-analysis of a large number of double-blind, randomised controlled studies. Such studies rarely exist, and might well be too difficult to carry out, although a meta-analysis on the effect of financial education on financial behaviour is included in this REA.

As described above, quite a number of factors are related to financial stress, suggesting that several strategies to improve financial wellbeing could be considered where a combined strategy may be most beneficial. Some studies report on interventions or factors such as financial education, credit counselling, or debt management programmes that could be of interest when designing strategies to relieve financial stress.

1 Financial education has a small positive effect on financial behaviours (level A/B)

As financial literacy is one of the factors associated with financial distress, several studies mention the potential positive effect of financial training programmes on financial behaviour and financial wellbeing (level A/D, Kim and Garman 2003, 2004; Prawitz and Cohart 2014; Postmus et al 2015).

In general, however, the effectiveness of financial education on financial behaviour is limited (level A, Fernandes et al 2014). A meta-analysis (MA) by Fernandes et al, based on the results of 201 studies, showed that interventions to improve financial literacy explained only 0.1% of the variance in financial behaviours studied, with weaker effects in low-income samples. A small (for financial education interventions) to medium (for measured financial literacy) correlation with financial behaviour is found, although it should be noted that it is lower in studies with a more robust research design. Correlational studies find stronger associations with financial behaviour (especially for saving for retirement and level of debt); however, this study design is not appropriate to determine cause and effect.

Found effects of financial literacy in previous research diminish when one controls for psychological traits that were not taken into account in prior research (propensity to plan, confidence in information search, and willingness to take investment risks) or when one uses an instrument for financial literacy to control for these variables. The authors suggest that future education should teach soft skills – such as the propensity to plan and the confidence to be proactive – more than content knowledge about compound interest, bonds, and so on.

In addition, as with many other areas of scholarship, what a person learns through financial education may be forgotten over time; even large interventions with many hours of instruction have negligible effects on behaviour 20 months or more from the time of intervention. Content knowledge may be better conveyed via 'just-in-time' financial education tied to a particular decision, enhancing perceived relevance and minimising the amount of information lost. There must be some immediate opportunity to enact and put knowledge to use, or it may well be forgotten. The authors suggest a real but narrower role for 'just-in-time' financial education tied to the specific behaviours it is intended to help. Moreover, without a ready expected use in the near future, any motivation to learn and to elaborate may suffer.

Hensley (2015) discusses some implications of the meta-analysis by Fernandes et al (2014) for practice and suggests the following, based on the conclusions of the MA:

- 1 Length and timing of education matters: Programme goals, instructional tools and course topics should link to decisions that learners are readily able to make. They should have access to programme materials, for example via a website, to enable them to access and use course content at opportune moments, including after the course concludes. As with timely instruction, relevant subject matter is essential.
- 2 The link between financial behaviour and financial literacy is not sufficiently robust: the effect of financial education on behaviour is very small. Incorporating behaviour change theories into financial education programmes may help increase the effectiveness of such programmes. Educators should exhibit high levels of understanding – both in terms of content and pedagogy – of personal finance topics. Well-trained educators and counsellors need strong content and effective programmes (for example, using classroom activities, topical examples and assignments) that are created in conjunction with content experts (for example, insurance agents and financial planners). All instructional materials should include accurate and up-to-date information, be guided by thoughtful learning outcomes, use clearly articulated objectives that are age appropriate, and be tested to be effective by external evaluators.
- 3 Analysis, protocol and assessments need improvement: The improvement in measurement needs to be embraced by both researchers and practitioners who evaluate their programmes. Continuously seeking information on the impact of a programme or educational session is imperative.

In addition, some single studies not included in the meta-analysis confirm its findings and provide further suggestions for the development of financial education programmes.

In a longitudinal randomised controlled study, Postmus et al (2015, level A) analysed the effects of financial education on financial wellbeing and behaviour among 195 survivors of domestic violence. All participants contributed to the study on four occasions over a period of time. The analyses showed that the treatment group had an average improvement of between a half point to over a full point on self-reported financial knowledge, financial intentions and financial behaviour, and a decrease in financial strain. Moreover, the impact of the curriculum persisted over time (medium to large effect). The modules offered included the following subjects: (1) understanding financial abuse, (2) learning financial fundamentals, (3) mastering credit basics, (4) building financial foundations, and (5) creating budget strategies.

Prawitz and Cohart (2014, level B) examined changes in financial behaviour following employee-needs-driven workplace financial education of a sample of nearly 1,000 employees of a large US publishing company, including a control group. As a result of this training, the frequency of negative financial behaviours decreased, with those who participated in the financial education showing larger decreases than non-participants – they were almost twice as likely to budget and undergo an asset-allocation assessment and over 1.5 times more likely to increase retirement contributions (level B). Those involved in the training also demonstrated improved savings ratios. Financial wellness on the other hand increased overall for employees from pre-test to post-test, but the groups improved in the same way.

2 Credit counselling and debt management programmes can have a positive effect on financial wellbeing (level B/D)

Kim et al (2003) looked into the effect of participating in a credit counselling and debt management programme on perceived financial wellbeing and health in the US. Data was collected on two occasions in a study with 175 participants. Credit counselling and debt management programmes directly affected financial stressor events in a helpful way (medium

effect) and indirectly affected the perceived financial wellbeing and health of the participants after 18 months. The results provided some evidence of the effectiveness of credit counselling in improving financial and health variables (level B).

A cross-sectional study by O'Neill et al (2005, 2006), using a sample of over 3,000 debt management programme clients in the US, showed signs that clients who were on a debt management programme receiving credit counselling had better health outcomes over time with a lower incidence of negative financial events (level C, D). Respondents who reported having improved health since participating in credit counselling were more likely than others to engage in positive financial behaviours. Respondents who reported improved health were more likely to say that the following six financial behaviours had also improved: overall finances; debts (reduced or paid off); amount of help received from a debt management programme; salary or wages (increased); job situation (better-paying position found); and their partner's salary/wages (increased; level D, O'Neill et al 2005, small effect). Self-reported health status improved for consumers two years after their initial contact with a credit counselling agency. In addition, self-reported health status was positively associated with higher scores on the PFW scale, indicating lower financial distress and higher financial wellbeing (level D, O'Neill et al 2005).

Mende and Van Doorn (2015, level C) investigated the effectiveness of financial counselling. The authors conclude in their longitudinal research (among 115 clients of US financial counselling agencies) that consumers' co-production of financial counselling services is important in increasing their credit scores and in decreasing their financial stress. Drawing on self-determination theory, this study shows that financial literacy, consumer involvement and attachment styles are drivers of co-production (small to medium effect). Involvement plays a moderating role, such that higher involvement compensates for lower levels of financial literacy and mitigates the negative effects of attachment avoidance on co-production. The authors suggest that financial counsellors should track their customers' objective and subjective financial literacy, involvement, and attachment styles, then segment customers and, finally, tailor the service provision accordingly, to leverage co-production as the pathway to consumers' financial wellbeing. From a public policy perspective, the findings suggest that efforts to improve consumer financial literacy are important but should be supplemented with programmes designed to increase consumer involvement in financial counselling; this combination promises to foster co-production and improve consumers' financial wellbeing.

In a controlled study, Collins and Nafziger (2019, level C) explored the effects of financial counselling in a temporary public workforce development programme. Low-income workers exiting welfare assistance received financial counselling. After 12 months, there was a marginal decline in collections balances. The authors suggest that people living at or below poverty levels of income may need more intensive financial support services than counselling can provide. The study also illustrates the challenge of engaging participants in financial capability services as only a third of the eligible workers participated in the programme.

3 Employee financial wellness programmes (EFWP) can have a positive effect on financial wellbeing (level D)

An increasing number of companies offer their employees a financial wellness programme. A large survey of 16,650 low- and moderate-income workers in the US revealed that 11–15% of employers offered financial coaching, online financial management tools, pay advances or short-term loans, or credit counselling (Despard et al 2020). Employers express various reasons for offering EFWPs but are mainly concerned with helping employees, boosting employee performance, retaining employees, and adding value to benefits (Frank-Miller et al 2019). Programmes can vary from offering a single product to a wide range of employee benefits, aiming

to support employees who may struggle financially or help them prepare for a financially sound future.

There is limited research available on the effectiveness of such programmes. Two case studies on the implementation of employee financial wellness programmes report positive results. Meredith Corporation in the US integrated financial wellness into the overall health and wellness programme in 2010 (Drake et al 2019). Part of the programme is financial education, including discussion of the use and availability of employee benefits. Since the implementation of the programme, the Personal Financial Wellness Scale score increased from 6.0 to 7.3. Additional improvements reported include a reduction of high financial stress and high cash flow stress, increased use of 401(k) pension plans and health plans, and improved scores on family relations. Similar results were found at Prudential, which offered additional financial services to employees in 2009 due to the recession and the impact on its employees (Winick 2019). The percentage of employees who report experiencing financial problems in the last year dropped from 31% to 15%.

Employees in a large survey report the following benefits of EFWP: feeling better about being an employee of one's organisation or company, feeling better about coming to work, and concentrating more on the job (Despard et al 2020).

Utilisation of different types of EFWP seems dependent on variables such as income, employer size, experiencing financial difficulties, financial shocks, material hardship, confidentiality and the support from management or a champion (Despard et al 2020; Frank-Miller et al 2019, 2020). For financial wellness programmes to be successful, it seems therefore important to understand employees' specific situations and include different products, services, and benefits to be able to meet the needs of individual employees and increase utilisation.

In addition to the interventions listed above, a search was conducted for scientific studies on the effect of salary advance schemes, furlough pay, and changing pay frequency. Unfortunately, this search yielded no empirical studies supporting or refuting the effectiveness of these interventions. Although some studies suggest that such inventions may be beneficial for employees experiencing financial distress, we must conclude that, at this moment, the evidence base of these interventions is merely experiential and/or anecdotal. However, given the increasing interest and widespread application of these interventions, it is expected that more rigorous evidence may become available in the near future.

It should be noted, however, that millions of employees work full-time, year round, for poverty-level wages. As such they have limited access to health insurance, lack economic security, and have insufficient resources for personal and family health – factors that have been associated with negative health outcomes such as hypertension, cardiac disease, major depression, and substance abuse. Consequently, paying employees a 'fair' wage should be the first intervention to reduce financial distress and improve employees' wellbeing. Further discussions from a practitioner's point of view can be found in the practice report.

Question 5: What is known about measuring (causes of) financial distress?

Studies included in this REA measure the different parts of the financial wellness model as represented in Figure 1. Just as the terms are sometimes used interchangeably, so are some of the measures. As not all individuals react in the same way to financial difficulties, researchers recommend that objective measures of income be complemented by measures of subjective perceptions of financial resources and satisfaction with financial status (Chan et al 2012; Prawitz et al 2006; Sinclair and Cheung 2016). Below is an overview of measures used in studies included in this REA. In addition, Sinclair and Cheung (2016) address conceptual and measurement issues in the study of objective and subjective aspects of financial stress and review several assessment options available to occupational health psychology researchers for both aspects of financial stress.

1 Measuring financial stress/financial wellbeing

As mentioned before, (perceived) financial distress/financial wellbeing is mostly measured by the use of a scale measuring a 'continuum extending from negative to positive feelings about, and reactions to, the financial condition' (for example, Prawitz et al 2006). Most authors see financial wellbeing or wellness as a continuum, where low wellbeing represents high distress.

Prawitz et al (2006) developed the InCharge Financial Distress/Financial Wellbeing Scale, now called the Personal Financial Wellness Scale, to measure perceived financial wellbeing. The scale consists of eight questions, as shown below.

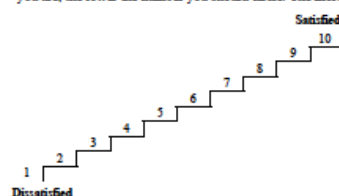
InCharge Financial Distress/Financial Well-Being Scale®

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			High Stress		Low Stress		No Stress at All		

The scale is frequently used and/or adapted in other articles included in this REA, such as Gerrans et al (2014), Mende and Van Doorn (2015), Nielsen (2010) and Ruberton et al (2016).

