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The Relationship Between Financial Disruption during the COVID-19 Pandemic and Mental Health: A Systematic Review and Meta Analysis

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Abstract:	Objective: Financial difficulties are associated with poor mental health. This paper aimed to systematically review the impact of COVID-19 related financial difficulties on mental health in adults. Methods: A systematic search was conducted across Web of Science, Medline, and PsycINFO, from March 2020 to March 2023 to identify studies examining the mental health impact of COVID-19 related financial disruption in adults. We performed two meta-analyses to quantify the effect of income loss due to the pandemic on anxiety and depression. Studies were rated using the Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies from the National Heart, Lung and Blood Institute was used. Results: A total of 2659 papers were identified of which 76 (59 cross-sectional and 17 longitudinal) met inclusion criteria. The results show that COVID-19 related financial disruption (income loss and financial stress) negatively impact mental health across a range of adult populations globally, including the general population, students, and other specific groups. The meta-analyses examined data from 278,854 participants from fifteen studies indicated that those who lost income reported greater anxiety levels than those who did not experience income loss. Similarly for 268,128 participants across sixteen studies, a meta-analysis showed greater depression symptoms for those experiencing income loss. Conclusion: COVID-related financial constraints, both objective and subjective, are associated with poor mental health outcomes (particularly anxiety and depression) in various populations around the world. The results highlight the need for targeted clinical interventions for those experiencing mental health problems linked to financial problems during global crises.

The Relationship Between Financial Disruption during the COVID-19 Pandemic and Mental Health in Adults: A Systematic Review and Meta Analysis

Abstract

Objective: Financial difficulties are associated with poor mental health. This paper aimed to systematically review the impact of COVID-19 related financial difficulties on mental health in adults.

Methods: A systematic search was conducted across Web of Science, Medline, and PsycINFO, from March 2020 to March 2023 to identify studies examining the mental health impact of COVID-19 related financial disruption in adults. We performed two meta-analyses to quantify the effect of income loss due to the pandemic on anxiety and depression. Studies were rated using the Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies from the National Heart, Lung and Blood Institute was used.

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Conclusion: COVID-related financial constraints, both objective and subjective, are associated with poor mental health outcomes (particularly anxiety and depression) in various populations

around the world. The results highlight the need for targeted clinical interventions for those experiencing mental health problems linked to financial problems during global crises.

Keywords: COVID-19, pandemic, mental health, financial difficulties

Significance for public health

Previous research has demonstrated that financial difficulties lead to poor mental health at a population level. This systematic review and meta-analysis demonstrate that the covid-19 pandemic impacted mental health in a range of populations globally, due to the financial disruption it caused. Income loss during COVID-19 was associated with more severe symptoms of anxiety and depression. Both objective and subjective financial strain are associated with poor mental health. Whereas most of the research was cross-sectional, some studies demonstrated a longitudinal impact of covid-109 related financial disruption. Targeted interventions may help those with finance-related mental health problems.

The Relationship Between Financial Disruption during the COVID-19 Pandemic and Mental Health in Adults: A Systematic Review and Meta Analysis

Introduction

The World Health Organization (WHO) declared that the coronavirus (COVID-19) outbreak reached global pandemic status on 11 March 2020. Over three years later, on 5 March 2023, the WHO announced that COVID-19 no longer constituted a public health emergency of international concern (PHEIC). This pandemic drastically altered people's lives and has had profound consequences on society in terms of physical health, mental health, and the economy. From research regarding previous pandemics, such as that of the severe acute respiratory syndrome (SARS, 2002–2003), it is understood that the diverse and far-reaching effects of pandemics are likely to endure beyond the period of the pandemic [1]. The effects of the COVID-19 pandemic on mental health have been suggested to follow three main routes, namely: the disease itself, the associated imposed quarantine and social measures, and the economic consequences of the pandemic.

An established and expanding body of research has focused on the relationship between mental health and economic concepts such as socioeconomic status (SES) and unemployment. While research has focused broadly on SES and mental health [2, 3], recent research has focused on specific socioeconomic variables. For example, studies show that financial hardship (difficulty meeting financial obligations) is a stronger predictor of depression than other socioeconomic variables such as educational attainment and household income while controlling for differences in household demographic composition, size, and subsequent financial requirements [4]. Research has also distinguished objective and subjective financial impact, with the former describing measurable financial impact (e.g., income loss, debt amount) and the latter describing perceived financial impact (e.g., financial

stress/worry). Research shows that subjective financial worries have a greater impact on mental health than objective economic impact[5].

A recent systematic review assessed the impact of the COVID-19 pandemic, previous pandemics, previous epidemics, and the 2008 economic crisis on mental health [6]. The review showed that socioeconomic factors and unemployment resulting from the 2008 economic crisis had negative effects on mental health, including an increase in affective disorders. The main risk factors mediating the effects of the economic crisis on poor mental health included unemployment, indebtedness, precarious working conditions, inequalities, housing instability and lack of social connectedness[6]. Another review examining the impact of economic decline on mental health found that while the effects of economic crises most negatively impacted individuals who were considered poor, less educated, or unemployed, these also affected the general population and individuals in employment, indicating that the negative impact on mental health is experienced widely by diverse groups[7].

Current Review

While several systematic reviews have examined the psychological impact of the COVID-19 pandemic [8-11] , to our knowledge, no systematic review and meta-analysis has investigated the relationship between COVID-19 related financial changes and mental health. A recent review looks at the association between socioeconomic condition indicators (e.g., education, economic factors) and anxiety and depression[12]; the present review offers a more focused and detailed examination of how financial change during the pandemic relates to mental health. As COVID-19 has caused significant detrimental economic consequences on individual, community, and wider societal levels, and given the established association between financial hardship and mental health difficulties, it is imperative that this area is examined and understood to inform local and national policy and intervention, resource, and support planning.

The objective of this review is to synthesise the existing evidence from cross-sectional and longitudinal quantitative studies that examine the relationship between COVID-19 related financial change and mental health.

Method

Databases and Search Terms

The review protocol was prospectively registered on Prospero (CRD42023400004) prior to conducting the systematic searches. We followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines[13] (see checklist in online supplementary information). Three electronic databases, Web of Science, Medline and PsycINFO, were searched in March 2023. The following search terms were used to search all fields: (poverty OR "financ* difficult*" OR "financ* hardship" OR debt OR "financial stress" OR income) AND (COVID* OR coronavirus OR SARS-CoV* OR "severe acute respiratory syndrome coronavirus*") AND ("mental health" OR "mental illness" OR "mental disorder" OR depression OR anxiety OR stress OR distress OR "psychological disorder" OR "psychological wellbeing" OR "psychological well-being"). The following limiters were set for all searches: scholarly (peer reviewed) journals published between March 2020 and March 2023. The age limiter was set to include studies related to adults (18+years) only. Language was restricted to the English language due to time and translation constraints.

Inclusion and Exclusion Criteria

Papers were included if they: (a) were original quantitative studies published in a peer-reviewed journal (b) used a cross-sectional or longitudinal design, and (c) examined the relationship between mental health and financial changes during the COVID-19 pandemic in adults aged 18+ years. For the purposes of this review, *financial changes* were defined as any changes in individuals' financial situations during the COVID-19 pandemic, including objective financial changes (e.g., reduced income) and subjective financial stress or worry (e.g., concern over debt repayment). Financial changes during COVID-19 must have been

explicitly measured by a minimum of one question regarding financial situation (e.g., 'over the last 2 weeks, to what extent have you experienced financial distress related to COVID-19?'). Studies which investigated job loss without specified financial changes were not included due to the scope of this review and the fact that several countries' governments subsidised wages during the COVID-19 pandemic, such as the UK government's Coronavirus Job Retention Scheme, also known as the Furlough Scheme. Inclusion required that mental health be considered using a standardised measure, preferably the full measure but shortened versions used in previous research with demonstrated validity and reliability were also included. We sought to conduct a comprehensive review and therefore used broad inclusion criteria of any financial change during COVID-19 and any mental health outcome (e.g., anxiety, depression, stress) including symptoms and pre-existing conditions. Reviews, meta-analyses, and commentaries/letters were excluded, as were papers that did not meet the inclusion criteria.

Search Procedure

We used the software Rayyan[14] to conduct the screening process. We first screened titles against the inclusion and exclusion criteria, and then abstracts. Abstracts that were retained were assessed for eligibility. A record was kept of the reasons for rejection. For abstract and full paper review, the most prevalent reasons for rejection included: multiple reasons, no financial measure, no standardised mental health measure and the relationship between COVID-19 financial changes and mental health not being measured. Due to the large volume of studies identified in the initial search and time constraints, a second reviewer screened a random 10% of the studies at abstract stage (following recommendations [15]). The inter-rater reliability was calculated using Cohen's kappa, which indicated 'substantial' agreement ($\kappa = .830$). Finally, a citation search was performed for all included papers.

Data Extraction and Analysis

Relevant information from each paper was extracted (e.g., design, COVID-19 phase, population description, sample size, recruitment strategy, data collection method, measures of mental health/financial change measure, analyses). Data was extracted by one of the authors and then verified another author. We then conducted a narrative synthesis following guidance by the Cochrane Consumers and Communication Review Group (Ryan, R., 2013). Meta-analysis was conducted using Comprehensive Meta-Analysis version 4.0.

We also conducted two meta-analyses on a portion (n = 31) of the cross-sectional studies to examine the association between income loss (vs. no income change) during the pandemic and anxiety and depression. A random effects model was utilised to calculate pooled effect sizes. Following recommendations [16] heterogeneity was assessed using a number of statistics (Cochran's Q, Tau^2, and I^2) to provide a comprehensive account. Egger's test was used to assess publication bias.

Quality Assessment

Following the guidelines [16] including the PRISMA 2020 statement [17], we assessed the internal validity and risk of potential bias of the included studies. We used the Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies from the National Heart, Lung and Blood Institute[18] as its criteria were relevant to the studies included. This tool has not been designed to provide an overall quality score, but to elicit the key concepts for evaluating the internal validity of a study; the tool guidelines indicate that the ratings be used to consider the risk of potential for selection bias, information bias, measurement bias, or confounding to determine the ability of the study to draw conclusions about the effects of the exposures on outcomes[18]. Twenty-five percent of the papers were reviewed by an independent rater (agreement score: 89.17%); disagreements/uncertainties were discussed between the reviewers and with a third reviewer, if necessary. All studies were included in

the review regardless of their quality rating and the implications of this are considered in the discussion.

Results

The database searches yielded 1935 papers (Figure 1). Of these, 383 abstracts were screened, and 121 full papers reviewed. A further 715 papers were retrieved by hand and citation searching; 627 of these were rejected at title and 46 at abstract-screening, leaving 42 full papers reviewed, of which six met inclusion criteria. In total, 76 studies (59 cross-sectional, and 17 longitudinal) were included for review.

Quality Assessment

Of the 59 cross-sectional studies included, 32 were rated as good, 23 as fair, and four poor (see Table S1, supplementary material). Most (n = 50) did not include a power analysis or clear power description to justify their sample size, though many had large sample sizes (with an average of 8747 participants across all studies). Just over half (n = 33) examined different levels of the exposure variable (i.e., financial change). Most studies (n = 57) did not use exposures that were clearly defined, valid, and reliable, though all included outcome measures that were, and most (n = 54) controlled for potential confounds (e.g., sociodemographic characteristics such as age, gender, education level).

Of the 17 longitudinal studies included, six were rated as good, seven as fair, and four poor (see Table S2, supplementary material). Most (n = 15) did not include a power analysis or description to justify their sample size. All assessed COVID-19 related financial changes at the same time as mental health outcomes were measured, not before, precluding claims regarding directionality. Most (n = 13) did not assess financial changes due to COVID-19 more than once, limiting assessment of changes over time. Despite these limitations, most studies (n = 14) controlled for potential confounders (e.g., pre-COVID-19 income, current income, employment, and sociodemographic characteristics); all included outcome measures

that were clearly defined, valid and reliable; and all but one included exposure measures that were clearly defined, valid, and reliable.

Data Extraction and Study Characteristics

Tables S3-S5 (supplementary material) summarise the data extracted from the 59 cross-sectional studies. Table S6 (supplementary material) summarises data extracted from the 17 longitudinal studies. The studies recruited from over 30 countries, with four recruiting from multiple countries.

The total sample size across the 59 cross-sectional studies was 513,308 (range 84–94,550). Twenty-six of these recruited general adult population samples (Table S3), 10 recruited University students (Table S4), and 23 recruited other, specific samples such as young/older adults, mothers, and working adults (Table S5). All recruited between 2020 and 2021 and were published 2020-2023. Most (n = 53) cross-sectional studies collected data in 2020, with the majority between March and June in the early phases of the pandemic. In terms of COVID-19, this was a time of significant uncertainty, increasing cases and COVID-19-related deaths, with local and national restrictions worldwide. The remaining studies collected data primarily before and during the second COVID-19 wave; nine studies collected data in 2021, during the easing of lockdown restrictions and later waves.

The total sample size across the 17 longitudinal studies was 31,680 (range 241–6057, Table S6). Eleven recruited general adult population samples. The remaining six recruited specific populations, including parents [19, 20], middle- and older-aged adults [21, 22] , young adults [22], and working adults[23]. Most longitudinal studies were prospective, and only one was ambispective [24]. Most (n = 13) longitudinal studies commenced data collection in 2020. Of these, most collected data between March and June 2020. The remaining studies which began in 2020 continued to collect data in 2021 and 2022, meaning that these studies collected data during the easing of lockdown and following the introduction of COVID-19 vaccines. Finally, four studies began earlier in the pre-pandemic phase, between 2015 and 2018, and

ended between May 2020 and March 2021. These utilised various data collection periods, from 12-15 days between surveys and surveys administered over 5 years. Most studies were conducted over 2-6 months.

We first report the results from the cross-sectional studies, in each of the various samples recruited, followed by the longitudinal studies. The results are organised to summarise the impact of objective financial changes (measurable financial impact, e.g., income loss, debt amount), subjective financial worries (perceived financial impact, e.g., concerns about debt repayment, financial stress), and financial hardship (difficulty meeting financial obligations, e.g., paying bills) on mental health.

Cross-sectional studies

Student samples (*n*=10).

Objective (n=10). Ten cross-sectional studies in student samples examined the impact of objective economic hardship, such as income loss due to the pandemic, on various mental health outcomes. Most (*n*=9) found that financial difficulties (i.e., income loss and financial struggles, stress, and insecurity) due to COVID-19 were associated with greater chances of experiencing distress, anxiety, depression, suicidal thoughts, and traumatic stress (including post-traumatic stress disorder). Two studies found contradictory results, with one[25] finding that depression scores were variable in those who lost income, whilst another[26] found no association between financial difficulties and stress (though financial difficulties were associated with increased depression and anxiety).