Some other examples of other measures of financial stress/financial wellbeing are:

Arber, Fenn and Meadows (2014)

(i) Households' 'ability to make ends meet'. Respondents were asked, 'Thinking of your household's total monthly or weekly income, is your household able to make ends meet, that is, pay your usual expenses... with great difficulty, with difficulty, with some difficulty, fairly easily, easily, or very easily?'

(ii) The question asked, 'Looking at this card, can I check whether your household could afford the following: To pay for a week's annual holiday away from home? To eat meat, chicken, or fish (or vegetarian equivalent) every second day? To pay an unexpected, but necessary, expense of £500? To keep your home adequately warm?'

Baek and DeVaney (2004)

'Compared with other people of my/our generation and background, I/we have been lucky in my/our financial affairs.'

Barnard (2016)

Debt manageability, planning towards retirement, and financial planning behaviour.

Bridges and Disney (2010)

'Taking everything together, which of these phrases best describes how you and your family are managing financially these days?' There then follows a spectrum of potential responses from 'manage very well' through to 'are in deep financial trouble'.

Kim, Garman and Sorhaindo (2003)

It was measured with four items: 'satisfaction with personal financial situation', 'perceived financial wellness', 'feeling about current financial situation', and 'level of stress about personal finance'.

Kim, Sorhaindo and Garman (2006)

'What do you feel is the level of your financial stress today?'

Norvilitis, Szablicki and Wilson (2003)

Development of scale:

- 1 I am uncomfortable with the amount of debt I am in.
- 2 I worry about repaying my student loans.
- 3 I worry about repaying my credit cards.
- 4 I think I am in good financial shape.
- 5 I think a lot about the debt I am in.
- 6 I have had arguments with others (parents, friends, significant others) about my level of spending.
- 7 Five years from now, I will not be in credit card debt.
- 8 One year from now, I will not be in credit card debt.

O'Neill, Sorhaindo, Xiao and Garman (2005)

'What do you feel is the level of your financial stress today?'

Postmus, Hetling and Hoge (2015)

The Financial Strain Survey (Aldana and Liljenquist 1998) is an 18-item scale that measures different areas of financial strain.

Ruberton, Gladstone and Lyubomirsky (2016)

Adapted from the InCharge Financial Distress/Financial Wellbeing Scale (Prawitz et al 2006), a perceived financial wellbeing measure was developed:

- I often lose sleep worrying about my finances.
- I am confident in my ability to handle an unexpected expenditure up to £500.

Vosloo, Fouché and Barnard (2014)

I am prepared for unexpected expenses that might occur during the month.

Vlaev and Elliott (2014)

'Having enough money left over for non-essentials to live your life', 1–10 scale.

2 Measuring objective status

Baek and DeVaney (2004)

Liquid assets/monthly income ≥ 2.5
Total debts to total assets < 0.5
Investment assets/net worth > 0.25

Rutherford and Fox (2010)

Objective status included five variables: income; total assets; credit card debt; health insurance coverage; and level of education.

3 Measuring financial satisfaction

Brown and Gray (2016)

Financial satisfaction is based on the question, 'I am now going to ask you some questions about how satisfied or dissatisfied you are with some of the things happening in your life... Your financial situation.'

Kim and Garman (2004)

- 1 I am satisfied with my present financial situation.
- 2 My income is enough for me to meet my monthly living expenses.
- 3 I worry about how much money I owe (reverse coded).
- 4 I am satisfied with the amount of money that I am saving and investing for retirement.

O'Neill, Sorhaindo, Xiao and Garman (2005)

Two anchor points, 1=dissatisfied and 10=satisfied, with steps between.

Rutherford and Fox (2010)

Respondents were asked if, compared with their peers, they 'felt lucky' in their financial affairs (Kennickell, 2009).

Vlaev and Elliott (2014)

Satisfaction with overall financial circumstances, 1–7 scale ranging from 'very satisfied' to 'extremely dissatisfied'.

4 Measuring financial behaviour

Britt, Cumbie and Bell (2013)

(a) How often do you/does your household put off buying something you need – such as food, clothing, medical care, or housing – because you don't have money? (b) During the past 12 months, how much difficulty did you/did your household have paying bills? and (c) Thinking about the end of each month over the past 12 months, how much money did you/did your household have left over?

Fernandes, Lynch and Netemeyer (2014)

Saving; planning for retirement; absence of debt; stock ownership and investment decisions; cash flow management; activity in retirement plans; and financial inertia such as choice of default options and payment of unnecessary fees.

Kim, Garman and Sorhaindo (2003)

'Developed a plan for my financial future', 'started or increased my savings', 'reduced some of my personal debts', 'followed a budget or spending plan' and 'cut down on living expenses'.

O'Neill, Sorhaindo, Xiao and Garman (2005)

- 1 Developed a plan.
- 2 Started or increased savings.
- 3 Reduced debts.
- 4 Followed a budget/spending plan.

- 5 Cut down on living expenses.
- 6 Contacted a financial planner.
- 7 Tried to determine retirement needs.

Prawitz and Cohart (2014)

Negative financial behaviours. The four items indicated the incidence of each of the following during the past 12 months: (a) receiving an overdue notice from a creditor, (b) paying one or more bills late, (c) receiving a phone call about a past due bill, and (d) paying rent or mortgage late. The first three items had been adapted from O'Neill et al (2006), and the final item was developed for this study.

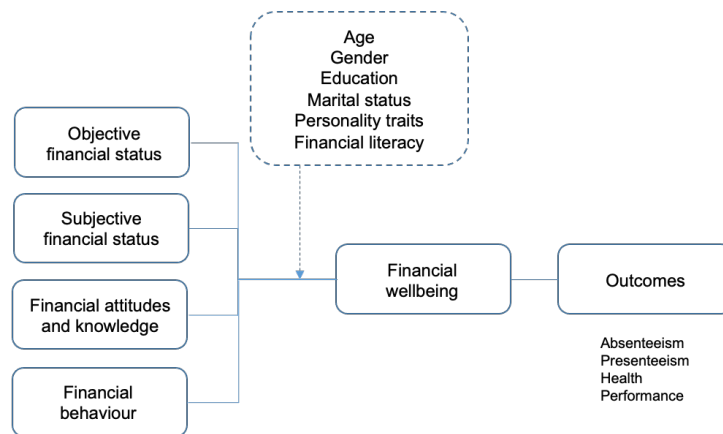
Rutherford and Fox (2010)

Use of credit cards, past payment behaviour, and level of shopping around when making major saving and investment decisions.

Winchester and Huston (2015)

Behaviours that are used as proxies for optimal financial behaviours regarding asset accumulation are (a) being well prepared for retirement, (b) having a retirement savings plan, and (c) adequately contributing towards retirement goals. Financial protection behavioural proxies are (d) having disability income insurance and (e) taking full advantage of employee benefits. Additionally, there are (f) having an adequate emergency fund (three or more months of living expenses) and (g) optimising the use of debt to represent optimal behaviours related to consumption smoothing.

7 Synthesis



Financial wellness has become a highly relevant topic for individuals and organisations alike and numerous studies have been published to shed some light on the topic. After critically appraising and assessing the available empirical studies, we can conclude that the overall quality of the studies included was low to moderate, but that there are quite a number of cross-sectional studies offering some valuable insights.

These studies are mainly based on cross-sectional study designs, so they are not appropriate to determine cause-and-effect relationships. Many of them, however, give some insight into associations between the different parts of this complex multidimensional construct. These studies mainly focus on (one or multiple) separate elements of the financial wellness process, such as financial behaviour or the association between financial wellbeing and absenteeism.

Financial wellness can be seen as the objective as well as the subjective reflection of one's financial situation. Main determinants of financial wellness are the objective status of an individual's finances, financial behaviour, financial satisfaction, and financial wellbeing.

The outcome of this REA suggests that financial wellness is associated with workplace performance and that it is contingent upon a large number of moderators and mediators. Poor financial wellness is associated with higher rates of presenteeism and absenteeism, and lower levels of health.

Differences in financial wellness between individuals finding themselves under the same circumstances can be explained by the influence of mediators and moderators such as age, education, marital status, and personality traits.

To improve financial wellness, the most mentioned remedy is to improve financial literacy by providing financial education. Another way to alleviate financial distress is by offering credit counselling or debt management programmes.

To measure the different aspects of one's financial situation, different measures can be used. Perceived financial wellbeing can be measured using the Personal Financial Wellness Scale (Prawitz et al 2006), for example, the most frequently cited scale in the articles included in this REA. This is a self-reported subjective measure of financial wellbeing, measuring feelings about one's financial situation on a continuum from the lowest level of financial wellbeing to the highest level. A low level of financial wellbeing corresponds to a high degree of financial distress and vice versa.

Often-used measures to determine objective status are income, debt, and assets. Some relevant financial behaviours include saving for retirement, developing a budget or spending plan, and reducing debt.

8 Conclusion

Based on the evidence found, we conclude that financial distress is negatively associated with workplace performance measured by absenteeism, presenteeism and (mental) health. These effects are highly contingent upon a wide range of moderating factors.

9 Limitations

This REA aims to provide a balanced assessment of what is known in the scientific literature about the effects of financial distress on individual work performance by using the systematic review method to search and critically appraise empirical studies. However, in order to be 'rapid', concessions were made in relation to the breadth and depth of the search process, such as the exclusion of unpublished studies, the use of a limited number of databases and a focus on empirical research published in the period 1990–2021 for meta-analyses and the period 2000–2021 for primary studies. In addition, the search for empirical studies was based only on terms such as 'financial wellbeing', 'financial distress', and so on, and related terms such as 'psychological wellbeing' or 'indebtedness' were not included. As a consequence, some relevant studies may have been missed.

A second limitation concerns the critical appraisal of the studies included, which did not incorporate a comprehensive review of the psychometric properties of the tests, scales, and questionnaires used. In addition, it should be noted that most of the studies included used performance ratings as an outcome measure, not actual performance, so the evidence is often indirect.

A third limitation concerns the fact that the evidence on several moderators is based on only one study (findings marked with an asterisk). No single study can be considered to be strong evidence – it is merely indicative.

Given these limitations, care must be taken not to present the findings presented in this REA as conclusive.

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Appendices
Appendix 1
Search terms and hits

ABI/INFORM Global, Business Source Elite, PsycINFO
peer-reviewed, scholarly journals, English, February 2017, updated July 2021

Meta-analyses

Search terms	ABI	BSP	PSY
S1: ti(financ*) AND ti(stress OR distress)	697	851	215
S2: ab(financ* stress) OR ab(financ* distress)	3,971	2,883	1,227
S3: ti(financ*) AND ti(well-being)	138	141	130
S4: ab(financial well-being)	1,191	425	423
S5: ti(financ*) AND ti(wellness)	16	24	18
S6: ab(financial wellness)	112	44	45
S7: S1–S6	5,310	3,539	1,730
S8: S7 AND filter ti(meta-analy*) OR ab(meta-analy*) OR ti("systematic review") OR ab("systematic review")	24	10	21

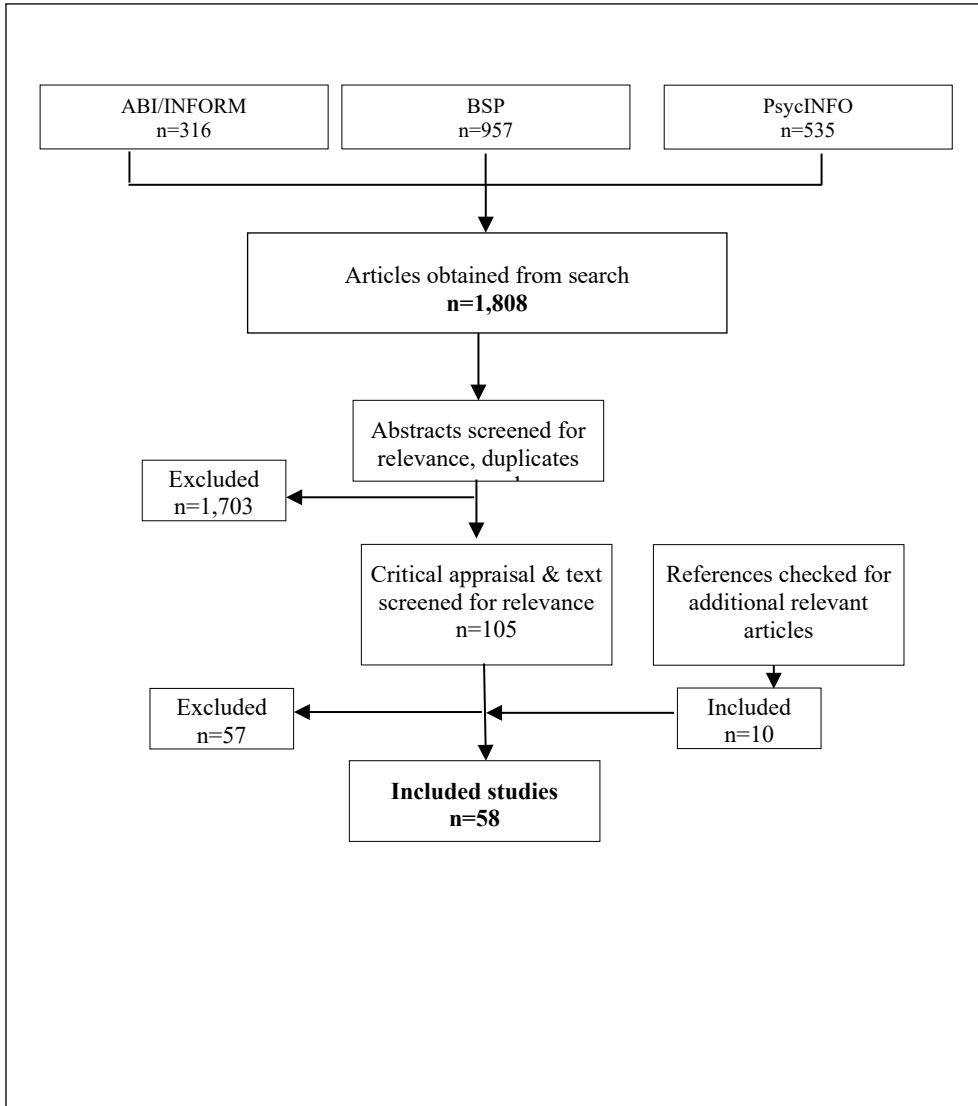
Single studies

Search terms	ABI	BSP	PSY
S9: S1 OR S3 or S5	844	1,013	349
S10: TI(experiment* OR controlled OR longitudinal OR randomized OR quasi) OR AB(experiment* OR "controlled stud*" OR "controlled trial" OR "control group" OR "control variable" OR "comparison group" OR "comparative stud*" OR quasi OR longitudinal OR randomized OR randomly OR laboratory OR "before and after stud*" OR "pretest post*" OR "time series" OR "case control" OR "case cohort" OR "cohort stud*" OR "prospective stud*")	213,010	385,300	590,526
S11: S9 AND S10	55	65	57
S12: ti(measure*) OR ti(scale) OR ti(questionnaire) OR ab(measure*) OR ab(scale) OR ab(questionnaire)	353,726	474,008	1,124,665
S13: S9 AND S12	114 + 84	108 + 111	62 + 56
S14: ab(work*) OR ab(employe*)	437,311	559,069	467,407
S15: S7 AND S14	1,176	543	394
S16: S7 and S14 (filter quantitative studies)	-	-	219
S17: S9 AND S14	123	153	82
S18: ab(financ* well* program*)	-	78	39
Total	316	957	480

August 2021

S19: AB financial wellness OR AB financial wellbeing OR AB financial stress OR AB financial distress OR AB financial satisfaction			55
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Appendix 2: Selection articles



** Based on criteria:

Duplicates	8
Language	3
Off topic	17
Publication date	4
Study design	23
Unavailable	2

Appendix 3: Included articles

Author and year	Design and sample size	Population	Main findings	Effect sizes	Limitations	Level
Allen (2008)	Cross-sectional (secondary analysis of dataset HRA developer) n=17,821	Respondents to HRA (20 countries: 27% Europe, 21% US, 45% Canada), 95% employed.	<p>Models of productivity loss developed from data collected using a health risk appraisal (HRA) were tested.</p> <p>Predictors of financial concerns: Those reporting a greater predisposition toward stress and more environmental stressors posted more financial concerns. Jobs experienced as more stressful than satisfactory predicted more financial concerns. More non-normal work hours was tied to fewer financial concerns. Jobs with minimal stimulation predicted more financial concerns. Jobs involving high physicality predicted fewer financial concerns. Females reported greater financial concerns. Older age registered fewer financial concerns. Being an active employee predicted fewer financial concerns. A European affiliation predicted significantly fewer financial concerns. Being blue-collar was not linked to financial concerns. Employment at a service firm predicted fewer financial concerns.</p> <p>Financial concerns have a small effect on absenteeism and presenteeism.</p>	<p>Predictors of financial concerns: Europe: $\beta = -0.276$ (medium) Other: $-0.011 < \beta > 0.219$ (small) Total effect financial concerns on Absenteeism = 0.14 (small) Presenteeism = 0.13 (small)</p>	Self-report A lot of hypotheses No confidence intervals	D
Annink, Gorgievsky & Den Dulk (2016)	Cross-sectional (secondary analysis of European Social Survey, years 2004 and 2010) n=9,755	Self-employed individuals (31 European countries)	<p>The relationship between financial hardship and subjective wellbeing was investigated. Moderating effects (education, social trust, self-employment rate, unemployment allowances) were taken into account to explain differences at individual and country level.</p> <p>1 Financial hardship relates negatively to self-employed individuals' subjective wellbeing. 2 Having a higher education buffers the relationship between financial hardship and subjective wellbeing. 3 Social trust buffers the relationship between financial hardship and subjective wellbeing. 4 The self-employment rate did not buffer the relationship between financial hardship and subjective wellbeing. 5 Unemployment allowances buffer the effect of financial hardship on subjective wellbeing.</p>	<p>1 B = $-.29$ (small) 2 B = .06 3 B = .02 4 ns 5 B = 0.07 (small)</p>	Limited relevance? No confidence intervals	D

Arber, Fenn & Meadows (2014)	Cross-sectional (Secondary analysis of General Household Survey, 45–64: n=4,639; > 65: n=3,104)	Household members (UK)	<p>1 Both income and subjective financial wellbeing (SFW) are independently associated with health in mid-life; those with lower incomes and greater subjective financial difficulties had higher risk of reporting 'less than good' health.</p> <p>2 In contrast in later life, subjective financial wellbeing was associated with health, but the effect of income on health was mediated entirely through subjective financial wellbeing.</p>	<p>Odds ratios for less than good health:</p> <p><i>1 Mid-life</i> Income lowest quartile 1.46 CI95 1.11–1.90 SFW 2.15 CI95 1.59–2.90 and 1.87 CI95 1.59–2.90</p> <p><i>2 Later life</i> SFW 2.36 CI95 1.68–3.32 and 2.28 CI95 1.74–3.00</p> <p><i>Moderators:</i> Unemployment: 1.93–4.28 Education – no qualifications 1.44–1.58</p>		D
Baek & DeVaney (2004)	Cross-sectional (secondary analysis of 2001 Survey of Consumer Finances) n=2,021	Baby Boomers (US)	<p>Objective and subjective measurement of financial wellness Baby Boomers.</p> <p>20% met the guideline for liquid assets-to-income 74% met the guideline for debt-to-assets 62% met the guideline for investment assets-to-net worth 64% said that compared with others of their generation and background, they were lucky in their financial affairs.</p> <p>Main predictors:</p> <p>1 Liquid assets-to-income: education, always pay off balance, spending less than income 2 Debt-to-assets: income (4th quartile), always pay off balance, spending less than income 3 Investment assets-to-net worth: college degree or higher, income (4th quartile), save regularly 4 Subjective wellbeing: income (4th quartile), homeowner, positive attitude towards credit</p> <p>Overall: income (4th quartile), always pay off balance, spending less than income</p>	<p>Odds ratios</p> <p>1 – 1.7; 4.9; 1.9 2 – 3.0; 3.8; 1.8 3 – 2.3; 7.5; 1.8 4 – 2.6; 2.2; 1.6</p>	No confidence intervals	D
Barnard (2016)	Cross-sectional (secondary analysis of online employee wellness survey) n=7,185	Employees (South Africa?)	<p>The relationship dynamics between sense of coherence (SOC: an orientation to life which facilitates coping and thriving in difficult circumstances), level of income and financial wellbeing was examined.</p> <p>1 There is a positive relationship between SOC and level of income. 2 There is a positive relationship between SOC and financial wellbeing, despite level of income.</p> <p>Predictors for high SOC Healthier perspective with regard to managing their debt, planning for their retirement and their general financial planning.</p>	<p>1 $\eta^2 = 0.019$ (small) 2 $\eta^2 = 0.035$ (small)</p>	No confidence intervals	D
Bernstein, McQuade & Townsend (2018)	Cross-sectional n=166,011	Innovative workers during 2008 crisis (US)	<p>The study investigated how the deterioration of household balance sheets affects worker productivity. Following a negative wealth shock, innovative workers become less productive (in terms of number and quality of patents), particularly with respect to projects that are high impact, complex, or exploratory in nature,</p>	Not reported	Effect sizes unclear	D

			and generate less economic value for their firms. The effects are more pronounced among those with little home equity before the crisis and those with fewer outside labour market opportunities.			
Bridges & Disney (2010)	Cross-sectional (secondary analysis of UK's Families and Children Survey (FACS)) n1=4,659 n2=3,022 n3=8,062 n4=7,657	Families (UK)	A strong association between being in a depressed psychological state and self-reported problems of indebtedness and financial stress is suggested. The positive association between the probability of reporting depression and self-reported problems of indebtedness and financial stress arises irrespective of any underlying 'objective' indicators of the financial position of the household – only a weak link exists between 'objective' measures of the financial position of the household and psychological stress. It appears that much of the observed correlation between self-reported psychological wellbeing on the one hand and financial circumstances on the other is a person-specific effect.	Not reported	Effect sizes?	D
Britt, Cumbie & Bell (2013)	Cross-sectional (secondary analysis of two cohorts of National Longitudinal Survey of Youth (NLSY)) n=937	Students (US)	1 Students with an external locus of control exhibit worse financial behaviours. 2 Male students exhibit better financial behaviours. 3 Students who grew up with wealthier parents exhibit better financial behaviours. It may be more beneficial to target students who naturally would not seek help on their own (ie, those with an external locus of control). Helping students understand that they do have control of their financial future is a great first step in building a strong financial foundation upon graduation.	1 $\beta = -0.20$ (high score = external locus of control) (medium) 2 $\beta = 0.10$ (small) 3 $\beta = 0.18$ (small)	No confidence intervals	D
Brook et al (2013)	Longitudinal study n=551	Probability sample of families residing in 2 upstate New York counties (US)	Adolescent ADHD is related to external stress in the form of high financial stress in adulthood.	Odds ratio 3.33 (95% CI = 1.70–6.55)	Self-report measures	B
Brown & Gray (2016)	Cross-sectional (secondary analysis of 3 waves of Household Income and Labour Dynamics in Australia (HILDA) Survey) n=27,530	Households, 65% employed (Australia)	The importance of the household's financial position (income, total debt, total assets, secured debt, unsecured debt) for an individual's level of wellbeing (life satisfaction, financial satisfaction and subjective prosperity) is explored. 1 The household's level of net wealth, assets and debt are important determinants of overall life satisfaction and financial wellbeing. Other determinants: Compared with being married, never being married, being divorced or being widowed are all inversely related to financial wellbeing. Compared with being employed,	1 Financial satisfaction: Income = .32 (medium) Total assets = .21 (small) Secured debt = -.02 (small) Unsecured debt = -.04 (small) Subjective prosperity: Income = .60 (large) Total assets = .29 (medium) Secured debt = -.02 (small)	No confidence intervals	D