Subjective (n=2). Two cross-sectional student studies examined the subjective economic impact on student mental health [25, 27]. Both found that greater financial stress/worries were associated with worse mental health outcomes (e.g., increased depression, anxiety, suicidal thoughts, and traumatic stress).

General population samples (*n*=26).

Objective (n=20). Twenty cross-sectional studies in general population samples examined the objective financial impact on mental health. Eighteen found that having financial situation impacted by COVID-19, such as income loss, job loss, and general financial difficulties (e.g., inability to pay bills, problems managing debt) were associated with poor mental health including poorer psychological wellbeing, poorer quality of life, and greater psychological distress, anxiety, depression, stress, loneliness, and trauma-related distress. One study additionally found that distress mediated the relationship between financial difficulties and quality of life, with greater financial difficulties leading to greater distress and, in turn, poorer quality of life[28]. Another found a dose-response relationship between debt management issues and depression and anxiety, with greater debt management issues leading to greater mental health difficulties[29]. One study [30] found that the impact of income loss on depression, stress, and anxiety was exacerbated for those who also lost their jobs due to the pandemic. Another study[31] found that those with greater levels of anxiety and depression were more likely to have lost their jobs or income and struggle to meet financial obligations during the pandemic compared to those without anxiety and depression.

Two studies found that COVID-related financial impact (including income change) was not associated with psychological distress[32, 33].

Subjective (n=7). Seven cross-sectional studies in the general population examined the subjective financial impact on mental health. Five of these found that worries and distress about finances due to COVID-19 predicted poorer mental health, including less psychological wellbeing and greater depression, anxiety, distress. One study found that these worries mediated the positive association between deprivation and mental health disorders[34]. Another found that participants who perceived themselves as financially vulnerable due to the pandemic reported greater distress[35].

However, one study found that worries about the impact of COVID-19 on finances were not associated with psychological distress (though there was a non-significant trend for a positive relationship between these variables[36]).

Financial hardship (n=3). Three cross-sectional studies in the general population examined the impact of financial hardship on mental health. One of these found that difficulty meeting financial obligations due to COVID-19 was associated with greater anxiety [37]. Similarly, one study found that difficulty paying expenses was associated with anxiety and depression in a dose-response relationship: the more financial hardship participants reported, the greater risk they had of experiencing anxiety and depression compared to those without financial hardship[38]. Another study found that those reporting anxiety and depression were more likely to struggle to meet financial obligations compared to those without anxiety and depression[31].

Other samples (*n*=23). Twenty-three studies recruited other samples, including workers, clinical samples, mothers and pregnant women, young/older adults, and other specific samples.

Workers (*n*=10).

Objective (n=7). All seven studies found that objective financial changes due to COVID-19 (such as income loss, job loss, economic burden) were associated with a range of mental health problems such as greater stress, distress, anxiety, depression, PTSD risk, and reduced life satisfaction.

Subjective (n=1). One study examining subjective economic impact in remote workers found that financial concern was associated with greater stress, but *current* financial concern/situation did not predict *current* stress, anxiety, or depression[39].

Financial hardship (n=2). One study[40] found that perceived financial hardship was associated with poorer wellbeing and greater depression and loneliness in performing arts

professionals. Another[41] found that financial hardship predicted twice the risk of experiencing greater anxiety.

Clinical (*n*=2).

Objective (n=1). One study recruited participants with a history of mental illness (e.g., depression, anxiety, personality disorder) and examined the objective economic impact on mental health[42]. The study found that low income and having income impacted by the pandemic was associated with poorer mental health during the COVID-19 pandemic, including greater anxiety and depression symptoms and reduced wellbeing.

Financial hardship (n=1). A study in Bangladesh[43] found that among people with underlying physical/mental health conditions, financial difficulties negatively impacted mental health.

Mothers and pregnant women (*n*=3).

Objective (n=1). Pregnant women who lost income due to COVID-19 had greater odds of experiencing depression and anxiety[44].

Subjective (n=1). Pregnant women who were worried about their financial situation due to COVID-19 were more likely to experience clinically significant levels of depression, even when covarying demographic variables such as income level and education[45].

Financial hardship (n=1). In mothers and children with adversity before COVID, greater financial hardship was associated with greater maternal and child mental health problems while covarying pre-COVID mental health[46].

Older adults (*n*=3). All studies reported the objective financial impact on mental health; older adults who experienced financial difficulties (including income loss and inability to make a household payment on time) reported greater emotional distress[47], depression, and anxiety[48]. Older adults who expected further income losses and expected being unable to make the next house payment reported greater distress[47]. Conversely, another

study[49] found that those who had job security, less financial change, and were able to make ends meet had better mental health, even when controlling demographic characteristics.

Young adults (*n*=2). Both studies examined the objective financial impact on mental health and found that young adults aged 18-35 years who lost income or job due to COVID-19 had lower psychological wellbeing[50] and greater anxiety and PTSD (though not depression[51]).

Specific samples (*n*=3). Three studies recruited samples including middle income households[52], impoverished urban dwellers [53], and Black cisgender sexual minority men and transgender women [54]. All studies examined objective economic impact on mental health, and one examined both objective and subjective impact (i.e., income loss and worries about job loss[54]). A study in Bangladesh[52]found that middle income participants who experienced income loss or debt had greater depression and anxiety symptoms, though the impact of COVID-19-related income loss on anxiety and depression was small. Another study in Bangladesh[53] found that income loss did not impact PTSD and depression, though having a lower household income was associated with greater PTSD severity. Finally one study[54] found that income loss and worries about job loss were positively associated with loneliness, though not anxiety and depression.

Longitudinal studies

Most (*n*=11) longitudinal studies were conducted in the general population, with two of these including samples nationally representative of residents. The remaining were conducted in older adults (*n*=2), young adults (*n*=1), adult workers (*n*=1), parents of school children (*n*=1) and mothers (*n*=1).

Objective (*n*=9). Nine longitudinal studies examined the relationship between perceived objective economic impact due to COVID-19 and metal health outcomes[19, 20, 24, 55-59]. Of these, seven found positive associations between economic impact and depressive

symptoms, and five found positive associations between economic impact and anxiety. One study [57] found that, in both study cohorts, economic impact was more strongly associated with depression than anxiety. However, the increase in anxiety symptoms was steeper than that of depression [57]. Only one study found that economic impact was not associated with depressive or anxiety symptoms [56]; however, it received an overall quality assessment rating of 'poor' due to the risk of bias, hight attrition rate (54.95%), and sample variability. Regarding the other mental health outcomes studied, one study showed that COVID-19 related economic impact was associated with increased psychological distress[20]; another found that lower economic impact was associated with greater positive affect at two time points [55].

Subjective (*n*=7). Seven longitudinal studies examined the relationship between subjective financial worry due to COVID-19 and mental health [1, 57, 60-63] . All found positive associations between COVID-19-related financial stress and worse mental health, including depression, anxiety, and global mental health. Hertz-Palmor et al.[57]demonstrated a positive association between financial worries and depression. This association was unique to financial worries as health-related worries were associated with general symptom load but not depression. Furthermore, this finding remained while controlling for pre-COVID-19 income which suggests that variability in depressive symptoms is only partially explained by objective financial situation and that financial stress may be a more significant predictor of depression [57]. In terms of general mental health, Simonse et al. [1] also conducted a mediation analysis where mental health was the dependent variable, financial stress was the mediator, and income, savings, and debts were the independent variables. This analysis found that financial stress mediated the relationship between savings and debts on the one hand, and changes in mental health on the other.

Financial hardship (*n*=4). All studies reported positive associations between financial hardship and poor mental health, including increased depression [22], negative affect [21], psychological distress [23], and maternal anxiety and depression [19].

Meta-Analyses

We performed two random effects meta-analyses using Comprehensive Meta-Analysis version 4.0 to examine the impact of income loss due to COVID-19 on anxiety and depression.

Anxiety. Fifteen cross-sectional studies with a total of 278,854 participants were included to examine mean differences in anxiety between those who lost income and those who did not. The pooled standardised mean difference was 0.26 (95% CI: 0.19-0.32, $p <$ .001), indicating that those who lost income had greater anxiety than those who did not (Figure 2). There was substantial heterogeneity among the included studies ($Q = 349.36$, $df[Q] = 14$, $p < 0.001$; $T = 0.10$, $T^2 = 0.01$; $I^2 = 95.99\%$), however due to a relatively low number of studies a subgroup analysis could not be conducted to determine the cause of this heterogeneity. Egger's test indicated no evidence of publication bias ($B0 = -2.32$, $p = 0.16$), suggesting that the asymmetry observed in the funnel plot (Figure S1, supplementary material) is due to chance rather than selective reporting.

Depression. Sixteen cross-sectional studies with a total of 268,128 participants were included to examine mean differences in depression between those who lost income and those who did not. The pooled standardised mean difference was 0.24 (95% CI: 0.18-0.31, $p < 0.001$), indicating that those who lost income had greater depression than those who did not (Figure 3). There was substantial heterogeneity among the studies ($Q = 351.95$, $df[Q] = 15$, $p < 0.001$; $T = 0.10$, $T^2 = 0.01$; $I^2 = 95.74\%$)%), however due to a relatively low number of studies a subgroup analysis could not be conducted to determine the cause of this

heterogeneity. Egger's test indicated no evidence of publication bias ($B0 = -1.98$, $p = 0.20$; see Figure S2, supplementary material).

Discussion

This review sought to explore the relationship between COVID-19-related financial changes and mental health. A total of 76 studies (17 longitudinal and 59 cross-sectional) met the inclusion criteria; these recruited diverse groups across the globe and examined various mental health outcomes and COVID-19-related financial disruption. The most common mental health outcomes examined were depression and anxiety. Most studies examined objective economic impact, followed by subjective financial stress and financial hardship. Together, the review findings suggest that COVID-19 related financial disruption (including income loss, financial stress, and financial difficulty) negatively impacts mental health (e.g., increased depression, anxiety, and stress) across a range of populations. The findings from the meta-analyses show that those who lost income during COVID-19 (compared to those who did not) experienced greater anxiety and depression levels.

The studies demonstrated mixed findings but evidenced an overall impact of COVID-19 on people's mental health, independent of objective economic impact. Similar results are reported by a systematic review examining the psychological impact of COVID-19 on the general population and healthcare workers [64]. Research on the psychological impact of COVID-19 shows that poor mental health was exacerbated in with pre-existing mental health conditions[65] (. The current review found comparable results, supporting external validity.

Forty-seven cross-sectional studies examined objective economic impact on mental health in the general population, students, and other samples including clinical groups, workers, mothers and pregnant women, older and younger adults, middle-income households, impoverished urban dwellers, and sexual minorities. Most studies (n=45) found that objective economic impact due to COVID-19 (e.g., income loss, job loss, economic burden) was associated with poor mental health including greater anxiety, depression, and stress, and

reduced wellbeing and quality of life. Most studies (*n*=26) recruited general population samples across 14 countries (with one study recruiting from 59 countries), suggesting the results are generalisable to the wider population across the globe. Only three studies found somewhat contradicting results, with objective economic impact not associated with mental health in the general population [32, 33]and Black cisgender sexual minority men and transgender women [54]. The results from Clarke-Deelder et al.'s[32] study are particularly surprising given this study was rated as 'good' in quality due to the large sample, measuring valid outcomes, including a continuous measure of COVID-19-related financial impact, and covarying confounds. Cultural differences and differences in the severity of COVID-19 and country responses to the pandemic may partly explain the findings. Rahman et al.'s [33] heterogenous sample (including patients, healthcare workers, and the public) may explain the surprising results; isolating these samples may lead to different findings (e.g., the authors found that, relative to their counterparts, those with pre-existing mental health difficulties were more likely to develop moderate to high levels of distress). Similarly, Timmins et al.'s [54] very specific sample may exhibit different effects than those typically observed in general population samples; further work is required to closely examine these effects and the potential mechanisms involved (e.g., resilience in minoritised communities). Together, the results strongly suggest that objective economic factors such as income loss are associated with poor mental health.

Consistent with this, ten longitudinal studies suggest that objective economic impact due to COVID-19 was associated with worsening anxiety and depression in the general population. Seven of these ten studies received an overall quality assessment rating of 'fair' or 'good' and controlled for potential confounds (e.g., pre-COVID-19 and current income, employment, pre-pandemic mental health outcomes, and sociodemographic characteristics). Controlling for confounds enhances the internal validity by limiting the influence of variables that may affect the relationship between COVID-19-related financial changes and mental

health. Most of these studies recruited general population samples, supporting the generalisability of the findings to a wider population. However, one of the seven papers which examined the relationship between objective economic impact and mental health (anxiety and depression) found no association (Hagen et al., 2023). This may be because this study had a significant risk of bias (and an overall quality rating of 'poor') due to several methodological limitations, including the high attrition rate (54.95%), sample variability, and discontinuous measurement of economic impact.

Nineteen studies (12 cross-sectional and seven longitudinal) suggest that subjective financial stress due to COVID-19 was associated with worsening mental health. Twelve were in the general population, supporting the generalisability of the findings. One cross-sectional study in sexual minority groups found that greater worries about job loss were associated with greater loneliness, but not anxiety and depression [54]; this study found mixed results in general, possibly due to sample characteristics. Another cross-sectional study found that financial concern was positively associated with stress, though *current* financial concern did not predict *current* mental health [39]; this suggests that the association between financial stress and mental health differs at trait (general) and state (situational) levels.

All but one of the seven relevant longitudinal studies examining subjective economic impact on mental health received an overall quality assessment rating of 'fair' or 'good', and five controlled for potential confounding variables (e.g., job and health stressors, pre-COVID-19 income, and sociodemographic characteristics). There was some evidence that COVID-19-related financial stress may be a more significant predictor of mental health than objective financial hardship. This supports Frankham et al. [5]who found that subjective financial hardship, but not objective financial hardship, predicted mental health and Marjanovic et al. [66] who found that the financial threat scale mediated the relationship between economic hardship and mental health as measured by the General Health Questionnaire. The evidence of subjective financial hardship being a more significant

predictor than objective financial hardship is limited in this review and further research is required. Research measuring both subjective and objective financial hardship and mental health over time would be a useful addition to the literature.

Some studies (seven cross-sectional and four longitudinal) suggest that financial hardship due to COVID-19 was associated with worsening mental health. While fewer studies examined this relationship, all had a low risk of bias, controlled for potential confounds, and many (*n*=7) received an overall quality assessment rating of 'good'. However, most these studies recruited from specific populations (i.e., clinical groups, working adults, middle- and older-aged adults, and mothers/pregnant women), with only three cross-sectional studies in the general population, limiting the generalisability of the results. Further research on the relationship between financial hardship and mental health in the general population is required.