			<p>unemployment is inversely related to financial wellbeing.</p> <p>Higher levels of self-assessed health are associated with higher levels of overall financial wellbeing.</p> <p>For both financial satisfaction and subjective prosperity, the number of people present in the household is inversely related to financial satisfaction and subjective prosperity.</p>	Unsecured debt = $-.03$ (<i>small</i>)		
Brown & Taylor (2014)	Cross-sectional analysis of British Household Panel Survey, BHPS) n=4,225 + 2,915	Households – couples and singles (UK)	<p>We find that certain personality traits such as extraversion are generally significantly associated with household finances in terms of the levels of debt. Our findings suggest that no relationship exists between the different types of financial assets held and personality traits. The results also suggest that the magnitude and statistical significance of the association between personality traits and household finances differs across the various types of debt held in the household portfolio.</p> <p>For example, conscientiousness is negatively associated with all types of unsecured debt (except for hire purchase in single households). Extraversion, agreeableness, neuroticism and openness to experience are mostly positively associated with all types of unsecured debt (see Table 3 in article for exceptions).</p>	<p><i>Medium</i></p> <p>See article for specific correlations (Table 3)</p>		D
Callen, Lindley & Niederhauser (2013)	Cross-sectional n=1,728	Employees of US government security complex	<p>The health risks associated with presenteeism were examined. Stress was related to presenteeism, other health risks were unrelated to presenteeism.</p>	<p>Workplace stress: $\beta = .76$ CI95 $.32-1.19$ (<i>medium</i>)</p> <p>Stress at home: $\beta = .87$ CI95 $.44-1.29$ (<i>large</i>)</p> <p>Financial stress: $\beta = .59$ CI95 $.35-.84$ (<i>medium</i>)</p>	Self-report Sample of volunteers	D
Collins & Nafziger (2019)	Non-randomised controlled study n=472	Low-income people exiting welfare assistance (US)	<p>Study explored effects of offer of financial counselling in a temporary public workforce development programme. Participants reduced the amount of debt they had in collections. No other statistically significant effect on financial behaviour or wellbeing was found. People living at or below poverty levels of income may need more intensive financial support services than counselling can provide. The study also illustrates the challenge of engaging participants in financial capability services (only a third participated).</p>	<p>After 12 months approximately a 131% marginal decline in collections balances.</p>	Low participation rate, lower response rates at follow-up surveys (54% of initial population at T3)	C
Despard et al (2020)	Cross-sectional n=16,650	Low and moderate income (LMI) workers (US)	<p>Study examined the availability and use of four types of employee financial wellness programmes (EFWP): financial coaching, online financial management tools, pay advances or short-term loans, and credit counselling.</p> <p>1 Most respondents were aware of whether their employer offered an EFWP product or service such as financial coaching (61–63%). The smaller the company, the more likely employees were aware of the product or service.</p>	<p>1 – 61–63%</p> <p>2 – 11–15%</p> <p>3 – 18% credit counselling around a third financial coaching, online financial management tools or pay advances or short-term loans</p> <p>4 – (a) 47%, (b) 31%, (c) 30%</p>	Self-report perception Only LMI in sample	D

			<p>2 Overall availability of EFWP services was low.</p> <p>3 Utilisation rates varied.</p> <p>4 Cited benefits of using EFWP products: (a) feeling better about being an employee of one's organisation or company, (b) feeling better about coming to work and (c) concentrating more on the job.</p> <p>Employer size is associated with awareness and utilisation. The smaller the company, the more likely employees were aware and making use of the product or service.</p> <p>Experiencing financial difficulties predicted both EFWP awareness and use: financial shocks predicted use of financial coaching while material hardship predicted use of pay advances and emergency loans.</p>			
Drake, O'Neil & Hoffmire (2019)	Case study	Meredith Corporation	<p>Meredith Corporation offers a financial wellness programme to their employees. Progress is being measured using the Personal Financial Wellness Scale, supplemented with a financial wellness assessment. Financial wellness is integrated into the overall health and wellness programme. Part of the programme is employee benefits education, where during financial workshops on a topic the company's benefits are discussed, and an online portal containing animated videos on the benefits.</p>	<p>Aggregate PFW score increased from 6.0 to 7.3</p> <p>High financial distress reduced from 22% to 6%</p> <p>High cash flow stress reduced from 41% to 15%</p> <p>401(k) participation increased from 85% to 94%</p> <p>High-deductible health plan enrolment increased from 8% to 51%</p> <p>Family relationships reported as 'excellent' improved from 18% to 47%</p>	Description of implementation of financial wellness programme	D
Fernandes, Lynch & Netemeyer (2014)	MA k=201	Adults	<p>1 Interventions to improve financial literacy explain only 0.1% of the variance in financial behaviours studied, with weaker effects in low-income samples. Correlational studies find stronger associations with financial behaviours (especially for saving for retirement and level of debt).</p> <p>Partial effects of financial literacy diminish when one controls for psychological traits that have been omitted in prior research (propensity to plan, confidence in information search, and willingness to take investment risks). Perhaps future education should teach soft skills like propensity to plan, confidence to be proactive, and willingness to take investment risks more than content knowledge about compound interest, bonds, etc.</p> <p>Financial education decays over time. Content knowledge may be better conveyed via 'just in time' financial education tied to a particular decision, enhancing perceived relevance and minimising forgetting. There must be some immediate opportunity to enact and put to</p>	<p>1 Financial education interventions on financial behaviour: $r^2 = .0011$ (<i>small</i>) $r = .032$ CI95 .029-.035 (<i>small</i>)</p> <p>Measured financial literacy effect size $r^2 = .0179$ (<i>small</i>) $r = .134$ CI95 .130-.138 (<i>medium</i>)</p> <p>See article for more effect sizes.</p>	Substantial number of included studies are cross-sectional designs	A

			use knowledge or it will decay. We suggest a real but narrower role for 'just in time' financial education tied to specific behaviours it intends to help.			
Frank-Miller et al (2019)	Cross-sectional (n=93 employers), interviews (24), and case studies (6)	Low and moderate income (LMI) workers (US)	<p>Study examined employers' motivations for offering EFWPs, implementation experiences, and perceptions of programme utilisation and employee outcomes.</p> <p>1 Most employers offered EFWPs. A greater proportion of large employers offered EFWPs compared with smaller employers.</p> <p>2 Different types of EFWP service are offered.</p> <p>3 Perceived benefits for employees (% respondents feeling that employees are better off).</p> <p>4 The EFWPs that employers viewed as most effective at helping employees improve their financial wellness included financial coaching, credit-building counselling, small-dollar payroll loans, and emergency funds.</p> <p>5 Implementation themes: a champion is essential, managers make a difference, confidentiality affects take-up, accommodate language needs and work schedules, utilisation measured but not satisfaction or impact.</p>	<p>1 65%</p> <p>2 See Table 2. Direct deposit 83%, split deposit 71%, financial coaching (tele/online) 71%, financial education 64%, short-term loans 22%, payroll advance 17%</p> <p>3 Company loyalty (53%), job satisfaction (45%), productivity (41%), financial stress (31%), absenteeism (17%)</p>		D
Frank-Miller et al (2020)	Qualitative n=3	Caregiving employers (US)	This study examines organisational factors accounting for successful EFWP implementation and take-up (in-person and telephonic financial counselling and in-person credit-building counselling). In-person EFWP promotion and active support from upper management are key factors in programme success.			D
Gardarsdóttir, Dittmar & Aspinall (2009)	Cross-sectional, n1a=145 n1b=139 n2=261	<p>1 Students (1a UK and 1b Iceland)</p> <p>2 Professional employees (UK)</p>	<p>1 We replicated the commonly reported negative association between SWB and the relative financial goals importance (RFGI) in three different populations.</p> <p>2 Motives for happiness (negative) and success (positive) add further to the prediction of individuals' SWB, constituting unique predictors even when positive and negative money motives examined in previous research are taken into account (except for motives for success in 1a).</p> <p>3 Financial goal importance no longer has a negative impact on SWB once the role of psychological motives is taken into account.</p>	<p>1 1a $\beta = -.15$ 1b $\beta = -.20$ 2 $\beta = -.16$ (medium)</p> <p>2 medium – large (>.80)</p> <p>Positive motives – RFGI</p> <p>1a $\beta = ns$ 1b $\beta = .26$</p> <p>2 $\beta = ns$</p> <p>Negative motives – RFGI</p> <p>1a $\beta = ns$ 1b $\beta = ns$ 2 $\beta = ns$</p> <p>Motive for success – RFGI</p> <p>1a $\beta = .50$ 1b $\beta = ns$</p> <p>2 $\beta = .51$</p> <p>Motive for happier self – RFGI</p> <p>1a $\beta = ns$ 1b $\beta = .37$</p> <p>2 $\beta = ns$</p> <p>Positive motives – SWB</p> <p>1a $\beta = .52$ 1b $\beta = .30$</p> <p>2 $\beta = .50$</p> <p>Negative motives – SWB</p> <p>1a $\beta = ns$ 1b $\beta = -.37$ 2 $\beta = -.24$</p>	Sample size Bit off topic (subjective wellbeing in general)	D

				<p>Motive for success – SWB 1a β = ns 1b β = .49 2 β = .63 Motive for happier self – SWB 1a β = -.40 1b β = -.69 2 β = -1.07 3 1a β = -.15 → .01 (ns) 1b β = -.20 → -.08 (ns) 2 β = -.16 → -.12 (ns)</p>		
Gardarsdóttir & Dittmar (2012)	Cross-sectional n1=271 n2=191	S1: Full-time employees S2: Adults (Iceland)	<p>S1 1 Higher levels of materialism predict a greater tendency to spend. 2 Materialism is related to higher levels of compulsive buying. 3 People higher in materialism report greater financial worry. 4 Materialists report lower money management skills. 5 Materialism is uniquely and independently associated with financial worry, compulsive buying and spending tendencies even after money management skills are controlled for. S2 6 Higher materialists report higher debt. 7 People with high levels of materialism and low wellbeing levels were not more likely to engage in buying behaviour motivated to enhance mood.</p>	<p>1 β = .21 (medium) 2 1 β = .44 2 β = .39 (medium) 3 1 β = .24 2 β = .21 (medium) 4 1 β = -.22 2 β = -.25 (medium) 5 β = .21-.44 (medium) 6 β = .21 (medium) 7 –</p>		D
Garman et al (1999)	Cross-sectional n=178	Employees of chemical production company (US)	<p>Most participants of financial workshop took more positive actions to improve their financial wellbeing, such as setting money aside for savings and retirement, paying off credit card bills and less often reaching maximum limit on credit card than non-participants. Participants scored higher on financial satisfaction and financial wellness.</p>	Not reported	Included in MA Fernandes Non-validated questionnaire Sample	E
Gerrans, Speelman & Campitelli (2014)	Cross-sectional n=505	Adults (Australia)	<p>The construct of financial wellness and its relationship to personal wellbeing, with a focus on the role of financial literacy, is examined.</p> <p>Males ranked higher in financial satisfaction and financial knowledge whereas females ranked higher in personal wellbeing. Joo's (2008) concept of financial wellness as multidimensional is supported, though the result is improved when a causal model of sub-components is estimated. The relationship of all variables to personal wellbeing is mediated by financial satisfaction, with gender differences: in females the main source of financial satisfaction is financial status, whereas in males it is financial knowledge.</p> <p>Prawitz measure Table 1 nice overview of terms, Figure 1 model of financial wellness</p>	<p>R2 (sequential model) male = .26, female = .33 (large) R2 (Joo's model) male = .084, female = .164 (medium)</p>		D