Limitations of the Reviewed Literature

Most studies were cross-sectional and correlational, limiting causal and directional claims. The longitudinal studies demonstrate an impact of COVID-related finances on mental health over time, but there is no way to compare outcomes pre- and post-COVID. Most longitudinal studies were conducted in the first six months of the COVID-19 pandemic, which poses limitations as economic impact, financial stress, and financial hardship may not occur soon after a loss of income or other financial disruption. Similarly, the time between data collection points in the longitudinal studies were brief for several studies, such as Canet-Juric (2020) which had only 12-15 days between surveys. This impacted the validity of the results and contributed to this study receiving an overall quality assessment rating of 'poor'.

There was significant heterogeneity in how studies measured COVID-19-related financial changes. Some used operational definitions of COVID-19-related financial changes with some lacking a clear definition (e.g., Baranov et al. [20]used job loss as a proxy for economic impact). For nearly all studies, it was unclear whether financial consequences were

due to getting ill with COVID, lockdown restrictions, or both. Few studies used standardised, validated financial measures. Most studies used one question to measure financial variables (e.g., income loss) and when several items were used, they did not assess the internal consistency of the scales used. Several studies also dichotomised measurements (e.g., 'economic impact' and 'no economic impact') despite using Likert scales, resulting in information loss and reduced statistical power. Another limitation of dichotomising data is that the extent of variation in outcome between groups can be underestimated, and considerable variability may be subsumed within each group[67]. All these factors have consequences for validity and reliability, given the uncertainty that the specific financial variable is the construct being assessed, whether this assessment is accurate, and ultimately whether it is acceptable to compare these financial constructs across different studies.

All studies used self-rated measures of mental health rather than a formal diagnosis or semi-structured assessment. Participation rates were frequently unclear or unreported, as was information describing the relevant COVID-19 context and relevant restrictions. Most studies recruited self-selecting participants and, therefore, may not be representative of the target populations due to self-selection bias and non-response bias. Relatedly, as most studies utilised online methods, likely due to COVID-19 social distancing measures, people without access to the necessary devices are likely to be underrepresented. Many studies reported that there were limitations in their generalisability due to underrepresentation of specific groups, such as people from ethnic minority backgrounds and of lower socioeconomic status. Most studies reviewed were conducted in countries with a largely individualistic culture and the evidence, therefore, may be different in countries with largely collectivistic cultures.

Strengths and Limitations of the Review

To the best of our knowledge, this is the first systematic review and meta-analysis examining the relationship between COVID-related financial changes and mental health. We

followed PRISMA guidelines and prospectively registered the review on Prospero to enhance transparency and replicability.

Given the nature of the studies included, from this review alone, we cannot determine if the mental health impact of COVID-related financial challenges is different to that of financial problems generally. Additionally, not all financial changes assessed may be a direct impact of COVID, as some studies simply assessed financial changes during the pandemic and other factors may be involved. However, as the COVID-19 pandemic was an unprecedented and catastrophic event impacting individuals, the society, and the economy globally, with many losing their jobs and income, it was important to examine the impact of such financial challenges on mental health. An important public health consideration for future pandemics is that there may be a considerable indirect impact on mental health due to worsened finances.

Most studies were symptom based, demonstrating a short-term increase in symptoms of depression, anxiety, and more, though we cannot assume that there was increase in the prevalence of mental health problems at a community level.

Due to resource and time constraints, studies that were not written in English were excluded. This may have caused selection bias and cultural bias, which may limit the generalisability of the findings. Additionally, only three databases were searched meaning that some papers may have been missed; to partly address this, we conducted hand and citation searches to identify further articles. While one author screened and quality assessed most papers independently, a portion of the papers were screened/quality assessed by an independent rater to reduce risk of bias (10% abstracts screened and 25% papers quality assessed by independent raters). There was substantial agreement between independent raters for both screening and quality assessment, enhancing the validity and reliability of the assessment outcome. Given the subjective nature of the quality assessment tool, we suggest that the ratings (and particularly the overall ratings) be interpreted with caution. Due to a

range of samples and populations studied, and the relatively small number of studies, there was insufficient data for a sensitivity analysis to determine how robust the findings are and any variables that might have impacted the meta-analysis results, and it was also not possible to examine possible causes of heterogeneity via sub-group analyses.

Clinical Implications

This review shows that the COVID-19 pandemic has negatively impacted people's financial circumstances and mental health. Increased vulnerability to poor mental health related to COVID-19-related financial changes may have long-term consequences for both individuals and communities. Government policies which aimed to reduce the financial impact of the pandemic may have improved the mental health at a population level; however, this was not directly assessed by any of the studies here. For any future pandemics, financial assistance may help to mitigate the impact on mental health.

The results suggest that mental health practitioners should assess personal financial circumstances and incorporate these in formulations and interventions, particularly during global economic crises. Therapeutic interventions that benefit individuals facing difficult life events should be offered to people whose mental health has been impacted by COVID-19-related financial disruption. For example, Acceptance and Commitment Therapy and Compassion-Focused Therapy seek to reduce psychological distress by increasing psychological flexibility and the ability to receive compassion, respectively; such interventions could be tailored to those experiencing financial difficulties and linked mental health problems.

Future research

Further research is required to address the limitations and gaps identified in the existing literature. For example, research is needed to understand the mechanisms by which COVID-19-related financial changes impact mental health. As most studies reviewed were conducted in the general population, future research should investigate the effect of COVID-related

financial difficulties on mental health in clinical populations (e.g., those with clinical levels of anxiety and depression) to inform clinical interventions. Studies should also utilise standardised measures of economic impact, financial stress and financial hardship which more adequately measure these constructs and their severity. While this review was conducted in the UK, there was a lack of good quality UK-based studies that met the review criteria. This paucity needs to be addressed to understand the nuances of these relationships in the context of British culture.

Conclusions

Overall, this review demonstrates that COVID-related financial constraints (both objective and subjective) are associated with poor mental health outcomes (particularly anxiety and depression) in the general population, students, and other specific samples such as young and older adults. Given that the COVID-19 pandemic has had significant individual, societal, and global economic effects, further research is needed to continue to understand this relationship and inform relevant policy and interventions.

Acknowledgements

Thank you to the authors of included papers who responded to our queries and provided additional data for our meta-analysis.

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Data Availability Statement

Data files for the meta-analysis are available upon author contact.

Conflict of Interest Statement

TR has received payment and receives royalties for the use of 'Space from Money Worries' by Silvercloud health and is an advisor for 'TellJo' a company around financial vulnerability for which he receives shares and payments. The remaining authors have no conflicts of

Figure 1

PRISMA Flow Diagram

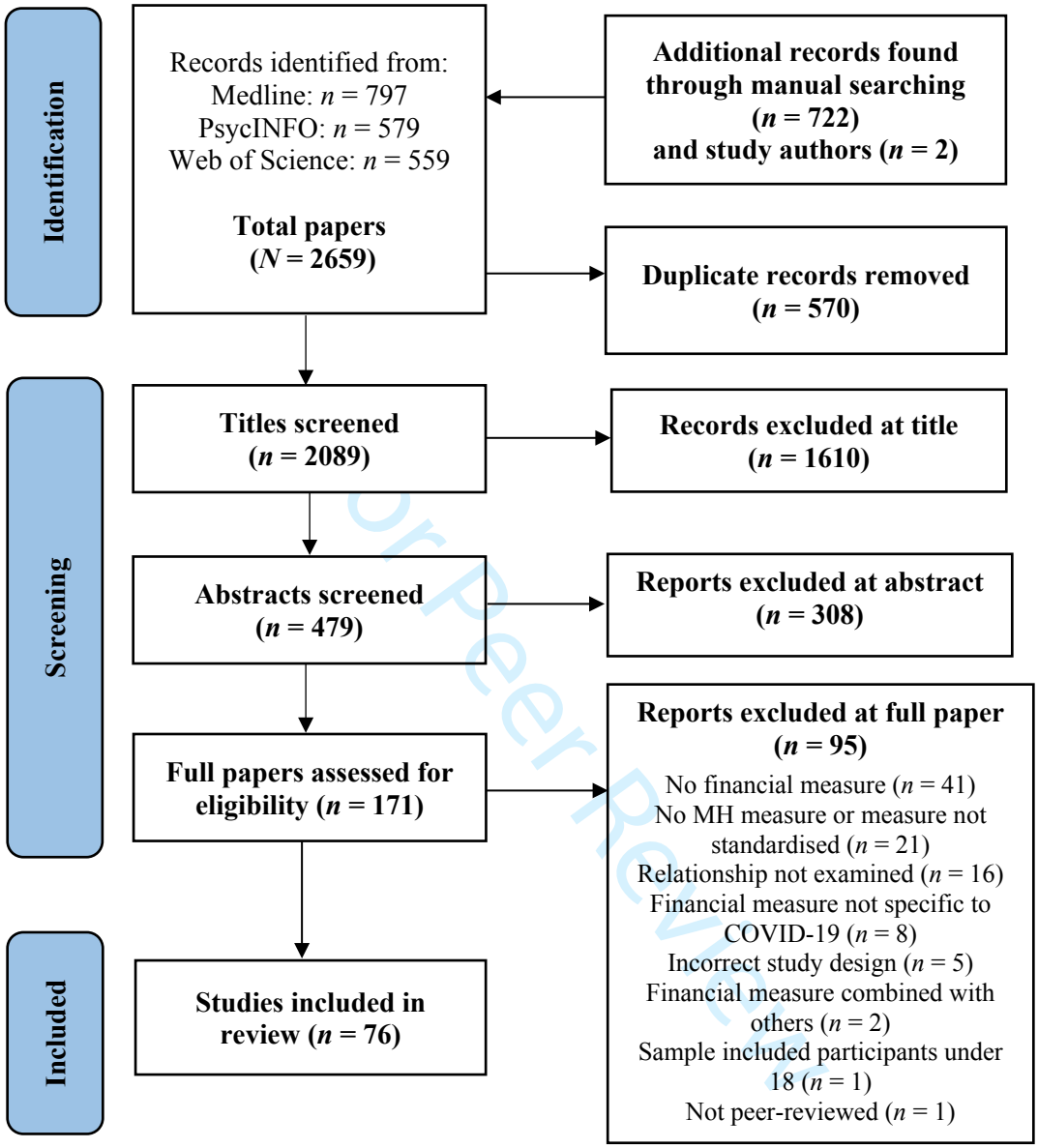


Figure 2

Meta-Analysis Statistics and Forest Plot for Anxiety

Study name	Std diff in means	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Allen et al. (2021)	0.514	0.185	0.034	0.152	0.876	2.780	0.005
Bryson et al. (2021)	0.208	0.153	0.023	-0.092	0.508	1.357	0.175
Bui et al. (2020) - week 3	0.401	0.006	0.000	0.389	0.413	66.866	0.000
Clark-Deelder (2022)	-0.037	0.066	0.004	-0.167	0.092	-0.562	0.574
García-Fernandez et al. (2020)	0.401	0.175	0.031	0.059	0.744	2.296	0.022
Halim et al. (2022)	0.166	0.227	0.051	-0.278	0.611	0.734	0.463
Hyland et al. (2020)	0.313	0.063	0.004	0.190	0.437	4.971	0.000
Irfan et al. (2021)	0.273	0.098	0.010	0.080	0.466	2.772	0.006
Miquel et al. (2022)	0.188	0.042	0.002	0.107	0.270	4.523	0.000
Ruengorn et al. (2021)	0.230	0.071	0.005	0.090	0.369	3.232	0.001
Shevlin et al. (2020)	0.403	0.049	0.002	0.307	0.500	8.197	0.000
Trogolo et al. (2022)	0.137	0.063	0.004	0.014	0.260	2.175	0.030
Wathelet et al. (2020) T1	0.252	0.009	0.000	0.234	0.269	28.792	0.000
Wathelet et al. (2021) T2	0.200	0.017	0.000	0.167	0.233	11.952	0.000
Wathelet et al. (2022) T3	0.292	0.013	0.000	0.266	0.317	22.645	0.000
Pooled	0.255	0.032	0.001	0.193	0.317	8.016	0.000
Prediction Interval	0.255			0.029	0.481		

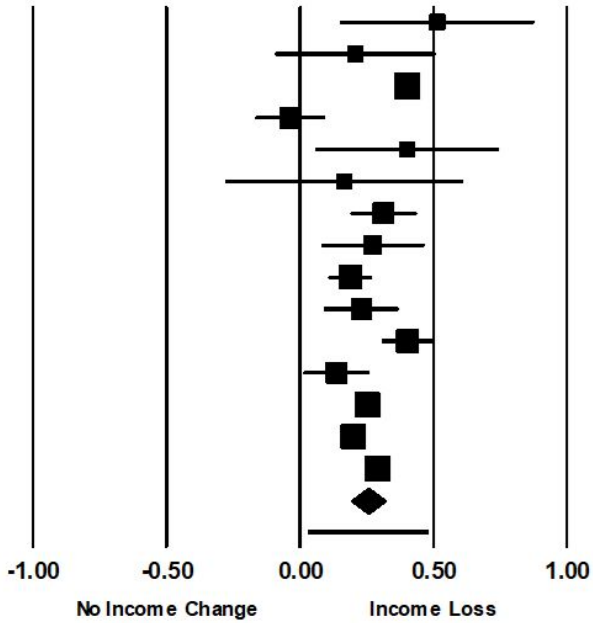


Figure 3

Meta-Analysis Statistics and Forest Plot for Depression

Study name	Std diff in means	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Allen et al. (2021)	0.470	0.184	0.034	0.109	0.832	2.551	0.011
Bryson et al. (2021)	0.229	0.153	0.023	-0.071	0.529	1.495	0.135
Bui et al. (2020)	0.377	0.006	0.000	0.365	0.389	62.923	0.000
Clark-Deelder (2022)	-0.045	0.066	0.004	-0.174	0.085	-0.676	0.499
García-Fernandez et al. (2020)	0.303	0.174	0.030	-0.038	0.644	1.739	0.082
Halim et al. (2022)	-0.179	0.227	0.051	-0.624	0.265	-0.790	0.430
Hyland et al. (2020)	0.360	0.063	0.004	0.236	0.483	5.696	0.000
Islam et al. (2021)	0.497	0.255	0.065	-0.003	0.998	1.949	0.051
Miquel et al. (2022)	0.119	0.042	0.002	0.038	0.201	2.873	0.004
Ruengorn et al. (2021)	0.340	0.076	0.006	0.191	0.489	4.465	0.000
Shevlin et al. (2020)	0.361	0.049	0.002	0.265	0.458	7.357	0.000
Spiro et al. (2021)	0.366	0.126	0.016	0.119	0.612	2.910	0.004
Trogolo et al. (2022)	0.131	0.063	0.004	0.008	0.255	2.093	0.036
Wathelet et al. (2020)	0.224	0.009	0.000	0.206	0.242	24.279	0.000
Wathelet et al. (2021)	0.173	0.017	0.000	0.139	0.207	9.993	0.000
Wathelet et al. (2022)	0.268	0.013	0.000	0.242	0.294	20.248	0.000
Pooled	0.243	0.033	0.001	0.179	0.307	7.459	0.000
Prediction Interval	0.243			0.012	0.474		