Gianetti, Madia & Moretti (2014)	Cross-sectional (secondary analysis of 3 waves Survey on Household Income and Wealth (SHIW) n=19,551 + 19,907 + 19,836	Italian households	This paper investigates the effects of different job categories on households' likelihood of experiencing financial distress. Households' abilities to deal with financial decisions (ie financial literacy) can mitigate these problems. Our results suggest that greater job insecurity increases the probability of being in financial distress similarly than other working statuses (eg unemployment), and in some cases even more (ie part-time workers). However, a high level of financial literacy can counterbalance this effect, especially for atypical workers.	Odds ratio financial distress: Age: 0.9990 Divorced: 1.0539 Education: 0.9684 Family size: 1.0310 Family income holders: 0.9445 House property: 0.9226 Debts: 1.0495 Log income: 0.9883 Self-employed: 0.9269 Bank account savings: 0.8978 Fin. constraint: 1.1461 Part-time: 1.0444 Literacy: 0.9728 Insecure family: 1.0457 Unemployed family: 1.0506		D
Giarda (2013)	Cross-sectional (longitudinal component of Bank of Italy Survey on Household Income and Wealth 1998–2006) n=1,076 NT=5,380	Italian households	<p>1 This paper analysed the determinants of financial distress amongst Italian households and its persistence over time. There is evidence of true state dependence, that is, the probability of experiencing financial distress at time t positively depends upon the probability of having experienced financial fragility at time t-1.</p> <p>2 In relation to the variables that explain financial hardship, the estimates show that the probability of financial vulnerability decreases with income and greater sophistication of the household portfolio, and increases in areas of high unemployment. Education contributes negatively to financial distress: higher levels of education are associated with a lower probability of financial distress. We also found evidence that being a homeowner reduces the probability of financial distress, while being indebted increases it. Finally there is weak evidence of gender effects.</p>	<p>1 – 0.951 (large)</p> <p>2 – $\rho = 0.212$ (medium)</p> <p>(See tables in article for more effect sizes.)</p>		C
Grable & Joo (2006)	Cross-sectional (financial workshop and counselling participants) n=110	College students (US)	<p>1 African-American students held more credit card debt than other students.</p> <p>2 African-American students exhibited worse financial behaviours than non-Hispanic white students.</p> <p>3 A student's credit card debt level was directly related to their self-assessed financial stress level. African-American students were found to have a higher level of self-reported financial stress than others.</p> <p>Credit card debt is positively related to negative financial behaviours and financial stress.</p>	<p>1 Not mentioned</p> <p>2 Financial behaviour affected by: race $\beta = .331$ (medium); subjective financial knowledge $\beta = .322$ (medium); credit card debt $\beta = .438$ (medium). R2= .360 (large)</p> <p>3 Financial stress affected by: race $\beta = .328$ (medium); credit card debt $\beta = .279$ (medium). R2=.211 (medium)</p>	No confidence intervals Sample	D

Hensley (2015)	Literature review	N/A	Discusses implications of Fernandes (2014) for practice based on conclusions of the meta-analysis: (1) Length and timing of educations matter: programme goals, instructional tools, and course topics should link to decisions that learners are readily able to make. Learners should have access to programme materials, such as a website, to allow the opportunity for utilisation of content and exercises at times that are opportune and after the course concludes. As with timely instruction, relevant subject matter is essential. (2) The link between behaviour and literacy is not sufficiently robust: infuse behaviour change theories into financial education programmes. Fundamentally, educators should exhibit high levels of understanding – both with the content and the pedagogy – of personal finance topics. Well-trained educators and counsellors need strong content and effective programmes (eg classroom activities, topical examples, and assignments) that are created with the consultation of content experts (eg insurance agents and financial planners). The resources should be appropriate for the audience for whom the class/workshop/counselling session is being implemented (Forte et al 2014). For example, all instructional materials should include accurate and up-to-date information, be guided by thoughtful learning outcomes, use clearly articulated objectives that are age appropriate, and be tested to be effective by external evaluators. (3) Analysis, protocol, and assessments need improvement: the improvement in measurement needs to be embraced by both researchers and practitioners who evaluate their programmes. Continuously seeking information on the impact of a programme or educational session is imperative.	N/A	Literature review	E
Kim & Garman (2003)	Cross-sectional n=262	White-collar workers – insurance company (US)	<p>1 Individual variables (gender, age, education, and household income) affect financial stress, health and absenteeism.</p> <p>2 Financial stress affects organisational commitment, health, and absenteeism.</p> <p>3 Organisational commitment and health affect absenteeism.</p>	<p><i>Small to medium</i> 1 Financial stress: Gender B=.18 (higher for females) and income B=-.35 Health: Age .19 Absenteeism: Income .17 2 Organisational commitment -.21 Absenteeism .17 Health -.13 (ns) 3 Organisational commitment .10 (ns) Health -.28</p>	Sample size	D
Kim & Garman (2004)	Cross-sectional n=262	White-collar workers – insurance company (US)	Relationships were found between workers' financial stress and three variables: pay satisfaction, work time use and absenteeism. Those who were in the high financial stress group had lower levels of pay satisfaction. Those who were in the high financial stress group spent more time	<p><i>Small to medium</i> <i>Work years and financial stress was related to pay satisfaction</i> ($\beta=-0.142$, $\beta = 0.231$; $R^2 = .061$ for</p>	Sample size	D

			<p>handling financial matters at work. High financial stress group workers were more frequently absent from their work.</p>	<p><i>family size, education, work years, age, household income, health, financial stress).</i></p> <p><i>Financial stress was related to work time use ($\beta=0.212$; $R^2 = .255$ for family size, education, work years, age, household income, health, financial stress).</i></p> <p><i>Education and financial stress was related to pay satisfaction ($\beta=-0.254$, $\beta=0.163$; $R^2 = .109$ for family size, education, work years, age, household income, health, financial stress).</i></p>		
<p>Kim, Garman & Sorhaindo (2003)</p>	<p>CBA (2000 & 2002) n=175</p>	<p>Participants in debt management programme – 82% working (US)</p>	<p>Effects of participation in a credit counselling and debt management programme on improving perceived financial wellbeing and health is investigated.</p> <p>1 Individual characteristics, credit counselling and financial behaviours – pre influence financial behaviours – post.</p> <p>2 Individual characteristics, financial stressor events – pre, and credit counselling influence financial stressor events – post.</p> <p>3 Financial wellbeing is influenced by individual characteristics, financial behaviours – pre, financial stressor events – pre, and credit counselling.</p> <p>4 Health is influenced by individual characteristics, financial behaviours – pre, financial stressor events – pre, financial wellbeing, and credit counselling.</p> <p>Financial behaviours: developed a plan for my financial future; started or increased my savings; reduced some of my personal debts; followed a budget or spending plan; and cut down on living expenses. Perceived financial wellbeing: satisfaction with personal financial situation; perceived financial wellness; feeling about current financial situation; and level of stress about personal finance.</p>	<p>1 Age $\beta = .168$ (<i>small</i>)</p> <p>Financial behaviours – pre $\beta = .230$ (<i>medium</i>) ($R^2 = .109$ for Income, age, financial behaviours – pre, and credit counselling – <i>medium</i>)</p> <p>2 Financial stressor – pre $\beta = .361$ (<i>medium</i>)</p> <p>Credit counselling $\beta = -.232$ (<i>medium</i>) ($R^2 = .295$ for Income, age, financial stressor events – pre, and credit counselling – <i>large</i>)</p> <p>3 Financial stressor events $\beta = -.483$</p> <p>Financial behaviours $\beta = .276$ (<i>medium</i>) ($R^2 = .334$ for Income, age, financial stressor events, financial behaviours, and CC – <i>large</i>)</p> <p>4 Financial wellbeing $\beta = .359$ (<i>medium</i>)</p> <p>Financial stressor events $\beta = -.192$ (<i>small</i>) ($R^2 = .273$ for Income, age, financial behaviours, financial stressor events, financial wellbeing and CC – <i>medium</i>)</p>	<p>Included in MA Fernandes Sample size</p>	<p>B</p>

<p>Kim, Sorhaindo & Garman (2006)</p>	<p>Cross-sectional n=2,372</p>	<p>Employed credit counselling clients participating in debt management programme (US)</p>	<p>1 Individual characteristics such as age, gender (females more likely), marital status, and health status affect individuals' absenteeism, but not household income and debt. 2 Financial stress will affect individuals' absenteeism. 3 Satisfaction with family relations and work life will affect individuals' absenteeism.</p> <p>Clients with high levels of financial stress are more likely to experience higher levels of absenteeism, thus spending work hours handling personal finances, which decreases the time they are at work. Females were more likely to be absent from work and reported more days that they were totally unable to work than male workers. The results suggest some insight into providing financial education and assistance for employees with financial strains as productivity loss might influence their pay.</p>	<p><i>Small to medium</i> 1 Age ($\beta=-.157$), gender ($\beta=.256$), marital status ($\beta=-.224$), health ($\beta=-.301$) and work life ($\beta=-.140$) was related to absences ($R^2=.038$) 2 Days partially unable to work: financial stress ($\beta=-.077$) Work time use: financial stress ($\beta=-.130$) 3 Days totally unable to work: family relations ($\beta=-.167$), work life ($\beta=-.180$) Days partially unable to work: family relations ($\beta=-.171$), work life ($\beta=-.313$) Work time used: family relations ($\beta=-.230$), work life ($\beta=-.177$)</p>		<p>D</p>
<p>Mende & Van Doorn (2014)</p>	<p>Non-controlled BA (March 2012, December 2012) n=115</p>	<p>Clients of financial counselling agencies (US)</p>	<p>Effectiveness of financial counselling is investigated. 1 Consumer (a) objective financial literacy and (b) subjective financial literacy are positively related to co-production. 2 The positive effect of objective financial literacy on co-production did not become stronger with higher levels of subjective financial literacy. 3 Consumer involvement is positively related to co-production. 4 The positive effect of consumer (a) objective financial literacy and (b) subjective financial literacy on co-production becomes smaller with higher levels of consumer involvement. 5 (a) Customer attachment anxiety does not relate to co-production. (b) Customer attachment avoidance toward the service provider is negatively related to co-production. 6 (a) The negative effect of attachment anxiety on co-production wasn't associated with higher levels of consumer involvement. (b) The negative effect of attachment avoidance on co-production decreases with higher levels of consumer involvement. 7 Co-production is positively related to objective financial wellbeing. 8 The effect of co-production on consumer subjective financial wellbeing is mediated by the change in objective financial wellbeing. 9 The level of co-production is higher for (a) older respondents and for respondents with more frequent monthly interactions with their counsellors.</p>	<p>1a $\beta = 1.030$ (<i>large</i>) 1b $\beta = .461$ (<i>medium</i>) 3 $\beta = .631$ (<i>medium</i>) 4a $\beta = -.153$ (<i>small</i>) 4b $\beta = -.078$ (<i>small</i>) 5b $\beta = -.568$ (<i>medium</i>) 6b $\beta = .071$ (<i>small</i>) 7 $\beta = .032$ (<i>small</i>) 8 $\beta = -.144$ (<i>small</i>) 9a $\beta = .128$ (<i>small</i>) 9b $\beta = .137$ (<i>small</i>)</p>	<p>Small sample</p>	<p>C</p>

			<i>Use of Prawitz 2006 scale</i>			
Merrill et al (2012)	Cross-sectional n=19,803	Employees in three companies (US)	<p>1 Work-related factors had the greatest influence on presenteeism (eg too much to do but not enough time to do it, insufficient technological support/resources). Personal problems and financial stress/concerns also contributed substantially to presenteeism.</p> <p>2 Presenteeism was greatest for those ages 30–49, women, separated/divorced/widowed employees, and those with a high school degree or some college. Clerical or office, service, and transportation are occupations with the highest level of presenteeism.</p>	<p>1 40% trouble concentrating due to financial stress. Highest prevalence in age 18–49, Separated/divorced/widowed, high school, some college, postgraduate work or degree, business owner, clerical or office, service.</p> <p>2 Prevalence ratios poorest 20%: Age: 30–39 = 1.25 (95% CI 1.13, 1.38); Women = 1.18 (95% CI 1.11, 1.26); Some college 1.20 (CI95 1.09–1.33); Separated/divorced/widowed = 1.19 (95% CI 1.08, 1.32); Clerical or office = 1.19 (95% CI 1.07, 1.32); Service = 1.30 (95% CI 1.12, 1.52).</p>		D
Miller, Chen & Zhou (2007)	MA (k=107) n=8,521	Individuals facing chronic stress (eg due to combat/war, abuse/assault, death or loss, job loss).	Chronic stress has the capacity to increase or decrease HPA activity, and the pattern one sees depends on features of the stress and the person facing it. Timing is an especially critical element, as hormonal activity is elevated at stressor onset but reduces as time passes. HPA activity is shaped by a person's response to the situation; it increases with subjective distress but is lower in persons with post-traumatic stress disorder. The pattern suggests that subjective distress is associated with a dysregulated (flat, high) pattern of cortisol secretion.	The results indicate that exposure to chronic stress is associated with significantly lower concentrations of morning cortisol ($d = -0.08$, 95% CI -0.14 , -0.03 , <i>small</i>), and more pronounced suppression of cortisol following dexamethasone challenge ($d = -0.23$ 95% CI -0.40 , -0.07 , <i>medium</i>). It is also associated with greater concentrations of afternoon/evening cortisol ($d = 0.18$ 95% CI 0.09 , 0.26 , <i>small</i>), a flatter diurnal rhythm ($d = 0.39$ 95% CI 0.18 , 0.60 , <i>medium</i>), and a higher daily volume of cortisol output ($d = 0.31$ 95% CI 0.20 , 0.41 , <i>medium</i>).	Design included studies?	A
Netemeyer et al (2018)	1 Cross-sectional n=619	1 US adults 2 US adults 3 US MTurk employees	Perceived financial wellbeing is conceptualised as two related, but separate constructs: (1) stress related to the management of money today (current	1 small Table 4 2 small Table 2		C

	2 Cross-sectional n=554 3a and b Randomised controlled experiment n=106		<p>money management stress); and (2) a sense of security in one's financial future (expected future financial security).</p> <p>1 Perceived financial wellbeing is a key predictor of overall wellbeing and comparable in magnitude to the combined effect of other life domains (job satisfaction, physical health assessment, and relationship support satisfaction). 2 The relative importance of current money management stress to overall wellbeing varies by income groups. The effect of current money management stress in the low-income reference group was more negative than in the two higher-income groups. 3 Antecedents of current money management stress. 4 Antecedents of expected future financial security.</p> <p>For low-income consumers, the focus should be on helping reduce debilitating current money management stress. For middle- and high-income consumers, what really matters is a sense of future financial security.</p> <p>Study 3a manipulates current money management stress and study 3b manipulates expected future financial security. In both studies, the manipulation affects the intended perceived financial wellbeing scale and not the other.</p>	<p>3 Late/minimum payment $\beta = .26$ (small) Lack of self-control $\beta = .30$ (small) Materialism $\beta = .22$ (small) 4 Materialism $\beta = .07$ (small) Perceived financial self-efficacy $\beta = .46$ (medium) Positive financial behaviours $\beta = .07$ (small) Willingness to take investment risk $\beta = .12$ (small) Plan for money long-term $\beta = .13$ (small) Current money management stress $\beta = -.15$ (small)</p> <p>More effect sizes in appendices</p>		
Nielsen (2010)	Cross-sectional n=515	Married adults (US)	<p>Validation of Personal Financial Wellness Scale (PFW, Prawitz et al 2006). Confirmatory factor models verified that the scale was robust as both a single and two-construct measure of subjective and objective financial wellness. The modified scale produced low levels of missing data, was not affected by location in the instrument, and exhibited excellent internal reliability under varied assumptions.</p>	Not reported		D
Norvilitis, Szablicki & Wilson (2003)	Cross-sectional n=227	College students (US)	<p>Measure of perceived financial wellbeing was created: I am uncomfortable with the amount of debt I am in. I worry about repaying my student loans. I worry about repaying my credit cards. I think I am in good financial shape. (R) I think a lot about the debt I am in. I have had arguments with others (parents, friends, significant others) about my level of spending. Five years from now, I will not be in credit card debt. (R) One year from now, I will not be in credit card debt. (R). Perceived financial wellbeing appears to be related to psychological wellbeing, a more internal locus of control, and lower levels of dysfunctional impulsivity.</p>	Small to medium		D

<p>Odle-Dusseau, Matthews & Wayne (2019)</p>	<p>Non-controlled before-after study 1 n=80 2 n=331</p>	<p>1 low-wage food manufacturing employees 2 employees</p>	<p>Financial insecurity of workers is negatively associated with health. This seems to occur because of increased work-family conflict (WFC) and stress associated with financial insecurity. 1 Financial insecurity at Time 1 is related to health outcomes at Time 2. 2 Financial insecurity at Time 1 is positively related to perceived stress at Time 2. 3 Perceived stress at Time 2 is related to health outcomes at Time 2. 4 The relation of financial insecurity at Time 1 and health outcomes at Time 2 is mediated by perceived stress at Time 2. 5 Financial insecurity at Time 1 is positively related to WFC at Time 1. 6 Work-family conflict (WFC) at Time 1 is positively related to perceived stress at Time 2. 7 WFC at Time 1 is not related to health outcomes at Time 2. 8 WFC at Time 1 mediates the relationship between financial insecurity at Time 1 and perceived stress at Time 2. 9 Financial insecurity at Time 1 has a significant indirect effect on health outcomes at Time 2, due to a link with WFC at Time 1 that predicts stress at Time 2.</p>	<p>1.1 $r = .17$ (ns) 1.2 2.1 $r = .31$ (medium) 3.1 $r = .22$ (ns) 3.2 physical health symptoms $\beta = .53$ (medium), sleep disturbance symptoms $\beta = .51$ (medium), general health $\beta = -.48$ (medium) 5.1 $r = .12$ (ns) 5.2 $\beta = .18$ (small) 6.1 $r = .34$ (medium) 6.2 $\beta = .32-.34$ (medium) 7.1 $r = .12$ (ns) 8.2 $.06$ (medium) More results in Table 2 and 5.</p>		<p>C</p>
<p>O'Neill, Sorhaindo, Xiao & Garman (2005)</p>	<p>Cross-sectional n=3,121</p>	<p>Debt management programme clients (US?)</p>	<p>1 Improved health (self-reported) is positively associated with the performance of positive financial behaviours. 2 Improved health (self-reported) is positively associated with improved personal finances (self-reported). 3 Improved health (self-reported) is positively associated with six specific examples of improved personal finances such as refinanced home mortgage. 4 Perception of health status is positively associated with perceived effect of financial problems upon health. 5 Perceived effect of financial problems upon health is positively associated with negative financial events. 6 Self-reported health status is positively associated with level of financial stress. 7 Self-reported health status is positively associated with perception of financial behaviours. 8 Self-reported health status is positively associated with financial satisfaction. 9 Self-reported health status is positively associated with perception of family relationships. 10 Health is more likely affected by financial problems for females, age 36-55, higher number of people to support and unemployed and part-time workers.</p>	<p>1 Respondents who reported having improved health since participating in the credit counselling programme were more likely to engage in positive financial behaviours 2 80% vs 56% 3 Table 3 4 Table 4 5 Table 5 6 Financial stress: poor health 3.52, Very good health 3.23 7 Fin. behaviours: Poor health 1.76, Very good health 2.17 8 Fin. satisfaction: Poor health 3.98, Very good health 4.55 9 Family relationships: Poor health 2.87, Very good health 3.43</p>		<p>D</p>

O'Neill et al (2006)	Cross-sectional (n1=3,121, n2=1210)	Debt management programme clients (US?)	<p>1 Self-reported health status improved for consumers in a paired sample (using 2003 and 2005 data) two years following their initial contact with a credit counselling agency.</p> <p>2 Self-reported health status is positively associated with higher scores on the IFDFW scale (indicating lower financial distress and higher financial wellbeing).</p> <p>3 Those reporting no occurrences of specific negative financial events reported better health than those who have experienced the negative financial events more than once.</p> <p>InCharge Financial Distress/Financial Wellbeing (IFDFW) scale</p>	<p>1 Mean changed from 2.16 to 2.03</p> <p>2 $\rho = .344$ (medium)</p> <p>3 Table 7</p>		C
Porcelli & Delgado (2009)	Experiment n1=33 n2=21	Students (US)	<p>1 Participants in the no-stress condition made significantly more risky choices in the loss domain than in the gain domain. Thus, reflection was observed in participants' decision-making.</p> <p>2 Fewer risky decisions (ie increased conservatism) were made on gain-domain trials under acute stress as compared with no stress.</p> <p>3 On loss-domain trials, participants showed a trend toward making a higher number of risky decisions under acute stress than under no stress.</p>	<p>1 S1 Effect of stress on financial decision-making: $d=1.22$ (large)</p> <p>2 $d=0.45$ (medium)</p> <p>3 $d=.026$ (medium)</p>	Sample size Randomisation	C
Postmus, Hetling & Hoge (2015)	RCT n=195 (101 control, 94 treatment)	Domestic violence survivors (US and Puerto Rico)	All participants participated four times over time. The analyses demonstrated that the treatment group had an average improvement between a half point to over a full point on self-reported financial knowledge, financial intentions, and financial behaviour, and a decrease in financial strain. Moreover, the impact of the curriculum persisted over time.	<p>Financial knowledge $d=1.04$ (large)</p> <p>Financial intention $d=.46$ (medium)</p> <p>Financial behaviours $d=.52$ (medium)</p> <p>Financial strain $d=.44$ (medium)</p>		A
Prawitz et al (2006)	Cross-sectional n=1,300	Adults (US)	<p>The IFDFW Scale has been developed by a team of national scholars over a period of several years, in an effort to design a tool for the indirect measurement of the latent construct, financial distress/financial wellbeing.</p> <p>The instrument has evolved over the process, with indicators added and removed over the course of development based on statistical testing for reliability and validity. Six separate data sets were utilised during the process, and the final instrument, the eight-item IFDFW Scale, emerged. The IFDFW Scale provides a high level of confidence for researchers and practitioners using the scores to indicate perceived levels of financial distress/financial wellbeing in individuals and groups of consumers.</p>	Overview of process of development of InCharge Financial Distress/Financial Wellbeing Scale		E
Prawitz & Cohart (2014)	Quasi-experiment 2010, 2011, needs driven n=995 (339 treatment, 656 control)	Employees of a major publishing company perceiving moderate financial distress (US)	<p>1 Perceived financial wellness improved from pre-test to post-test, with financial education participants not showing greater improvements than non-participants.</p> <p>2 Savings ratios (percentage of income saved) improved from pre-test to post-test, with financial education participants not showing greater increases than non-participants.</p> <p>3 Frequency of negative financial</p>	<p>1 Financial wellness increased overall for employees from pre-test to post-test, but the groups improved in the same way.</p> <p>2 Financial education participants increased savings more than did non-</p>	Sample 1 company Self-reported data	B

			<p>behaviours decreased from pre-test to post-test, with financial education participants showing greater decreases than non-participants.</p> <p>4 Financial education participants will be more likely than non-participants to report taking specific financial actions following financial education.</p> <p><i>Extensive overview of literature</i> <i>Use of Personal Financial Wellness Scale™ (PFW™), formerly called the InCharge Financial Distress/Financial Wellbeing Scale (Prawitz et al 2006a)</i></p>	<p>participants (9% to 13% vs 9% to 12% – non-significant)</p> <p>3 Budget: OR = 1.8; Asset allocation assessment: OR = 1.9; Increase retirement contributions: OR = 1.6</p>		
Ruberton, Gladstone & Lyubomirsky (2016)	Cross-sectional	Bank customers (UK)	<p>The Perceived Financial Wellbeing Measure: a two-item scale ('I often lose sleep worrying about my finances' [reverse-scored] and 'I am confident in my ability to handle an unexpected expenditure up to £500') adapted from the InCharge Financial Distress/Financial Wellbeing Scale (Prawitz et al 2006).</p>			D
Rutherford & Fox (2010)	Cross-sectional (secondary analysis of Survey of Consumer Finances, SCF) n=458	Young adults 18–30 (US)	<p>1 Young adults are more financially well if they have stronger objective status position. Specifically, if they have: (i) higher levels of income, (ii) lower levels of personal debt, (iii) health insurance coverage, (iv) a higher level of education.</p> <p>2 Young adults are more financially well if they 'feel lucky' in their financial affairs.</p> <p>3 Young adults will be more financially well if they exhibit desirable financial behaviours. Specifically, if they: (i) do not carry outstanding credit card balances.</p> <p>4 Young adults will be more financially well if they express the following subjective perceptions: (i) have a positive attitude toward credit, (ii) spend less than they earn, (iii) have a planning horizon of at least 5 years, (iv) have low risk tolerance.</p>	See Table 3 for effect sizes		D
Sabri & Aw (2020)	Cross-sectional (n=2,246)	Employees in private and public sector (Malaysia)	<p>The authors propose and empirically test a serial mediation model encompassing financial literacy, financial behaviour, financial stress, and workplace productivity.</p> <p>1 Financial literacy is positively related to financial behaviour.</p> <p>2 Financial behaviour is negatively related to financial stress.</p> <p>3 Financial stress is negatively related to workplace productivity.</p> <p>4 Financial behaviour and financial stress jointly mediate the effect of financial literacy on workplace productivity.</p>	<p>1 $\beta = 0.20$ (<i>small</i>) 2 $\beta = 0.22$ (<i>small</i>) 3 $\beta = -0.45$ (<i>medium</i>) 4 $\beta = 0.02$ (<i>small</i>)</p>		D
Sheehan, Lane & Collie (2020)	Cross-sectional n=4,532	Injured workers (Australia)	<p>Relative to wages or salaries, workers with a main income from social assistance or insurance (1) and workers' compensation (2) had higher odds of financial stress. Workers with a main income of an aged pension or superannuation had lower odds of financial stress (3).</p>	<p>1 odds ratio 3.33 2 odds ratio 1.71 3 odds ratio 0.52</p>	Not generalisable to short-term workers' compensation claims.	D