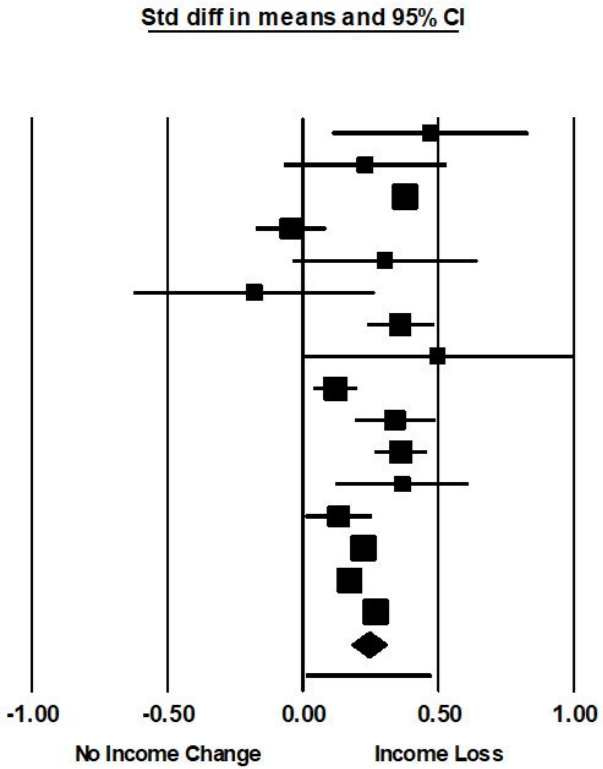


Table S1

Quality Assessment Ratings for Cross-Sectional Studies

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Allen et al. (2021)[68]	Yes	Yes	Yes	Yes	No	No	No	No	No	NA	Yes	NA	NA	No	Poor
Aruta (2021)[28]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	No	Fair
Aruta et al. (2021)[69]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	No	Fair
Bahar Moni et al. (2021)[70]	Yes	Yes	CD	Yes	Yes	No	No	No	No	NA	Yes	NA	NA	Yes	Fair
Bryson et al. (2021)[46]	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	NA	Yes	NA	NA	Yes	Good
Bui et al. (2021)[47]	Yes	Yes	No	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Fair
Chung et al. (2021)[34]	Yes	Yes	Yes	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Clark-Deelder (2022)[32]	Yes	Yes	No	Yes	CD	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Coulombe et al. (2020)[71]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Davis et al. (2021)[25]	Yes	Yes	No	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Fair
Dawel et al. (2020)[72]	Yes	Yes	No	Yes	Yes	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Elaidy et al. (2023)[73]	Yes	Yes	CD	Yes	Yes	No	No	No	No	NA	Yes	NA	NA	Yes	Fair
ElTohamy et al. (2022)[74]	Yes	Yes	No	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Ertl et al. (2022)[75]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Frankenthal et al. (2023)[76]	Yes	Yes	Yes	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Good
Galanza et al. (2023)[26]	Yes	Yes	CD	Yes	No	No	No	No	No	NA	Yes	NA	NA	No	Poor

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
García-Fernandez et al. (2020)[48]	Yes	Yes	CD	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Fair
Guerrero and Barnes (2022)[31]	Yes	Yes	CD	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Good
Halim et al. (2022)[52]	Yes	Yes	CD	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Good
Haque et al. (2022)[77]	Yes	Yes	Yes	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Fair
Hyland et al. (2020)[78]	Yes	Yes	CD	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Good
Irfan et al. (2021)[79]	Yes	Yes	CD	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Fair
Islam et al. (2021)[53]	Yes	Yes	CD	Yes	Yes	No	No	No	No	NA	Yes	NA	NA	Yes	Good
Kim (2021)[38]	Yes	Yes	No	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Lee (2022)[22]	Yes	Yes	CD	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Fair
Lewis et al. (2022)[42]	Yes	Yes	CD	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Good
Li et al. (2023)[50]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Li et al. (2020)[80]	Yes	Yes	Yes	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Liu et al (2021)[44]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Lu et al. (2020)[81]	Yes	Yes	CD	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Fair
Miquel et al. (2022)[82]	Yes	Yes	No	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Fair
Mougharbel et al. (2021)[83]	Yes	Yes	No	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Fair
Nagasu et al. (2021)[36]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Fair

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Nelson et al. (2020)[84]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Odani et al. (2022)[85]	Yes	Yes	No	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Good
Patwary et al. (2022)[41]	Yes	Yes	CD	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Poor
Rahman et al. (2020)[33]	Yes	Yes	CD	Yes	Yes	No	No	No	No	NA	Yes	NA	NA	Yes	Fair
Ruengorn et al. (2021)[86]	Yes	Yes	CD	Yes	Yes	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Sato et al. (2023)[87]	Yes	Yes	No	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Fair
Sekscinska et al. (2022)[88]	Yes	Yes	CD	Yes	Yes	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Şentürk et al. (2021)[39]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Fair
Sharma et al. (2022)[51]	Yes	Yes	CD	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Fair
Shevlin et al. (2020)[89]	Yes	Yes	CD	Yes	Yes	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Shevlin et al. (2022)[29]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Shuster et al. (2021)[58]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Fair
Simha et al. (2020)[35]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Spiro et al. (2021)[40]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Fair
Sujan et al. (2022)[43]	Yes	Yes	CD	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Fair
Sun et al. (2021)[27]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Thayer & Gildner (2020)[45]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Timmins et al. (2022)[54]	Yes	Yes	Yes	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Poor
Trógoloet al. (2022)[90]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	No	Fair
Van de Velde et al. (2021)[91]	Yes	Yes	NR	Yes	No	No	No	Yes	Yes	NA	Yes	NA	NA	Yes	Good
Wathelet et al. (2020)[92]	Yes	Yes	No	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Good
Wathelet et al. (2021)[93]	Yes	Yes	No	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Wathelet et al. (2022)[94]	Yes	Yes	No	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Wichaidit et al. (2022)[95]	Yes	Yes	Yes	Yes	Yes	No	No	NA	No	NA	Yes	NA	NA	Yes	Good
Zajacova et al. (2020)[37]	Yes	No	No	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Fair
Zhao et al. (2021)[30]	Yes	Yes	Yes	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good

Note: See key below for quality assessment questions. Given the subjective nature of the quality assessment tool, we suggest that the ratings (and particularly the overall ratings) be interpreted with caution.

Key:

1. Was the research question or objective in this paper clearly stated?

2. Was the study population clearly specified and defined?

3. Was the participation rate of eligible persons at least 50%?

4. Were all the subjects selected or recruited from the same or similar populations (including the same time period)? Were inclusion and exclusion criteria for being in the study prespecified and applied uniformly to all participants?

5. Was a sample size justification, power description, or variance and effect estimates provided?

6. For the analyses in this paper, were the exposure(s) of interest measured prior to the outcome(s) being measured?

7. Was the timeframe sufficient so that one could reasonably expect to see an association between exposure and outcome if it existed?

8. For exposures that can vary in amount or level, did the study examine different levels of the exposure as related to the outcome (e.g., categories of exposure, or exposure measured as continuous variable)?

9. Were the exposure measures (independent variables) clearly defined, valid, reliable, and implemented consistently across all study participants?

10. Was the exposure(s) assessed more than once over time?

11. Were the outcome measures (dependent variables) clearly defined, valid, reliable, and implemented consistently across all study participants?

12. Were the outcome assessors blinded to the exposure status of participants?

13. Was loss to follow-up after baseline 20% or less?

14. Were key potential confounding variables measured and adjusted statistically for their impact on the relationship between exposure(s) and outcome(s)?

15. Overall quality rating

Abbreviations: CD = cannot determine; NA = not applicable; NR = not reported; Pop. = population; Part. = participation

Table S2

Quality Assessment Ratings for Longitudinal Studies

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Badellino et al. (2022)[60]	Yes	Yes	NR	No	No	No	Yes	Yes	Yes	No	Yes	NA	No	No	Poor
Baranov et al. (2022)[20]	Yes	Yes	Yes	Yes	No	No	Yes	No	No	No	Yes	NA	Yes	Yes	Fair
Batterham et al. (2021)[61]	Yes	Yes	NR	Yes	Yes	No	Yes	Yes	Yes	No	Yes	NA	No	Yes	Fair
Bierman et al. (2021)[61]	Yes	Yes	NR	Yes	No	No	Yes	Yes	Yes	Yes	Yes	NA	No	Yes	Good
Canet-Juric et al. (2020)[55]	Yes	Yes	NR	Yes	No	No	No	Yes	Yes	No	Yes	NA	NR	No	Poor
Choi et al. (2023)[21]	Yes	Yes	NR	Yes	No	No	Yes	Yes	Yes	No	Yes	NA	NR	Yes	Good
Feter Et al. (2021)[24]	Yes	Yes	NR	Yes	Yes	No	Yes	No	Yes	No	Yes	NA	Yes	No	Fair
Graupens-Berger et al. (2022)[62]	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good
Hagen et al. (2023)[56]	Yes	Yes	NR	No	No	No	Yes	No	Yes	No	Yes	NA	No	Yes	Poor
Hertz-Palmor et al. (2021) - Study 1[57]	No	Yes	NR	Yes	No	No	Yes	Yes	Yes	No	Yes	NA	No	Yes	Fair
Hertz-Palmor et al. (2021) - Study 2[57]	No	Yes	NR	Yes	No	No	Yes	Yes	Yes	No	Yes	NA	No	Yes	Fair
Lee et al. (2022)[22]	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes	NA	NR	Yes	Good
Murray et al. (2023)[19]	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes	NA	Yes	Yes	Good
Shuster et al. (2021)[58]	Yes	Yes	NR	No	No	No	Yes	Yes	Yes	Yes	Yes	NA	No	Yes	Fair

Simonse et al. (2022)[1]	Yes	Yes	NR	Yes	No	No	Yes	Yes	Yes	Yes	Yes	NA	No	Yes	Good
Strizzi et al. (2023)[59]	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes	No	Yes	NA	No	Yes	Fair
Weber et al. (2023)[63]	Yes	Yes	NR	Yes	No	No	Yes	Yes	Yes	No	Yes	NA	No	Yes	Fair

Note: See Table 1 note for quality assessment questions. Given the subjective nature of the quality assessment tool, we suggest that the ratings (and particularly the overall ratings) be interpreted with caution.

Table S3. *Data Extracted from Cross-Sectional Studies in General Population Samples*

Authors, date, country	**Study period / COVID-19 phase**	**Analytic sample**	**Mental health variable and measure**	**Financial change during COVID-19 variable and measure**	**Main (relevant) findings**
Allen et al. (2021)[68], United Kingdom	15 Apr - 8 Jun, 2020: First lockdown	General adult population (*N* = 200). Age 18-62; 7.86.0% female, 93.0% White, 92.5% UK-based, 73.5% students	**Psychological well-being:** Psychological well-being scale (PWB18) **Anxiety:** Generalized Anxiety Disorder Scale (GAD-7) **Depression:** Patient health questionnaire (PHQ-9) **Loneliness:** UCLA loneliness scale (UCLA3)	**Financial changes:** "Are you facing reduced work hours and reduced income due to the COVID-19 pandemic?" (Yes, no or not applicable)	Those who had less income had poorer psychological wellbeing. People with less working hours/income reported significantly more anxiety, depression and loneliness.

Authors, date, country	**Study period / COVID-19 phase**	**Analytic sample**	**Mental health variable and measure**	**Financial change during COVID-19 variable and measure**	**Main (relevant) findings**
Aruta (2021)[28], Phillipines	Last week of Apr to second week of May 2020: Early phase of community quarantine	General Filipino adult population (N = 401). Age 18-68 years (M = 30.09, SD = 11.15); 63.34% female, 36.41% male, 1 did not report gender	**Distress:** Brief Symptoms Inventory (BSI) - symptoms related to anxiety and depression	**Financial difficulties:** "Do you or your family currently experience financial difficulties due to the Coronavirus crisis (such as unemployment, reduced business activity and so on)?" With a Likert scale (1-5)	Those with more familial financial difficulties were more likely to experience higher psychological distress (β = .18, t = 4.00, $p \leq .001$).

Authors, date, country	**Study period / COVID-19 phase**	**Analytic sample**	**Mental health variable and measure**	**Financial change during COVID-19 variable and measure**	**Main (relevant) findings**
Aruta et al. (2021)[69], Phillipines	Last week of Apr to second week of May 2020: Early phase of community quarantine	General Filipino adult population (N = 401). Age 18-68 years (M = 30.09, SD = 11.15); 63.34% female, 36.41% male, 1 did not report gender	**Psychological distress:** Brief Symptoms Inventory (BSI) - symptoms related to anxiety and depression **Quality of life:** My LifeToday scale (MLT)	**Financial difficulties:** "Do you or your family currently experience financial difficulties due to the Coronavirus crisis (such as unemployment, reduced business activity and so on)?" with a Likert scale (1-5)	Those with more financial difficulties had more psychological distress. Psychological distress mediated the negative relationship between financial difficulties and quality of life (B = −0.04, β = −0.06, SE = 0.02, p ≤ 0.001).

Authors, date, country	**Study period / COVID-19 phase**	**Analytic sample**	**Mental health variable and measure**	**Financial change during COVID-19 variable and measure**	**Main (relevant) findings**
Chung et al. (2021)[34], China	Sept 11 to Oct 12, 2020	General adult population in Hong Kong (*N* = 1053). Age: 33.2% 18–39, 45.6% 40–64, 21.2% ≥65; 55.2% female	**Depression and Anxiety:** Patient Health Questionnaire (PHQ-4)	**Financial worry:** 1. Financial and livelihood worries (e.g., job or income loss), rated on a 5-point scale. 2. Worry about personal savings rated on a 5-point scale.	Financial and livelihood worries predicted poorer mental health (β=0.134; p=0.007). These worries mediated the association between greater deprivation and mental health disorders (β = 0.222 × 0.134 = 0.030; p = 0.004).
Clark-Deelder (2022)[32], Uganda	Dec 2020 to Apr 2021: Peak of first wave in Dec 2020	General Ugandan adult population (*N* = 4066)	**'Psychological distress':** Patient Health Questionnaire (PHQ-4)	**Financial change:** Change in income since March 2020 due to COVID-19 restrictions (4 response options for extent of change)	No clear association between psychological distress (anxiety and depression) and income change.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Dawel et al. (2020)[72], Australia	Mar 28–31. 2020: First wave	General adult population (*N* = 1296). Age (*M* = 46, *SD* = 17.3). 50.2% female, 49.8% male	**Depression** Patient Health Questionnaire-9 (PHQ-9) **Anxiety** Generalized Anxiety Disorder-7 (GAD-7) **General psychological wellbeing** World Health Organization Wellbeing Index (WHO-5)	**Income loss:** Job loss due to COVID-19" (yes or no) **Financial distress:** Financial distress due to COVID-19 (6 point scale)	COVID-19 induced financial distress predicted greater depression and anxiety and less general psychological wellbeing.

Authors, date, country	**Study period / COVID-19 phase**	**Analytic sample**	**Mental health variable and measure**	**Financial change during COVID-19 variable and measure**	**Main (relevant) findings**
Elaidy et al. (2023)[73], Kuwait	Nov 2020 - Jan 2021 (exact dates not reported)	General adult population (N = 415). Age (M = 35.03, SD = 10.9) years, 63.1% female	**Distress:** Arabic version of Kessler Psychological Distress Scale (K-10)	**Financial change:** COVID-19 impacted financial situation (yes or no)	Psychological distress was greater for those whose financial situation was affected by COVID-19 (OR = 1.184, 95% CI 1.040, 1.348).
Ertl et al. (2022)[75], 59 countries	April 19 to May 3, 2020: Early phase; effects of pandemic different in each country though most had peak cases and restrictions	General adult population (N = 6882). Age: 18-94, (M = 42.30 years, SD = 13.95); 78.8% female, 20.9% male, 0.2% transgender or nonbinary	**Trauma-Related Distress:** Child-Revised Impact of Events Scale (CRIES-8) posttraumatic intrusion/avoidance	**Financial changes and difficulties:** Epidemic-Pandemic Impacts Inventory (EPII), 9 items: 1. 7 questions from Work and Employment subscale including, "Laid off from job or had to close own business"	Job loss (β = 0.029, p = 0.022), reduction of work hours (β = 0.042, p = <.001) and inability to pay bills (β = 0.045, p = 0.001) predicted trauma-related distress.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
				2. 2 questions from Economic subscale including, “Unable to get enough food or healthy food”)	

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Frankenthal et al. (2023)[76], Israel	May - Sept, 2020. T1: May – Jun 2020 (reduction of cases and restrictions) T2: July – Sept 2020 (rising cases and restrictions)	General adult population (*N* = 2504). Age: 31.8% 21-34; 29.8%35-49, 22.3% 50–64, 16.1% 65+; 51.1% female, 48.9% male	**Depression and Anxiety:** 5-item Mental Health Inventory	**Financial changes:** Change in average monthly household income (declined or no change/increased)	A decrease in average household income per month during COVID-19 was associated with poor mental health (i.e., greater anxiety and depression)
Guerrero and Barnes (2022)[31], Canada	T1: fall of 2020 (second COVID wave); T2: spring of 2021 (third wave began in Mar with more restrictions).	General adult population (*N* = 22,721). Age 18+ years - overall age and gender not reported (reported by mental health profile in Table 2 of article)	**Anxiety:** Generalized Anxiety Disorder Scale (GAD-7) **Depression:** Patient Health Questionnaire-9 (PHQ-9) **Distress:** Kessler	**Financial changes:** Loss of job or income **Financial difficulty:** Difficulty meeting financial obligations/ essential needs.	Those with low/moderate and severe mental health difficulties (including anxiety, depression, and distress) had increased odds of struggling to meet financial obligations and losing their job/income compared to those without mental health difficulties.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
	Exact dates not recorded.		Psychological Distress Scale (K10)		
Hyland et al. (2020)[78], Ireland	Mar 31 and Apr 5, 2020: first week of quarantine (31 days post first COVID-19 case in Ireland; 19 days after initial social distancing	General adult population (*N*=1041). Age 18-88 (*M* = 44.97, *SD* = 15.76). 51.5% female, 48.2% male, 0.3% transgender or prefer not to say	**Depression:** Patient Health Questionnaire-9 (PHQ-9) **Anxiety:** Generalized Anxiety Disorder 7-item Scale (GAD-7)	**Financial changes:** Loss of income due to COVID-19 (yes, no or unsure)	Income loss due to COVID-19 was positively associated with screening positive for anxiety and depression.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
	restrictions began).				

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Kim (2021)[38], United States	Sept 2—Dec 21, 2020: Rise in infection rates with some restrictions in place	General adult population (*N* = 91,222). Age 18-64 (*M* = 40.3); 51.9% female	**Anxiety and depression:** Patient Health Questionnaire (PHQ-2)	**Financial hardship:** Difficulty paying expenses (not at all/a little/somewhat/very difficult)	Those who reported experiencing financial hardship 'somewhat' had twice as greater risk of experiencing anxiety (1.96, 95% CI = 1.85–2.08, $p < .001$) and depression (2.75, 95% CI = 2.54–2.98, $p < .001$) than those who reported no hardship. Those who reported 'considerable' financial hardship had 3 times greater risk of experiencing anxiety (2.61, 95%CI = 2.46–2.76, $p < .001$) and depressive symptoms (2.75, 95%CI = 2.54–2.98, $p < .001$) than no hardship.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Lu et al. (2020)[81], China	Jun 8-18, 2020: Two months since lockdown eased; few cases of COVID	Adults in Wuhan (N = 1417): 73% general public; 27% frontline healthcare workers; 70% aged 26-40. 83.4% female, 16.6% male	**Depression:** Patient Health Questionnaire (PHQ-9) **Anxiety:** Generalised Anxiety Disorder scale (GAD-7) **Post-Traumatic Stress Disorder:** Posttraumatic Stress Disorder Checklist (PCL)	**Financial changes:** Income change during the COVID-19 outbreak (increase, no change or decrease)	Those with income loss were at more risk of anxiety (OR [95%CI]: 2.49 [1.43–4.33]; $p = 0.001$) and depression (OR [95%CI]:1.85 [1.07–3.21]; $p = 0.028$).

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Mougharbel et al. (2021)[83], Canada	May 8-12, 2020: First wave (peak of first wave was end of May)	English-speaking Canadian adults (*N* = 1005); 504 male, 498 female, 3 other; 698 white	**Depression:** Centre for Epidemiologic Studies Depression Scale 3-item (CES-D) **Anxiety:** Generalized Anxiety Disorder scale (GAD-7)	**Financial worry:** Worries about the impact of COVID-19 on personal financial situation (very, somewhat, not very, not at all)	Financial worries were associated with greater likelihood of anxiety and depression. Binge drinking and anxiety (OR 3.09; 95% CI, 1.97–4.85), binge drinking and depression (OR 1.81; 95% CI, 1.12–2.94).
Nagasu et al. (2021)[36], Japan	Mar 26-28, 2020: Early phase	General adult population (*N* =11,342). Age 20-64 (*M* = 43.5, *SD* = 12.0); 50.6% men, 49.4% women	**Psychological Distress:** Japanese version of Kessler Psychological Distress scale (K6)	**Financial worry:** Worry about impact on finances (e.g., income) after COVID-19 (yes or no)	There was a non-significant trend for a positive association between worries about the impact of COVID-19 on finances with psychological distress (Adjusted OR 1.084, 95% Cl[0.941-1.191]).

Authors, date, country	**Study period / COVID-19 phase**	**Analytic sample**	**Mental health variable and measure**	**Financial change during COVID-19 variable and measure**	**Main (relevant) findings**
Nelson et al. (2020)[84], Unites States, Canada, and Europe	Mar 19-Apr 10, 2020: Early phase	General adult population (*N* = 2065). Age 18-77 (*M* = 34.40, *SD* = 11.49); 69.20% female	**Anxiety:** Generalized Disorder Scale (GAD-2) **Depression:** Patient Health Questionnaire-2 (PHQ-2).	**Financial strain:** 1. "Have you lost income?" (yes or no) 2. "Money situation" (comfortable, enough, cutting back, not enough) 3. "Job loss" (yes or no) 4. "Food security: ran out and didn't have money to get more" (never, sometimes, often)	There was a positive association between employment loss and depressive symptoms (B = 0.456, SE = 0.084, $p < 0.001$, 95% CI [0.291 – 0.622]) and anxiety (B = 0.346, SE = 0.093, $p < 0.001$, 95% CI [0.165 – 0.528]).

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Odani et al. (2022)[85], Japan	August 25 - September 30th, 2020: Early phase	General population (*N* = 2065). Age 15-79; 50.3% female, 49.7% male	**Psychological Distress:** Kessler 6 scale (K6)	**Financial hardship:** 1. Income change since COVID-19 began (scale 0-100) 2. If they had a shortage of money for necessities 3. Whether the hardships only began after COVID-19 started **Financial anxiety:** 1. If they felt anxious regarding the budget for their household	Income loss was associated with experiencing serious psychological distress. Shortage of money and anxiety about finances were significantly associated with serious psychological distress.
Rahman et al. (2020)[33], Australia	Jun 1-30, 2020: During strict	General adult population (*N* = 587). Age 18-77 (*M* = 41.3,	**Distress:** Kessler Psychological Distress Scale (K10)	**Financial change:** "Covid-19 impacted	Having a financial situation impacted by COVID-19 was not associated with having

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
	lockdown restrictions	*SD* = 12.5); 61.8% female		financial situation" (yes or no)	psychological distress (adjusted OR 1.14, 95% Cls 0.76-1.72).
Sekscinska et al. (2022)[88], Poland	May 5-12 2020: First wave	General adult population (*N* = 977). Age 18-87 (*M* = 38.68, *SD* = 11.59); 64.5% female	**Anxiety:** Polish version of the General Anxiety Disorder scale (GAD-7) **Depression:** Polish version of the Patient Health Questionnaire (PHQ-9)	**Objective financial situation:** Income, ownership of savings, whether they saved money pre COVID-19, financial liabilities. **Subjective financial situation:** Rated: financial situation, COVID-19-related financial change, financial security, and job security.	Objective and subjective financial difficulties predicted greater anxiety and depression. Higher financial security associated with reduced anxiety and depression. Objective financial variables: anxiety (R2 change = 0.006, *p* = 0.235); depression (R2 change = 0.005, *p* = 0.308). Subjective financial variables: anxiety (R2 change = 0.029, *p* <

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
					0.001); depression (R2 change = 0.027, $p < 0.001$).
Shevlin et al. (2020)[89], United Kingdom	March 23 and 28 2020: First wave - study began on same day that lockdown was announced	General adult population (N = 2025). Age 18-83 (M = 45.55, SD = 15.9); 51.7% female, 48.0% male, 0.3%	**Depression:** Patient Health Questionnaire (PHQ-9) **Anxiety:** Generalized Anxiety Disorder (GAD-7) **Traumatic stress:**	**Income change:** Household income lost due to COVID-19 (yes, no, not sure)	Those who had a reduction of income during COVID-19 had greater risk of depression and anxiety. Income reduction had little effect on traumatic stress.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
		transgender/prefer not to say/other	International Trauma Questionnaire (ITQ) ICD-11 PTSD		
Shevlin et al. (2022)[29], United Kingdom	Aug 6 - Sept 28, 2021: Wave 6 - only some social distancing restrictions in place	General adult population (*N* = 2025). Age 18-83 (*M* = 45.55, *SD* = 15.9); 51.9% female, 47.8% male, 0.2% transgender/prefer not to say/other	**Generalised Anxiety Disorder:** Generalised Anxiety Disorder scale (GAD-7) **Major Depressive Disorder:** Patient Health Questionnaire (PHQ-9)	**Debt changes:** 1. "Has your overall debt increased or decreased this month due to COVID-19" 2. Subjective rating of the manageability of their debt on Likert scale (1-5)	Dose-response association with greater debt management issues and greater depression and anxiety. Adjusted odd ratios anxiety: 2.28-11.18 from some debt problems to very serious. Adjusted odd ratios depression: 2.8-16.21 from some debt problems to very serious.

Authors, date, country	**Study period / COVID-19 phase**	**Analytic sample**	**Mental health variable and measure**	**Financial change during COVID-19 variable and measure**	**Main (relevant) findings**
Shuster et al. (2021)[58], United States	Apr 2 - Jun 4, 2020: First wave - some restrictions	General adult population (*N* = 743). T1 Age (*M* = 35.04, *SD* = 13.08); 49.18% females	**Depression:** Zung Self-Rating Depression scale (SDS) **Anxiety:** State-Trait Anxiety Inventory (STAI)	**Economic impact:** "Rate the impact that COVID-19 had on your financial situation"	Lower income and worsening financial situation due to COVID-19 was associated with greater depression and anxiety.
Simha et al. (2020)[35], United Kingdom	April 23 and 28, 2020: First wave	Clinically high risk and financially vulnerable participants (*N* = 15, 691). Age (M = 51.2); 58.4% females. 21% financially vulnerable	**Mental Distress:** General Health Questionnaire (GHQ-12)	**Financial Vulnerability:** How financially vulnerable participants thought they were (very low, low, medium, high, extreme vulnerability)	Participants who thought they were financially vulnerable due to COVID-19 had greater mental distress (β = 0.294, 95% CI, LLCI = 1.88, ULCI = 2.09).

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Wichaidt et al. (2022)[95], Thailand	Late Apr 2021: Beginning of third wave	General adult population (N = 1555). Age (M = 41.0, SD = 0.3). 51.7% female, 48.3% male	**Anxiety:** Generalised Anxiety Disorder Scale (GAD-7) Thai version **Depression:** Patient Health Questionnaire (PHQ-2) Thai version	**Emergency cash reserves:** How participants would cover an emergency cash payment within one week (responses selected from a list of options) **Economic Distress:** Economic distress since COVID-19 and economic distress in previous 30 days	Anxiety and depression were higher in those who experienced economic distress within last 30 days than those who did not (the effect for depression was rendered non-significant when demographic characteristics were covaried). Having emergency cash reserves did not moderate the association between economic distress and anxiety and depression.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Zajacova et al. (2020)[37], Canada	Survey 1: Mar 29 - Apr 3, 2020. Survey 2: May 4 - May 10, 2020: Early phase with distancing restrictions	General population (*N* = 4627 in Mar, 4600 in May): Age 15+ years: 14.2% 15-24, 16.9% 25-34, 16.1% 35-44, 15.2% 45-54, 16.7% 55-64, 14.9% 65-74, 6.1% 75+; 51.7% female, 48.3% male	**Anxiety:** Generalized Anxiety Disorder Scale (GAD-7) (Cycle 2 only)	**Employment security:** "I might lose my main job or main self-employment income sources in the next four weeks" (1-5 agreement scale) **Financial hardship:** Impact of COVID-19 on meeting financial obligations (major, moderate, minor, none, cannot tell) **Food security:** Food secure or insecure (Cycle 2 only)	Greater financial hardship due to COVID-19, food insecurity, and unsecure employment status were associated with greater anxiety.