			Careful consideration of income replacement benefits in workers' compensation schemes			
Siahpush & Carlin (2006)	Cross-sectional (secondary analysis of 2 waves of Household, Income and Labour Dynamics in Australia (HILDA) Survey) n=2,076, 2,717	Households (Australia)	1 Smokers with more financial stress were less likely to quit. 2 Ex-smokers with more financial stress were more likely to relapse.	1 Odds of quitting reducing by 13% (95% CI: 4–21%) per unit of the financial stress index 2 Odds of relapse per unit of the financial stress index 19% (95% CI: 8–30%)		D
Siahpush et al (2009)	Cross-sectional (secondary analysis of 2 waves of International Tobacco Control (ITC) Four Country Survey)	Smokers (US, Canada, UK, Australia)	1 Smokers with financial stress were more likely than others to have an interest in quitting at baseline. 2 But they were less likely to have made a quit attempt at follow-up. 3 Among those who made a quit attempt, financial stress was associated with a lower probability of abstinence at follow-up	1 OR: 1.63; 95% confidence interval (CI): 1.22–2.19 2 OR: 0.74; 95% CI: 0.57–0.96 3 OR: 0.53; 95% CI: 0.33–0.87		D
Siahpush et al (2014)	Cross-sectional (secondary analysis of 3 waves of Household, Income and Labour Dynamics in Australia (HILDA) Survey) n=2,076, 2,717	Households (Australia)	Prolonged financial stress (FS) was a strong predictor of subsequent obesity. The association of FS with obesity was independent of income and constant across income categories.	The adjusted risk of being obese in 2010 was 20% higher (RR: 1.20; 95% CI: 1.10–1.30) among individuals who experienced FS in both 2008 and 2009 than those who did not experience FS in either year.		D
Sinclair & Cheung (2016)	Literature review	N/A	The overarching goal of the present paper was to address conceptual and measurement issues in the study of objective and subjective aspects of financial stress and review several assessment options available to occupational health psychology researchers for both aspects of financial stress.	Not reported	No study	E
Summers et al (2005)	Cross-sectional (secondary analysis of International Institute of Banking and Financial Services Financial Wellbeing Survey (IIBFS FWS))	Participants in the survey (UK)	The results from the IIBFS FWS support the view that there is a lack of understanding of pensions, particularly amongst women. They also show that initiatives for government to provide more information and to encourage courses in schools and colleges about saving for retirement would be welcomed. However, people show less support for receiving information about saving for retirement from their employer, perhaps because of growing job insecurity and recent problems with company pension schemes.	Not reported	Sample No hypotheses	E

Sunal, Sunal & Mutlu (2013)	Cross-sectional n=70+57	Students (Turkey and France)	Financial wellbeing scale developed by Norvilitis, Szablicki and Wilson (2003) is administered to French and Turkish students. There were significant country differences on life satisfaction. Turkish university students had higher scores on life satisfaction than French students. Also results showed that French students were using credit cards significantly more than Turkish students. Moreover, it was observed that financial wellbeing scores of French students were higher than Turkish students. However, Turkish students revealed that they were getting more support.	Not reported		D
Vlaev & Elliott (2014)	Cross-sectional n=654	Young workers and families with young children (UK)	An empirical investigation conducted into the determinants of FWB for two population groups: young workers and families with young children in the UK. The most significant finding from the regression is the significance for both groups of having control over their finances; control is even more important than the amount of available money for this population. A conclusion of the research is that the FWB would be increased if individuals could experience a greater sense of overall control of their money. In particular, financial institutions could provide products and processes to improve the FWB of their customers. There are also potential policy implications from the benefits of lower unsecured debt and increased savings to mitigate unexpected life events.	Relationship between life 'situation' and financial satisfaction $r = 0.6$ (<i>large</i>) Relationship between financial satisfaction and overall quality of life $r = 0.44$ (<i>medium</i>) Relationship between FWB and financial satisfaction $r = 0.6$ (<i>large</i>) Relationship between financial satisfaction and personal income $r = -0.16$ (<i>small</i>)		D
Vosloo, Fouché & Barnard (2014)	Cross-sectional (secondary analysis of the South African Employee Health and Wellness Survey) n=9,057	Employees from different sectors (South Africa)	1 There is a relationship between satisfaction with remuneration and financial wellbeing. 2 There is a relationship between financial wellbeing and financial efficacy. 3 Financial efficacy moderates the relationship between satisfaction with remuneration and financial wellbeing. It is argued that management can intervene with employees' financial wellbeing by improving financial efficacy through financial education and by improving their satisfaction with remuneration. Satisfaction with remuneration can be increased by increasing actual remuneration and benefits, addressing administrative issues of the pay system, addressing staff morale or by increasing financial efficacy.	1 Financial wellbeing and remuneration satisfaction: $r = .63$ (<i>large</i>) 2 Financial efficacy and financial wellbeing: $r = .50$ (<i>large</i>) 3 Financial efficacy and remuneration satisfaction: $r = .29$ (<i>medium</i>)		D
Winchester & Huston (2015)	Cross-sectional n=2,413	Households (US)	Empirical test of the middle class's belief that financial advice is only beneficial to the wealthy. 1 Middle-class households report negative attitudes toward financial advice with a greater frequency than affluent households. 2 Middle-class households with negative attitudes toward financial advice are less likely than all other households to seek financial advice. 3 The financial goal composition of	1 21% trust, 32% too expensive, 27% not enough money, 22% not enough assets 2 OR .711 (ns) 3 Table 4 4 Table 5 5 Well prepared for retirement OR=3.1 Contribute to retirement fund OR=1.8		D

			<p>middle-class households is significantly different from the financial goal composition of affluent households.</p> <p>4 Financial advice provides value to middle-class households.</p> <p>5 Middle-class households that receive comprehensive financial advice are more likely to display optimal financial behaviours than all other middle-class households.</p>	<p>Use employee benefits appropriately OR=2.1</p> <p>Adequate emergency fund OR=1.6</p>		
Winick (2019)	Case study (n=1) Cross-sectional (n=15,603)	Prudential	<p>Prudential offered additional financial services to employees in 2009 due to the recession and the impact on its employees: budget coaching, budgeting seminars, increased hours of discounted back-up child care and adult care, retirement savings plan, targeted communication.</p> <p>Among employees with financial stress as compared with those without were at 88% greater risk for overall stress; 190% greater risk for depression; 237% more likely to report that they were not satisfied with their life; and 88% more likely to report that they were not satisfied with their job.</p> <p>Employees experiencing financial stress had 64% more days lost on short-term disability and are more likely to experience a short-term disability.</p> <p>Prudential found employees who experience financial stress lose a full week of productivity compared with other employees.</p>	<p>Number of employees who report experiencing financial problems in the last year dropped from 31% in 2008 to 15% in 2017.</p>	Description of implementation of financial wellness programme	D
Xu et al (2015)	Cross-sectional (secondary analysis of National Longitudinal Study of Adolescent to Adult Health) n=13,470	Young adults (US)	<p>In this paper, we examine how the Big Five personality traits are related to measures of young adults' financial distress.</p> <p>1 Conscientiousness is negatively and neuroticism positively associated with all measures of financial distress.</p> <p>2 Extraversion, agreeableness, and openness to experience are correlated with selected measures of financial distress.</p>	<p><i>Small to medium</i></p> <p>1 Table 2</p> <p>2 Table 2</p>		D
			<p>Subjective financial wellbeing was measured by five items asking participants about their financial situation:</p> <p>1 'How would you rate your financial situation these days?'</p> <p>2 'Looking ahead 10 years into the future, what do you expect your financial situation will be like at that time?'</p> <p>3 'In general, would you say you (and your family living with you) have more money than you need, just enough for your needs, or not enough to meet your needs?'</p>			

Excluded

Author and year	Design	Population	Main findings	Effect sizes	Limitations
Abrantes-Braga (2019)			Development and validation of financial wellbeing-related scales. This study provides a set of three parsimonious, self-reported behavioural measures that could be employed in conjunction with objective economic indicators to identify individuals who are financially ill prepared and potential candidates for delinquency. The three proposed scales achieved satisfactory levels of reliability and convergent and discriminant validity.		Off topic (measurement)
Archuleta (2013)	n=180	College students (US)	Possible associations of financial anxiety were explored using a sample of 180 college students who sought services at a university peer financial counselling centre in a Midwestern state. Of particular interest was the influence of debt on student financial anxiety. To measure financial anxiety, a new scale was developed, the Financial Anxiety Scale (FAS), that can be used as a tool for financial planners, counsellors, and educators to identify individuals who are experiencing increased levels of financial distress that may call for a referral to an appropriate professional. Results from two hierarchical regressions indicated that financial satisfaction, student loans, and gender are associated with financial anxiety.		Limited relevance for research question?
Arpana (2020)					Study design
Ashby (2010)			Interesting overview of some UK research		No study
Bonner (2016)			Interesting results of research about the impact of financial stress on employees		No study
Bonner (2016a)			Reprint of Bonner 2016		No study
Bonner (2016b)			Interesting overview of ways to improve financial wellbeing.		No study
Brown (2009)			COPY FROM ABSTRACT: Earlier research has associated financial desire discrepancies (the gap between current and desired states) with poorer subjective wellbeing (SWB). Whether mindfulness would close the aspiration gap by 'wanting what one has', and thereby enhance SWB is examined. Results: 1 Mindfulness is associated with a smaller financial desire discrepancy. 2 A positive association between mindfulness and SWB.		Relevance (not about financial wellbeing)
Chiang (2017)					No free online version available
Cutler (1997)			Excluded from review, COPY FROM ABSTRACT: This article discusses the financial wellbeing of people over the lifecycle in the US. At almost any level of financial resources, there are psychological reasons to be satisfied or dissatisfied with those resources. And while it is so often heard that the best things in life are free and that money can not buy happiness, it is good to have money. In this context Dr Davis W. Gregg, founding director of the Boettner Institute, has developed a model of the Human Wealth Span as a way of examining the maturational aspects of aging and finance. One of the Boettner Institute's continuing areas of applied research focuses directly on this interplay of objective versus subjective causes of financial satisfaction. Some of the work aims to expand and safeguard the client's supply of cold, hard cash. But the efforts should also strive to enhance the expectations that the money will be wisely invested and available when needed. The objective is to reduce anxieties that may come naturally as men and women become		Older than 2000