Authors, date, country	**Study period / COVID-19 phase**	**Analytic sample**	**Mental health variable and measure**	**Financial change during COVID-19 variable and measure**	**Main (relevant) findings**
Zhao et al. (2021)[30], China	Apr 9-23, 2020: 2–4 weeks after second wave peaked	General Chinese adult population in Hong Kong (*N* = 1501). Age (*M* = 41.3); 55.2% female, 44.8% male	**Stress:** Perceived Stress Scale (PSS-4) **Anxiety and depression:** Patient Health Questionnaire (PHQ-4) including 2 questions from General Anxiety Disorder scale (GAD-2)	**Income loss:** Income reduction since the start of COVID-19 (none, small, half, larger or unemployed)	Income loss due to COVID-19 was positively associated with stress, anxiety, and depression; these mental health problems were further increased for those who lost their jobs during the pandemic.

Table S4. *Data Extracted from Cross-Sectional Studies in Student Samples*

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Davis et al. (2021)[25], Liberia	Jul 1 - Oct 31, 2020: During first (Mar -Sept 20) and second (Sept 20-May 21) waves	Medical/pharmacy students (N = 113). Median age 28 years (IQR = 26, 32). 61.9% men, 75.2% single	**Depression:** Patient Health Questionnaire - Depression Scale (PHQ-8)	**COVID-19-related financial concerns:** Series of questions about how finances were impacted by COVID-19 (range of response options varying per question)	Worries about finances were associated with increased stress, distress, and depression. Variable depression scores in those who reported actual income loss.
ElTohamy et al. (2022)[74], United States	Jan - early Jun, 2021 (most data collected in Feb and Mar): Wave of COVID-19 variant 'alpha' (some social distancing restrictions; rise of cases through winter and spring 2021)	Undergraduate students (N = 65,568). Age 87.3% 18-24 years; 68.2% female	**Psychological Distress:** Kessler Screening Scale for Psychological Distress **Anxiety:** Asked if ever diagnosed by professional **Depression:** Asked if ever diagnosed by professional	**Financial hardship:** Effect of the COVID-19 pandemic on financial situation - rated on a 5-point scale from 'a lot more stressful' to 'a lot less stressful'.	Those with greater financial hardship due to the pandemic had the greatest chances of experiencing psychological distress (OR: 1.78, $p < 0.0001$).

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Galanza et al. (2023)[26], Phillipines	Sept - Oct, 2020 (exact dates not reported)	Filipino university students (N = 681). Age 18-24 years (M = 19.45, SD = 1.13); 64.90% female	**Depression, Anxiety, Stress:** Depression Anxiety Stress Scale (DASS-21)	**Financial difficulties:** "Do you or your family currently experience financial difficulties due to the Coronavirus crisis?" (yes/no)	Financial difficulties predicted greater depression and anxiety (though not stress).
Irfan et al. (2021)[79], Malaysia	Jun - Jul, 2020: few cases during this time	University students (N = 958). Age 69.6% below 20 years; 70.9% female, 29.1% male.	**Anxiety:** Generalised Anxiety Disorder Scale (GAD-7)	**Income change:** Family income decreased (yes/no)	Reduction in family income due to COVID-19 increased odds of greater anxiety by 1.7 (95% CI = 1.34 to 2.17). Loss of family income was one of the strongest risks for experiencing greater anxiety.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Sato et al. (2023)[87], Japan	Aug 25 - Sept 30, 2020: Wave 2 (Aug - Sept 2020) where transmission was increasing	Undergraduate students (*N* = 958) median age 20; 56.8% women	**Distress:** Kessler Psychological Distress Scale (K6)	**Income change:** 1. Series of questions including income change (response as percentage lost), job loss (yes or no), unpaid wages (yes or no) 2. Cannot afford necessities, school fees or food (yes, no or started before pandemic)	Reduction in income was associated with psychological distress. Compared to those whose income did not change during COVID-19, those whose income decreased by 50-99% reported greater distress (prevalence ratio [PR] = 1.48). Distress in those with unpaid wages compared to paid wages: PR = 1.44. Distress in those with money shortage for necessities compared to no shortage: PR = 1.45.
Sun et al. (2021)[27], China	Mar 20 - Apr 10, 2020: Early in quarantine (two months after outbreak began)	University students (*N* = 1912). Age (*M* = 20.28, *SD* = 2.10); 69.77% female	**Anxiety:** Generalized Anxiety Disorder Scale (GAD-7) **Depression:** Patient Health Questionnaire (PHQ-9) **Traumatic stress:** Impact of Events scale (IES): questions asked in context of COVID-19	**Financial stress:** Amount of financial stress caused by COVID-19 (5-point scale)	Financial stress due to COVID-19 predicted increased anxiety, depression, and traumatic stress.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Van de Velde et al. (2021)[91], 26 high/middle income countries	Apr 27 - July, 2020: First wave with lockdown across all countries	Higher education students (*N* = 20, 103; 73.9% female; 78.2% less than 26	**Depression:** Center for Epidemiologic Studies (CES-D-8) questionnaire	**Financial status:** 1. Had enough money for monthly costs before COVID-19 (struggled or didn't) 2. Change in financial situation (worse or better during COVID-19) 3. How many people they can borrow money from (up to 5 or more)	Those with financial issues before COVID-19, those with no one or only 1-2 people to borrow money from, and those with more financial difficulty since COVID-19 had greater depression.
Wathelet et al. (2020)[92], France	Apr 17 - May 4, 2020: During lockdown in the acute phase	University students (*N* = 69,054). Age (median 20 years); 72.8% female, 26.1% male, 1.1% nonbinary	**Distress:** Impact of Events Scale - Revised (IES-R) **Stress:** Perceived Stress Scale (PSS-10) **Anxiety:** State-Trait Anxiety Inventory (STAIY-2) **Depression:** Beck Depression Inventory (BDI-13) **Suicidal thoughts** in preceding month (yes or no; unstandardised question)	**Financial change:** Income loss due to COVID-19	Income loss was associated with distress, stress, anxiety, depression, and suicidal thoughts. Compared to those who did not lose income, those who did were at greater risk of experiencing at least one mental health problem (OR, 1.28; 95%CI, 1.22-1.33; P < .001).

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Wathelet et al. (2021)[93], France	Jun 15 - Jul 15, 2020: One month after the end of the first lockdown	University students (N = 22,883). Female (72.2%), male (25.8%), others (1.5%); average age 21 (+4).	**Post Traumatic Stress Disorder (PTSD):** PTSD Checklist (PCL-5)	**Financial change:** Income loss due to COVID-19	Income loss associated with probable PTSD (OR =1.20 [95% CI: 1.09–1.31], $p < 0.001$).
Wathelet et al. (2022)[94], France	Jul 21 - Aug 31, 2021: 15 months after the start of the pandemic	University students (N = 44,898). Age 18-21 years (median = 19) Female (70.7%), men (27.7%), nonbinary (1.6% and were excluded).	**Post Traumatic Stress Disorder (PTSD):** PTSD Checklist (PCL-5) **Stress:** Perceived Stress Scale (PSS-10) **Depression:** Beck Depression Inventory (BDI-13) **Anxiety:** State-Trait Anxiety Inventory State (STAI Y-2) **Suicidal thoughts** in preceding month (yes or no; unstandardised question)	**Financial difficulties:** Difficulty making ends meet each month (significant, moderate, none)	Greater financial difficulties were associated with greater PTSD, stress, depression, anxiety, and suicidality. Relative to those with no/few financial difficulties, those with moderate difficulties had ORs ranging from 1.36 (95% CI, 1.27-1.45) for suicidal thoughts to 1.75 (95% CI, 1.67-1.84) for PTSD. Those with significant difficulties had ORs ranging from 2.19 (95% CI, 2.03-2.35) for suicidal thoughts to 3.44 (95% CI, 3.21-3.68) for depression.

Table S5. *Data Extracted from Cross-Sectional Studies in Other, Specific Samples*

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Bryson et al. (2021)[46], Australia	6 May - 23 Nov 2020: first wave ended by May, second wave not begun though ended in Oct with some restrictions	Mothers and children with adversity pre-COVID (N = 319); mothers' ages not reported, all female	**Maternal Mental Health:** Depression, Anxiety and Stress Scales (DASS-21) **Child Mental Health:** Coronavirus Health Impact Survey 3.0 Child Mood States Scale (CRISIS 3.0)	Questions from Household, Income and Labour Dynamics in Australia: **Changes to financial circumstances:** Has there been a job loss (yes or no) or a reduced ability to work? (yes or no) **Financial harship:** Struggle to pay rent, bills, food, healthcare or car insurance (yes or no)	More financial hardship was associated greater maternal and child mental health symptoms even after pre-COVID-19 mental health was controlled (β = 0.27, p<0.001).

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Bui et al. (2021)[47], United States	23 Apr 2020 surveys began: First wave (Mar-Sept 2020) - data pooled into cross-sectional dataset	Older adults (*N* = 94,550). Age: 55-88; 55.2% female; 80,5233 non-Hispanic white, 5,718 non-Hispanic black, 2,908 non-Hispanic Asian, 5371 Latino	**Emotional distress:** 4 questions from Patient Health Questionnaire and Generalized Anxiety Disorder Scale.	**Financial hardship:** 1. Has anyone in your household suffered a loss of employment income since March 13 (yes or no) 2. Did your household make the last rent or mortgage payment on time (did or didn't)	Those with income loss who expected further losses experienced greater distress. Those who did not make a house payment on time and didn't anticipate being able to experienced greater distress.
Coulombe et al. (2020)[71], Canada	Mar 2020: First wave (one week after social distancing measure)	Canadian workers (*N* = 1122) who had worked at least 20hrs per week pre-COVID. Age (*M* = 39.43, *SD* = 12.13); 74.2% female; 85.5% born in Canada; 89% Caucasian	**Stress:** Perceived Stress Scale (PSS) to assess perceived stress within the last week **Distress:** Patient Health Questionnaire (PHQ-4) for anxiety and depression	**Income Loss:** Report percentage of current income compared to pre-pandemic (scale of 0-100)	Income loss was associated with greater stress and distress.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
García-Fernandez et al. (2020)[48], Spain	Mar 29 - Apr 5, 2020: First wave: Peak of the SARSCoV-2 infection in Spain	Older adults (*N* = 1639). 150 were aged 60 years or over and 1489 were under 60	**Anxiety:** Hamilton Anxiety Scale (HARS) **Depression:** Beck Depression Inventory (BDI)	**Income loss: "**Economic losses" (yes or no)	Those who experienced financial losses had more anxiety ($F(1, 146) = 6.3$, $p = 0.013$, hp 2 = 0.04) and depression ($F(1, 146) = 4.2$, $p = 0.04$, hp 2 = 0.03) than those who did not.
Halim et al. (2022)[52], Bangladesh	Jan 5 - Feb 25, 2021: before start of second wave (which began in Mar), low no. of cases	Middle income participants (*N* = 150). Age (*M* = 40.73, *SD* = 10.07); 86% male	**Depression:** Patient Health Questionnaire (PHQ-9) **Anxiety:** Generalized Anxiety Disorder (GAD-7)	**Financial stress:** 4 questions about facing economic stress, poverty level since COVID-19, responsibility to financially support family and family budget **Income change:** 3 questions about income changes due to COVID-19, the amount of income change and household debt	Most had moderate depression and anxiety symptoms due to financial problems. Depressive and anxiety symptoms were greater among those with income loss and debt. Income loss due to COVID-19 increased anxiety by a small point scale (0.00, $p < .10$). Income loss reduced depression slightly (-0.00, $p < .05$).
Haque et al. (2022)[77]	Jun 2020: large no. of cases with lockdown restrictions	Informal waste workers (*N* = 176). 75.6% aged 26-50;	**Psychological Distress:** General Health Questionnaire (GHQ-12)	**Income change:** Whether income has reduced since COVID-19 based on household income	Income loss due to COVID-19 increased risk of psychological distress (RR: 1.60, 95% CI: 1.06–2.41).

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
		55.0% male, 45% female			
Islam et al. (2021)[53]	Aug - Sept, 2020: Restrictions lifted Sept 1 but cases were not particularly low	Impoverished urban Bangladeshi dwellers (N = 435). Age 18-85 (M = 45.0, SD = 12); 54.7% male	**Depression:** Patient Health Questionnaire (PHQ-9) - Bangla version **PTSD:** National Stressful Events Survey for PTSD - Short Scale (NSESSS-PTSD) - Bangla version	**Financial changes:** 1. "How has your family's monthly income changed due ot the impact of COVID-19?" (decreased, increased, unchanged) 2. Job loss due to COVID-19 (yes or no)	Income loss did not impact PTSD and depression, though having a household income of less than 10,000 BDT per month was linked to greater PTSD severity.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Lee (2022)[49], 27 European countries	Apr 9-30, 2020: During the beginning of the outbreak	Middle- and older-adults aged 50 years or above (N = 31,757). Age (M = 59.99, SD = 7.03); 26.2% male, 73.8% female	**Mental health**: World Health Organization—Five Well-Being Index (WHO-5)	**Financial impact**: 2 items - perceived likelihood of losing job in next 3 months and having to leave current accommodation in next 6 months due to costs (5-point scale from *very likely* to *very unlikely*). **Financial changes**: 2 items: whether household financial situation changed compared to 3 months ago (3-point scale of *became worse*, *remained same*, *became better*) and how well expenses cover necessary expenses (6-point scale of difficulty level)	Job security, less change in finances, and ability to make ends meet were all associated with better mental health, even when covarying demographic characteristics.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Lewis et al. (2022)[42], United Kingdom	Jun - Aug, 2020: After first wave (approx. end May); some restrictions lifted, lower cases than during peak	Participants with history of mental illness (*N* = 2869). Age 18-94 (69.2% ≥35 or over, 30.4% <35); 77.6% female, 0.7% transgender, 20.1% male, 39% gender variant/non-conforming/non-binary; 95% white	**Anxiety:** Generalised Anxiety Disorder **Depression:** Patient Health Questionnaire (PHQ-9) **Psychological well-being:** Word Health Organization Well-Being Index (WHO-5)	**Financial impact:** Work, study or employment status change (yes or no)	Having a low income and income affected by the COVID-19 pandemic was associated with poorer mental health during the pandemic, including greater anxiety and depression and reduced wellbeing.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Li et al. (2023)[50], 6 countries (China, Italy, Lithuania, Portugal, Slovenia, and United States)	Jul - Sept, 2020 (exact dates not recorded): small no. of cases in China. First wave in American and European countries	Young adults (*N* = 1679). Age 18–30 (*M* = 23.48, *SD* = 3.49); 20.8% male, 78.2% female, 1% gender queer	**Wellbeing:** Brief Inventory of Thriving (BIT-10)	**Financial changes:** 1. "I have lost job-related income due to the coronavirus" (5-point scale from *completely not true* to *completely true*) 2. Job loss due to COVID-19	Income loss and job loss negatively correlated with psychological wellbeing. Job loss negatively predicted current financial wellbeing but did not predict future financial wellbeing or psychological wellbeing. Income loss negatively predicted present and future financial wellbeing but did not predict psychological wellbeing.
Li et al. (2020)[80], China	25 Apr - 9 May, 2020: Strict restrictions, lower no. of cases than in initial outbreak	Chinese workers with COVID-related income loss (*N* = 398). Age (68.3% aged 26-40); 50.5% male, 49.5% female	**Depression:** Patient Health Questionnaire (PHQ-9) **Anxiety:** Generalized Anxiety Disorder (GAD-7) **Insomnia:** Insomnia Severity Index (ISI-7) **Distress:** Revised Impact of Event Scale (IES-7) Chinese versions of tools used.	**Income loss:** Loss of income caused by COVID-19 (light >0 to 25%, middle 25–50%, or heavy >50%)	Those whose income was heavily impacted reported high levels of depression, anxiety, and insomnia. Adjusted odds of severe depression, anxiety, and distress symptoms were greater for those with larger income losses.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Liu et al. (2021)[44], United States	May 6-8, 2020: Early acute phase, wave 1	Pregnant women (N = 715), ≥8 weeks' pregnant, aged 18-44 years, residing in and with prenatal care status in the US. Age: 91.5% aged 25 to 35; all female	**Postnatal Depression:** Edinburgh Postnatal Depression Scale (EPDS-10) **Anxiety:** Generalized Anxiety Disorder Scale (GAD-7)	**Income loss:** Losing a source of income due to COVID-19	Losing income due to COVID-19 was associated with greater odds of experiencing depression (adjusted OR 1.2 [0.5-3.0]) and anxiety (adjusted OR 1.7 [0.7-4.1]).

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Miquel et al. (2022)[82], Spain	Jun 2020 (exact dates not recorded): Directly after the first lockdown	Employees (*N* = 2381). Age (*M* = 43.0, *SD* = 11.8); 47,48% female, 52.53% male	**Depression:** Patient Health Questionnaire (PHQ-8) **Anxiety:** General Anxiety Disorder Scale (GAD-7) **PTSD:** DSM-5 Checklist (PCL-5) **Panic attacks:** World Mental Health-International College Student (WMH-ICS) **Substance use disorders:** CAGE-AID questionnaire **Suicide severity:** Columbia Suicide Severity Rating Scale (C-SSRS)	**Income change:** 1. "Are you unemployed or temporarily laid off due to the coronavirus pandemic?" 2. "Did you experience a significant loss of personal or family economic income due to the coronavirus pandemic?" **Perceived financial stress:** Adapted version of the Peri Life Events Scale	Those with job loss were more likely to have depression (OR = 1.48, 95% CI = 1.12–1.95). Those with income loss were more likely to have depression (OR = 1.30, 95% CI = 1.00–1.69). Those with job and income loss had greater risk for PTSD. Those with income loss had increased risk for panic attacks. Job and income loss were not associated with generalised anxiety disorder and substance use disorder.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Patwary et al. (2022)[41], Bangladesh	17 Apr - 1 May, 2020: Early phase - beginning of lockdown	Students and working professionals (*N* = 744). Age: 94% 30 years or below; 58% male, 42% female	**Anxiety:** Generalized Anxiety Disorder (GAD-7) **Stress:** Perceived Stress Scale-4 (PSS-4)	**Financial hardship:** "Are you worried about the financial condition of your family during COVID-19?" (yes or no)	Financial hardship during the pandemic was positively associated with anxiety and predicted clinically significant anxiety levels in both students and workers. In students, but not workers, having financial hardship during the lockdown (vs. not) led to nearly twice the risk of greater anxiety levels (OR = 1.84, 95% CI = 1.11–3.05, $p < 0.05$).
Ruengorn et al. (2021)[86], Thailand	Apr 21 - May 4, 2020: Early phase / wave 1	Workers aged 18+ (*N* = 2303). Age (*M* = 34.5, *SD* = 10.2 years); 60% female, 37% male, 3% other	**Depression:** Patient Health Questionnaire (PHQ-9) **Anxiety:** Generalised Anxiety Disorder Scale (GAD-7) **Stress:** Percieved Stress Scale (PSS-10)	**Economic burden:** 1. Job loss (yes or no) 2. Income loss (yes or no) 3. Financial problems (yes or no)	Job loss, income loss, and self-reported financial problems were associated with having depression, anxiety, and stress. Job loss increased odds of all mental health outcomes but the effect on depression was diluted when controlling covariates. Income loss (50% or less) increased odds of depression; income loss (50% or more) increased odds of anxiety; income loss did not predict stress.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Senturk et al. (2021)[39], Turkey	Oct 25 - Dec 24, 2020: During lockdown; Dec included highest no. of cases and hospitalisations	Remote workers (*N* = 459). Age 24-60 (*M* = 35.64, *SD* = 6.8); 55.3% male, 44.7% female	**Depression, Anxiety, Stress:** Depression Anxiety Stress Scales (DASS-21)	**Financial state:** "How would you rate your financial situation in these days?" (0-10) **Financial concern:** "What is your financial expectation six months from now?" (0-10)	Financial concern predicted stress (β = –0.100, *p* = 0.040), though current financial state did not (β = -0.034, *p* = 0.482). No significant effect of current financial state and financial concern on depression and anxiety.
Sharma et al. (2022)[51], Nepal	Jan 2021: End of the first wave (low cases)	Young adults (*N* = 1229). Age 18-35 (*M* = 25.0, *SD* = 4.1); 54.5% female	**Depression:** Patient Health Questionnaire-9 (PHQ-9) **Anxiety:** Generalized Anxiety Disorder-7 (GAD-7) **PTSD:** PTSD checklist (PCL-C)	**Financial impact:** "Decrease in family income during COVID" (yes or no) **Financial worry:** "Worry about economic influences" (yes or no)	Income loss was positively associated with anxiety and PTSD, but not depression. Having 3 or more COVID-19 related stressors (including financial worry as one stressor) increased risk of depression and PTSD.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Spiro et al. (2021)[40], United Kingdom	Apr 1 - Jun 15, 2020: First lockdown	Workers, performing arts professionals (*N* = 385). Age 18-86 (M = 44.08, SD = 13.9; 63% female	**Mental Wellbeing:** Mental Health Continuum – Short Form (MHC-SF) **Depression:** Center for Epidemiologic Studies Depression Scale (CES-D) **Social Connectedness:** 15-Item Social Connectedness Scale **Loneliness:** 3-Item Loneliness Scale	**Financial hardship:** "Do you consider yourself to be in financial hardship as a result of the current public health situation?" (*no, a little, a lot*)	Perceived financial hardship was associated with worse mental wellbeing (B = -1.28, *p* = 0.006), depression (B = 0.18, *p* = 0.030), and loneliness (B = 0.13, *p* = 0.024).

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Sujan et al. (2022)[43], Bangladesh	Nov 2020 - Jan 2021: Before second wave in March 2021 (lower cases)	Adults with underlying health conditions (*N* = 971). Age (*M* = 42.29, *SD* = 15.86); 50.5% male, 49.95% female	**Depression:** Patient Health Questionnaire (PHQ-9) **Anxiety:** Generalized Anxiety Disorder (GAD-7) **Loneliness:** UCLA loneliness scale	**Financial hardship:** 1. Lost job (yes or no) 2. Financial difficulties (yes or no) 3. Eleven questions about managing the cost of medical treatment including being in debt, borrowing money, and receiving help from organisations to cover medical expenses	Those who reported poor health were 5x more likely to have anxiety and depression, and 3x more likely to experience loneliness, than those who reported good health. Those with lower family income were 0.67 more likely to have depression than those with higher income. Those who spent their savings on medical treatment were 1-2x more likely to have anxiety and loneliness than those who did not; those who did not save money for medical expenses were more likely to have depression than those who did.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Thayer & Gildner (2020)[45], United States	Apr 16-30, 2020: First wave with partial restrictions	Pregnant women (*N* = 2099). Age (*M* = 31.3, *SD* 4.4); all female	**Postnatal Depression:** Edinburgh Postnatal Depression Score (EPDS)	**Financial stress:** "I am worried about my financial situation due to the COVID-19 crisis" (5-point agreement scale)	COVID-19-related financial stress was associated with a greater likelihood of experiencing clinically significant depression levels, while controlling demographic characteristics including education and income level (adjusted OR = 2.23, 95% CI = 1.80, 2.77, $p < .001$).
Timmins et al. (2022)[54], United States	Apr 20 and Jul 31, 2020: Initial peak in first wave	Black cisgender sexual minority men and Black transgender women (N = 226). Age (*M* = 25.7, *SD* = 4.0; 88); 88.1% cisgender men, 10.6% transgender women or another gender and assigned male at birth	**Anxiety:** 2 items adapted from General Anxiety Disorder scale (GAD-7) **Depression:** 3 items adapted from the Center for Epidemiologic Studies Depression Scale (CES-D)	**Financial Loss:** "Lost an income source because of the COVID-19 pandemic" (yes, no, no income to lose) **Financial Worries:** "Percentage chance you will lose your job because of the COVID-19 pandemic within 3 months?" (response with percentage)	Income loss and worry that there was a ≥1% chance of losing one's job were associated with loneliness. Income loss and job loss worries were not associated with anxiety and depression.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Trógoloet al. (2022)[90], Argentina	Oct 2020: Peak of first wave	Pre-pandemic workers (*N* = 1049). Age (*M* = 42.15, *SD* = 12.61; 51% male, 49% female	**Burnout:** Maslach Burnout Inventory (MBI-GS) **Depression:** Patient Health Questionnaire (PHQ-9) **Anxiety:** Generalised Anxiety Disorder Scale (GAD-7) **Life satisfaction:** Satisfaction with Life Scale (SWLS)	**Financial hardship:** 1. Income change since COVID-19 (percentage loss) 2. Self-reported financial problems (yes or no)	Workers with financial problems reported greater depression (F[1,1045] = 10.53, $p < 0.001$, ηp2 = 0.010) and anxiety (F[1,1045] = 6.87, p = 0.009, ηp2 = 0.007). Workers with income loss reported lower life satisfaction (F [5,1011] = 2.72, p = 0.019, ηp2 = 0.013).

Table S6. *Data Extracted from Longitudinal Studies*

Authors, date, country	**Study period / COVID-19 phase**	**Analytic sample**	**Mental health variable and measure**	**Financial change during COVID-19 variable and measure**	**Main (relevant) findings**
Badellino et al. (2022),[60] Argentina	T1: 29th March – 12th April 2020 T2: 23rd May – 12th June 2020, first wave peaked in October 2020, national lockdown began late-March	General population sample of adults living in Argentina without having previous mental disorder and/ or dyslexia. **T1**: *N* = 1985, 1505 females, 480 males/other; age: *M* = 36.83 years, *SD* = 14.4 **T2**: *N* = 2839, 2137 females, 702	**Depressive symptoms:** Patient Health Questionnaire (PHQ-9)	**Financial worries:** 1. 'How concerned have you been about your financial situation in the last month?" A Likert scale from 1 to 10 (0 = no concern and 10 = maximum concern) was used, and the level of concern was ranked as mild (0–4), moderate (5–7) or maximum (8–10) 2. Question about Concern regarding 'running out of money to pay expenses,	Significant increase in the prevalence and average score of depression in Argentine population between late-March and mid-June 2020. Respondents who expressed concern about running out of money were at a significant risk for depression. Unemployed participants, who feel more worried about job changes and who were at risk of (or at least concerned about) running out of money to meet their usual expenses,

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
		males/other; age: *M* = 27.95 year, *SD* = 12.23 *N* = 853 respondents participated in both T1 and T2		rent and taxes.' Likert scale from 1 to 4 (1 = not concerned; 2 = little concerned; 3 = concerned; 4 = very much concerned).	were the most susceptible to depression.
Baranov et al. (2022)[20], Pakistan	T1: November - December 2019 T2: July 2020, 'height of the pandemic' (first peaked in mid-June 2020 in Pakistan), national lockdown ended	Parents of a school-going child (aged 10-14 years) (*N* = 883; 725 females, 158 males; age: *M* = 37 years)	**Psychological distress** (Kessler-10 [K10] questionnaire)	**Economic impact:** Job loss was used as a proxy for economic impact (respondents were asked if they or their partner lost their job due to the COVID pandemic)	COVID-19-related economic impact was significantly associated with increased psychological distress. While mental health has not deteriorated overall from baseline during the lockdowns for adults, for those who have suffered

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
	mid-May and partial restrictions continued				economically, it has significantly worsened.
Batterham et al. (2021)[61], Australia	Seven time points between March – June 2020 (fortnightly surveys), first peak in March/April, national lockdown began in late March, restrictions were eased in early May but local lockdowns and	General population sample representative of the Australian adult population by age group, gender, and state/territory (quota sampling) (*N* at T1 = 1296, *N* at T7 = 762 [59%]; 649 females, 647 males;	**Depressive symptoms** Patient Health Questionnaire (PHQ-9) **Anxiety symptoms** Generalised Anxiety Disorder (GAD-7)	**Financial distress:** 'Over the last 2 weeks, to what extent have you experienced financial distress related to COVID-19?' (Not at all/A little/ Somewhat/Quite a lot/Considerably/ Extremely)	Mean levels of depression and anxiety symptoms early in the COVID-19 pandemic were higher than estimated by earlier Australian population-based surveys, but most adults did not experience changes in mental health symptoms during the first three months of the pandemic. COVID-19-related financial distress was positively associated with

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
	international quarantine continued	age: *M* = 46.0 years, *SD* = 17.3)			higher depression and anxiety at baseline.
Bierman et al. (2021)[23], Canada	T1: March 2020 T2: April 2020 T3: May 2020 T4: June 2020 (monthly surveys), first wave peaked on 30 May 2020, partial national lock-down began	Adults working at time of baseline measures (retained in the sample in subsequent waves if they became unemployed) (*N* at T1 = 2456, *N* at T4 = 1809 (74%); 1194 females, 1262	**Psychological distress** Shortened version of the Kessler-6 [K6] scale	**Economic hardship:** Measured using 3 questions: 1. 'How often in the past month did you have trouble paying the bills?' 2. 'How often in the past month did you not have enough money to buy food, clothes or other	Positive association between economic hardship prior to the pandemic and periods of economic hardship during the pandemic. Economic hardship experienced during the COVID-19 pandemic degraded mental health, even when prior mental health and economic hardship was taken into account. Psychological distress predicted

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
	in mid-March 2020	males; age: *M* = 41.94 years)		things your household needed?' 3. How did your finances work out in the past month?	economic hardship during the pandemic.
Canet-Juric et al. (2020)[55], Argentina	T1: late-March 2020 T2: April 2020 (12-15 days between surveys), first wave peaked in October 2020, survey launched two days after	General population - 18 years and older, not suffering from physical or psychological illnesses. (*N* = 6057; 4886 females, 1131 males, 20 'other', 20 'prefer	**Depressive symptoms** Beck Depression Inventory (BDI-II) **State anxiety** State-Trait Anxiety	**Perception of economic impact:** Question regarding variation in economic income due to quarantine (response options: no, few, some, much, very much)	After 2 weeks of quarantine, depression increased, and anxiety and negative and positive affect

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
	national lockdown began	not to answer'; age groups: 18-25 = 929 26-40 = 2910 41-60 = 1803 60+ = 415)	Inventory (STAI) **Affect** Positive and Negative Affect Schedule (PANAS)		decreased, all with small effect sizes. Depressive symptoms increased due to economic hardship. Lower economic impact was positively associated with more positive affect at both time points. People who reported no economic impact showed higher positive affect, but larger decrease in positive affect over time.