			older in an aging society in which, unprecedented in human history, there are so many millions of old people.		
Davidson (2014)					No study
Downing (2016)			COPY FROM ABSTRACT: The foreclosure crisis was detrimental to the financial wellbeing of many households, yet the non-economic consequences are still poorly understood. This systematic review aims to understand the direct and spillover effect of foreclosures on several health-related outcomes by synthesising evidence from 40 studies. First, this study identifies research gaps using a schema to organise studies by line of inquiry, health-related outcome, and measure of homeowner financial distress. In order to provide context for the findings, four pathways – stress, effect-budgeting, frustration-aggression, and trust – evoked in the literature are described to explain the relationship between foreclosures and health. The research suggests that experiencing a foreclosure and living near foreclosures are associated with poor psychological and behavioural morbidities, namely anxiety and violent behaviour, and declining health utilisation.		Off topic
Eisen, Allen & Pecatello (2008)			COPY FROM ABSTRACT: Work stress contributes significantly to corporate health costs. Numerous corporations have implemented worksite stress management interventions to mitigate the financial and personal impact of stress on their employees. Cognitive-behavioural stress management interventions can reduce both perceived and physiologically measured stress.		Off topic
Elia (2016)					No study
Faragher (2014)					No study
Fox, Bartholomae & Lee (2005)			COPY FROM SUMMARY: Currently, financial education programmes often omit evaluation as a component of their programme design. We have described and outlined a comprehensive evaluation framework (Jacobs' five-tiered approach: (1) pre-implementation, (2) accountability, (3) programme clarification, (4) progress toward objectives, and (5) programme impact) in the hope that programmes will make a commitment to the evaluation process.		Literature overview
Garmaise (2010)			Excluded from review		Duplicate
Garmaise (2010)					Unclear design
Garman (1999a)			Interesting examples of financial wellness programmes offered by US employers, for example life adjustment fund, financial check-up, financial planning services, life planning education, seminars on financial education, workshops on basic money management, crisis counselling on financial issues, etc (Exhibit 1).		Older than 2000 No study
George (2016)			Excluded from review, COPY FROM ABSTRACT: Financial stress impacts a significant portion of our population and workforce. The stress can vary from generalised cases, as was seen when the economy crashed in 2008, to severe immobilisation of an individual who is worried how he or she will meet certain financial obligations. It can also have an impact on his or her employers. One thing is clear: financial stress is having a direct and significant impact on our current workforce.		No free online version available
Ghaffar (2020)		US	Study on the impact of caregivers' employment on emotional exhaustion in the workplace.		Off topic
Gianetti (2014)			Excluded from review		Duplicate
Gilfedder (2014)			COPY FROM ABSTRACT: By embracing an approach that has at its core the financial wellbeing of employees, HR executives have the opportunity to		No study

			advance the interests of employees within today's workplace while boosting productivity. All of this can be accomplished by adopting a strategic vision that allows the C-suite to see the true value of the HR executive's role in accomplishing strategic goals.		
Greenfield (2018)		US	Survey exploring whether workplace and social policies can buffer negative financial impacts of caregiving. Predictors of financial strain included the care recipients' financial strain and the caregiver's reduction or ceasing of work. Medicare may be protective to minimise caregivers' need to reduce or cease work.		Off topic
Isaac (2013)					No study, Wellness programme in general (health)
Keith (1985)			Excluded from review, COPY FROM ABSTRACT: Longitudinal data obtained from interviews were used to compare the objective and subjective financial wellbeing of older, divorced/separated men (n=114) and women (n=251) at the beginning and end of a ten-year period. Subjects were between 58 and 63 years of age at the beginning of the study. While the median income of the men was significantly higher than that of the women at the beginning of the study, the median incomes of the men and women did not differ significantly ten years later. Men and women did not differ in satisfaction with their level of living or assessments of financial adequacy at either interview. However, changes in assessments of financial adequacy by men were more likely to be negative over the decade than were those of women. Models explaining satisfaction with level of living were fairly comparable for men and women, except for the importance of change in health among women.		Older than 2000
Kim (2006)			Excluded from review		Duplicate
Lee (2010)					No study, Wellness programme in general (health)
Lindblad (2015)			COPY FROM ABSTRACT: Loan modifications and foreclosure sales are two ways mortgage servicers can respond when homeowners fall behind on house payments. We investigate the consequences of these events for health and stress by linking longitudinal survey data with administrative mortgage performance data that identify those survey participants who experienced a foreclosure sale, a loan modification, or neither.		Off topic
MacKenzie (2017)					No study
Maturana (2020)		US	Using detailed data from the public school system in Texas, we show that students perform significantly worse in the year of their teacher's declaration of bankruptcy.		Off topic
McKee (2005)			COPY FROM ABSTRACT: Meta-analytic techniques were used to examine the impact of unemployment on worker wellbeing. Unemployed individuals had lower psychological and physical wellbeing than did their employed counterparts. Unemployment duration and sample type (school leaver vs mature unemployed) moderated the relationship between mental health and unemployment, but the current unemployment rate and the amount of unemployment benefits did not. Within unemployed samples, work-role centrality, coping resources (personal, social, financial, and time structure), cognitive appraisals, and coping strategies displayed stronger relationships with mental health than did human capital or demographic variables.		Off topic (unemployed, psychological and physical wellbeing)

Ng (2014)			COPY FROM ABSTRACT: Financial satisfaction was the strongest predictor of life evaluation, whereas respect was the strongest predictor of positive feelings. Both measures predicted negative feelings to some extent. Multi-level analyses also revealed moderating effects of societal wealth. The association between financial satisfaction and SWB and that between post-materialist needs and SWB were stronger in richer nations compared with poorer ones. This suggests that developed economies should continue to focus on both material and psychological aspects, and not disregard economic gains, as both measures are essential to wellbeing.		Off topic (not country or region specific)
Nickerson (2007)			Interesting background article – COPY FROM ABSTRACT: Nickerson et al (2003, <i>Psychological Science</i> 14, pp531–36) demonstrated in a longitudinal study that the negative relation between aspirations for financial success and subjective wellbeing found by other researchers was mitigated by high household income. The present study first refined the analysis in Nickerson et al (2003) and then explored two additional issues: (a) who aspires to financial success? and (b) how is financial success achieved?		Off topic
Olsen (2007)			Interesting background article – COPY FROM ABSTRACT: This article provides an overview of the literature on best practices for designing retirement savings plans and providing financial education in the workplace.		No study
Panagiotakopoulos (2019)		Greece	Qualitative study into in-work poverty		Off topic
Paton (2015)					No study
Paton (2015)			Excluded from review		Duplicate
Peirce (1996)			Excluded from review, COPY FROM ABSTRACT: This study examined whether specific facets of social support (tangible assistance, appraisal and belonging) moderate the relationship between a specific type of stress (financial stress) and alcohol involvement (drinking to cope, heavy drinking, and alcohol problems). Data were derived from a community sample stratified by education and race. Respondents (n=1,040) were interviewed in 1986 and 1989 and had drunk alcohol during the year preceding both interviews. Results supported the buffering influence of tangible support on the financial stress–alcohol involvement relationship. In contrast, neither appraisal nor belonging support consistently revealed a buffering pattern. These findings indicate the importance of taking into account specific components of social support when examining the relationship between specific sources of life stress and alcohol involvement.		Older than 2000
Phetmisy (2021)					No study
Power (2010)			COPY FROM ABSTRACT: This article examines employees' financial practices, financial expertise, and levels of benefit participation and overall satisfaction. We show that there are significant differences in employees' financial practices and financial expertise based on socio-demographic characteristics.		Off topic
Rudolfo Kreutz (2020)					Language
Schmeiser & Seligman (2013)	Cross-sectional (HRS) n=	Individuals born 1931–1941	COPY FROM ABSTRACT: No current measures of financial literacy have been fully validated. We find that once individual characteristics are carefully accounted for in our analysis, correct responses to many of the financial literacy questions in widespread use are not significant predictors of asset accumulation or resilience to financial shocks.	not reported	Population off topic

Song (2019)					Off topic
Song (2019a)			Correction to article		No study
Sunal (2012)			Excluded from review, COPY FROM ABSTRACT: The purpose of this study was to examine the validity and reliability of Financial Well Being Scale developed by Norvilitis, Szablicki, and Wilson (2003) for university students. In this study scales were investigated under the name of Financial Wellbeing Scale (FWBS). FWBS was administrated to 246 university students and Credit Card Attitude Scale (CCAS) was used for the criterion validity. In order to determine the construct validity of FWBS, factor analysis was conducted by using principal components analysis with varimax rotation. The factor analysis resulted in two factors. The correlation coefficients of the FWBS subscales with CCAS subscales are calculated and the results were both statistically significant and found to be in the expected direction. The Cronbach's Alpha coefficient of the FWBS was 0.79. Analysis revealed that FWBS has satisfactory level of reliability and validity on Turkish university students.		Language
Unal (2015)			Excluded from review, COPY FROM ABSTRACT: This study aims both to reveal the financial behaviour of academics and also to investigate the impact of financial behaviour on financial wellbeing. In this regard, hypotheses are established by taking into consideration both the demographic variables and also arguments and findings in the literature. In order to test the validity of the hypotheses, a questionnaire is carried out on academics of Dumlupinar University. Covering all units of the university, the questionnaire produced a sample that consists of 246 academics. The data set is analysed over SPSS program by using such techniques as arithmetic mean, one-way analysis of variance (ANOVA), Tukey test, t-test and Pearson correlation analysis. The results suggest that the academics are limitedly satisfied with their current financial wellbeing. The findings also indicate that financial behaviour possesses a positive impact on financial wellbeing.		Language
Veldhoven (2005)					Off topic
Verheyen (2018)			Personal view on workplace financial wellness		No study
Verne (2014)					No study
Vogel (2013)					No study
Walson (1993)			Excluded from review, COPY FROM ABSTRACT: Constructed an index of Perceived Economic Wellbeing and tested it for reliability and validity among 1,455 married household financial managers. The index is composed of perceived income adequacy, and satisfaction with (1) current total household income, (2) amount of money your family is able to save, (3) amount of current debt, (4) level of consumption, (5) amount of household net worth, and (6) resources available to meet a financial emergency. Subjects perceived economic wellbeing more favourably if they were more satisfied with resources and with the current level of living, viewed the present financial situation as better compared with five years ago, saved on a regular basis for goal(s), and had a higher income. Subjects who reported more frequent financial problems, worried more about where money would come from to pay bills, and more frequently made only minimum payments on charge accounts perceived economic wellbeing less favourably.		Older than 2000
Weiting (2014)			Excluded from review		Duplicate

Zyphur et al (2015)					Incomplete questionnaire
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¹ It should be noted that randomised controlled studies are often conducted in an artificial (lab-type) setting – with students carrying out prescribed work tasks – which may restrict their generalisability. Non-randomised studies in a field setting – with employees carrying out their normal tasks within an organisational setting – on the other hand, have a lower level of trustworthiness, but can still be useful for management practice.

² In a meta-analysis, statistical analysis techniques are used to pool the results of individual studies numerically in order to achieve a more accurate estimate of the effect. Most studies defined as systematic reviews include a meta-analysis. The difference between a systematic review and a meta-analysis is therefore mainly semantic. Indeed, in medicine a meta-analysis is often called a systematic review.

³ Gifford, J. (2018). *UK Working Lives: The CIPD Job Quality Index*. London: CIPD. Available at www.cipd.co.uk/goodwork

⁴ As reported in PwC (2016) *Employee Financial Wellness Survey 2016 results*. The survey reflects the views of 1,600 full-time employed US adults.

⁵ See the accompanying [Practice summary and guidance](#) as part of this evidence review.

⁶ PwC. (2021) *PwC's 10th annual Employee Financial Wellness Survey*. PwC US. Retrieved: <https://www.pwc.com/us/en/services/consulting/workforce-of-the-future/library/employee-financial-wellness-survey.html>

⁷ Organisational commitment can be defined as the relative strength of an individual's identification with and involvement in a particular employing organisation that is characterised by three factors: (1) a strong belief in and acceptance of the organisation's goals and values, (2) a willingness to exert considerable effort on behalf of the organisation, and (3) a strong desire to maintain membership in the organisation (Mowday, Steers and Porter 1979, in Kim and Garman 2003).

⁸ A moderator is a variable that affects the direction and/or strength of the relation between an independent or predictor variable (in this case performance appraisal) and an outcome variable (work performance). Put differently, moderators indicate when or under what conditions a particular effect can be expected. For this reason, they are also referred to as 'boundary conditions'. A mediator is a variable that specifies how or why a particular effect or relationship occurs. Thus, if you remove the effect of the mediator, the relationship between the independent or predictor variable (in this case performance appraisal) and the outcome variable (work performance) will no longer exist. In short, moderators specify when a certain effect will hold, whereas mediators determine how or why the effect occurs.



CIPD

Chartered Institute of Personnel and Development
151 The Broadway London SW19 1JQ United Kingdom
T +44 (0)20 8612 6200 **F** +44 (0)20 8612 6201
E cipd@cipd.co.uk **W** cipd.co.uk

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Issued: November 2021 Reference: 8183



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