Authors, date, country	**Study period / COVID-19 phase**	**Analytic sample**	**Mental health variable and measure**	**Financial change during COVID-19 variable and measure**	**Main (relevant) findings**
Choi et al. (2023)[21], USA	T1: 2016 T2: June 2020 (biennial interviews), upswing of first peak, partial restrictions in most states	Nationally representative sample of adults aged 51 years and older and their spouses or cohabiting partners of any age. (*N* = 1312; 550 females, 762 males; age: *M* = 69.8 years)	**Affect** International Positive and Negative Affect Schedule Short-Form (I-PANAS-SF)	**Financial hardship:** Measured as a count and included missing any regular payment on (a) rent or mortgage, (b) credit cards or other debt, or (c) utilities or insurance; or any indication of difficulty (d) paying medical bills or (e) having enough money to buy food. Observed values ranged from 0 to 5.	During the COVID-19 pandemic, financial hardship was related to increased negative affect and decreased positive affect among, after adjusting for emotional well-being at baseline, and sociodemographic characteristics and health variables at follow-up during the pandemic.

Authors, date, country	**Study period / COVID-19 phase**	**Analytic sample**	**Mental health variable and measure**	**Financial change during COVID-19 variable and measure**	**Main (relevant) findings**
Feter et al. (2021)[24], Southern Brazil (Rio Grande do Sul state)	T1: June – July 2020 but participants were asked to complete MH measure using the period before	General population sample of adults *(N* = 2321; 1776 females, 540 males [*n* = 2319]; age groups: 18-30 = 858 31-59 = 1246 60+ = 196 [*n* = 2300])	**Depressive symptoms** Hospital Anxiety and Depression Scale (HADS) **Anxiety** Hospital Anxiety and Depression Scale (HADS)	**Economic impact:** 'Did social distancing affect your monthly income?' In case of an affirmative response, participants asked whether income decreased or increased during the COVID-19 pandemic.	Prevalence of moderate-to-severe anxiety and depression increased 7.4x and 6.6x, respectively, after the implementation of COVID-19 social distancing restrictions. A negative economic impact was reported by 45.3% (95% CI: 42.7%, 47.8%) of the respondents. COVID-19- related income loss was positively associated with higher depression and higher likelihood of more severe anxiety symptoms.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
	the COVID-19 pandemic as reference. T2: June – July 2020 (retrospective longitudinal design), up to 73.4% of state population were in the second highest level of social distancing restriction				

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Graupensperger et al. (2022)[62], USA	T1: January 2020 T2: April-May of 2020 T3: six bimonthly follow-ups from September-October 2020 until July-August 2021; T2: acute early phase, partial restrictions in most states, T3: increase in cases over winter and in July 2021, partial	Young adults who were aged 18–23 years at screening in 2015-2016. (Sample for T1 & T2: *N* = 519; 326 females, 193 males/other; age: *M* = 25.4 years, *SD* = 1.84) (Sample for T3: *N* = 566, 350 females, 216 males/other; age:	**Depressive symptoms** Patient Health Questionnaire (PHQ-2 or PHQ-8) **Anxiety** Generalized Anxiety Disorder Scale (GAD-2 or GAD-7)	**Financial stress:** 'How concerned are you about the novel coronavirus (COVID-19)….' Measured on a 5-point Likert-type scale with responses ranging from 'not at all' to 'extremely'	Depression symptoms increased between pre- and early-pandemic. Worse mental health and well-being from pre-pandemic to early-phase-pandemic were positively associated with increased stress in several life domains (e.g., financial stressors and job insecurity stressors.) Financial stress was uniquely positively associated with symptoms of depression and anxiety across the bimonthly surveys.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
	restrictions in most states	*M* = 25.8 years; *SD* = 1.83)			
Hagen et al. (2023)[56], Norway	T1: April 2020 T2: December 2020, increasing cases, national restrictions began mid-March 2020	General population sample of adults living in Norway (*N* = 6017; 4680 females, 1292 males, 45 other gender; age: *M* = 34.68 years, *SD* = 13.75)	**Depressive symptoms** Patient Health Questionnaire-9 (PHQ-9) **Anxiety** Generalized Anxiety Disorder-7 (GAD-7)	**Negative economic impact:** Self-reported (yes/no)	Anxiety and depression slightly worsened during the first wave of the pandemic, during national lockdown. People without pre-existing mental health conditions showed a subclinical increase in symptoms, while people with a pre-exiting mental health condition disorder before the pandemic reported the

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
					highest levels of anxiety and depression. Economic impact was not associated with either depressive or anxiety symptoms.
Hertz-Palmor et al. (2021), (study 1)[57], International but majority from USA and Israel	T1: 6th April – 5th May 2020 T2: 12th May – 21st June 2020, USA: first wave, partial restrictions in most states; Israel: first wave between March-April, gradual easing of	General population sample of adults (*N* = 1318; 1077 females, 241 males; age *M* = 40.79 years, *SD* = 13.55) (Reported income loss: *n* = 246)	**Depressive symptoms** Patient Health Questionnaire-2 (PHQ-2) **Anxiety** Generalized Anxiety	**Income loss:** Asked whether they had lost their job or whether their pay/ hours were reduced since the beginning of the outbreak. Collapsed	Income loss due to the COVID-19 pandemic was positively associated with more anxiety and depressive symptoms, but was associated more strongly with depression than anxiety symptoms. The increase in anxiety symptoms was steeper than that of depression symptoms. There was a positive association between financial worry and

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
	restrictions from early May		Disorder-7 (GAD-7)	into a binary income loss measure (yes/no) **Financial worry:** Measured on a 5-point Likert-type scale (from not at all to a great deal)	depression, whilst controlling for pre-COVID-19 income. This suggests that objective financial situation only partly explains variability in depressive symptoms, and that worries about the financial situation may be a sensitive marker for depressive symptoms during the pandemic.
Hertz-Palmor et al. (2021), (study 2)[57], Israel	T1: 18th – 26th March 2020 T2: 22nd April – 7th May, first wave between March-April,	General population sample of adults living in Israel (*N* = 241; 166 females, 75 males; age: *M* = 37.32 years,	**Anxiety** Patient-Reported Outcomes Measurement Information System	**Income loss:** Measured on a 5-point Likert-type scale (no	COVID-19-related income loss and financial worry was positively associated with depression. COVID-19-related income loss contributed to initial depressive response and its amplification over

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
	gradual easing of restrictions from early May	*SD* = 12.26; reported income loss: *N* = 102)	(PROMIS) – anxiety items **Depressive symptoms** PROMIS depression items	income loss to extreme income loss) **Financial worry:** Measured on a 4-point Likert-type scale (from 'not at all' to 'always')	time, with a 1-month exacerbation in depressive symptoms associated with worsening in income loss. COVID-19 stress was positively associated with depression but increase in financial worry did not cause an increase in depressive symptoms.
Lee et al. (2022)[22], Singapore	T1: 2017 T2: June 2020 (Contacted if prior measures completed minimum of 6 months prior), two	Older Asian adults of Chinese, Malay, or Indian ethnicity, aged 60 years and older (without severe	**Depressive symptoms** Patient Health Questionnaire (PHQ)	**Financial hardship:** Economic Hardship Questionnaire (EHQ) with two items removed as these activities could not be	Over a quarter of the sample experienced a decrease in family income, with one-fifth experiencing financial problems. Slight reduction in depressive symptoms (after adjusting for

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
	peaks during March and April, strict national restrictions which began to ease in June 2020	cognitive, hearing, or speech impairment) (N = 496; 272 females, 224 males; age M = 73.8 years, SD = 7.6)		undertaken due to lockdown measures **Changes in lifestyle:** Due to financial constraints associated with the lockdown (eight items, individual scores used in analyses)	covariables) during a 2-month COVID-19 lockdown. Financial hardship was positively associated with depressive symptoms. Common lifestyle changes made due to financial constraints included: cutting back on charitable contributions (22.3%), changing food shopping or eating habits to save money (11.5%) and reducing household utility use (9.7%).

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Murray et al. (2023)[19], Pelotas, city in Southern Brazil	T1: 2015 - 2019 T2: May - September 2020, Pelotas experienced sharp increase in cases, 1 week lockdown, then partial social distancing restrictions	Mothers of 99.9% of all children born in Pelotas in 2015 (*N* = 2083; 2083 females; age groups: < 20 = 283 20-34 = 1492 ≥ 35 = 308)	**Maternal depressive symptoms** 3 items from Edinburgh Postnatal Depression Scale (EPDS).	**Income loss:** Asked whether family income in the last month 'got a lot worse,' 'got a little worse,' 'stayed the same,' or 'got better'. Coded as 'yes' ('got a lot worse') or 'no' for analyses.) **Emergency welfare receipt:** Only made to families with financial difficulties. Coded as 'yes' or 'no' to question asking whether this had been received by someone in the household.	During the COVID-19 pandemic, maternal depressive symptoms increased substantially, while there were small decreases in maternal anxiety. Both COVID-19-related income loss and emergency welfare receipt during the pandemic were positively associated with maternal depression and maternal anxiety, after adjusting for both baseline levels of these variables and pre-pandemic family income.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
			Rated on a 4-point scale. (Measured in 2019 and T2) **Maternal anxiety** Generalized Anxiety Disorder (GAD-7) (Measured in 2016 and T2)		

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Shuster et al. (2021)[58], USA	Weekly surveys for 10 weeks between 2nd April – 4th June 2020, first wave of COVID-19, partial restrictions in most states	General population sample of USA residents aged between 18–64 (N = 743; 359 females/other, 384 males; age: M = 37.1 years)	**Depressive symptoms** Zung Self-Rating Depression scale **Anxiety** State Anxiety Inventory	**Economic impact:** 'Rate the impact that COVID-19 has had on your economic situation' (rated from very negative impact, −50 to very positive impact, +50, scaled to be between −0.5 and 0.5 for analysis)	Depression and anxiety initially peaked but then declined over 10 weeks during the first wave of COVID-19. COVID-19-related economic impact was positively associated with depressive and anxiety symptoms.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Simonse et al. (2022)[1], Netherlands	T0: April – November 2018 T1: December 2019 – March 2020 T2: December 2020 – March 2021, T2: increasing cases of new variant, national lockdown in place	Population representative sample of residents (T0: *N* = 1114; 613 females, 501 males/ other; age: *M* = 53.0 years, *SD* = 17.8) (T1: n = 838; 451 females, 387 males/ other; age: *M* = 54.5 years, *SD* = 16.9) (T2: *N* = 736; 390 females, 346 males/	**Mental health** Mental Health Index (MHI-5)	**Financial stress:** Psychological Inventory of Financial Scarcity (PIFS); responses range from 1 (totally disagree) to 7 (totally agree).	Mean levels of mental health did not change in the first six months of the pandemic compared to pre-pandemic. This, however, masked underlying heterogeneity as for four out of five respondents, mental health either increased or decreased. Increase in financial stress predicted worsened mental health, and vice versa. Financial stress mediated the relation between savings and debts together, and mental health.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
		other; age: 55.6 years, *SD* = 16.6)			
Strizzi et al. (2023)[59], Denmark	T1: October – November 2020 T2: March - May 2021, increasing cases, national restrictions began 12th March 2020	Sample drawn from nationally representative sample of 5,000 Danish residents aged >18 (*N* = 1,302) (**T1**: *N* = 914; 493 females, 421 males; age: *M* = 51.29 years, *SD* = 16.67) (**T2**: *N* = 304; 154 females, 150; age: *M*	**Depressive symptoms** Patient Health Questionnaire (PHQ-9) **Anxiety** Generalized Anxiety Disorder (GAD-7)	**Loss of income:** 'Since the COVID-pandemic, have you personally experienced a loss of income?' (response options: 1 = *yes, a total loss of income*, 2 = *yes, a partial loss of income*, 3 = *no loss of income*, 4 = *I had no personal income before COVID-19*). Response options dichotomized for analyses: 0 = no income loss	Mean levels of anxiety and depressive symptoms did not change during the first year of the pandemic and did not differ from those of matched controls assessed before the pandemic. After adjusting sociodemographic variables (e.g., age, gender) COVID-19-related income loss was positively associated with depression and anxiety symptoms.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
		= 56.38 years, *SD* = 15.82) (**Both T1 and T2**: *N* = 84; 47 females, 37 males; age: 52.22 years, *SD* = 14.05)		(3–4) and 1 = income loss (1–2).	

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Weber et al. (2023)[63], Germany	T1: May 2020 T2: September 2020 T3: December 2020 T4: March 2021 T5: March 2022, T3 = height of COVID-19-related death rate, first national lockdown on 23rd March – May 2020, second lockdown	General population sample of adults living in Germany (**T1**: *N* = 636; 535 females, 85 males, 15 diverse gender, 1 missing; age: *M* = 39.5 years, *SD* = 16.11) (**T5**: *N* = 216; 176 females, 31 males, 9 diverse gender, 1 missing; age: *M* =	**Depressive symptoms** Patient Health Questionnaire (PHQ-9) **Anxiety** Generalized Anxiety Disorder Scale (GAD-7)	**Financial worry:** 'During the past 4 weeks, have you worried about your financial situation?' (responses include 'not at all', 'not more than usual', 'more than usual', much more than usual')	Depression and anxiety declined following the lifting of lockdown measures, peaked during the two national lockdown phases in Germany, and dropped during the easing phases. Initial financial worry due to COVID-19 was positively associated with anxiety and depression at each time point. Initial financial worry due to COVID-19 was positively associated with greater symptom decreases in anxiety and depression across the pandemic.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
	November 2020 – May 2021	40.48 years, *SD* = 17.03)			

Abbreviations: T = time point (e.g., T1 = time point 1)

Figure S1

Funnel Plot for Anxiety Meta-Analysis

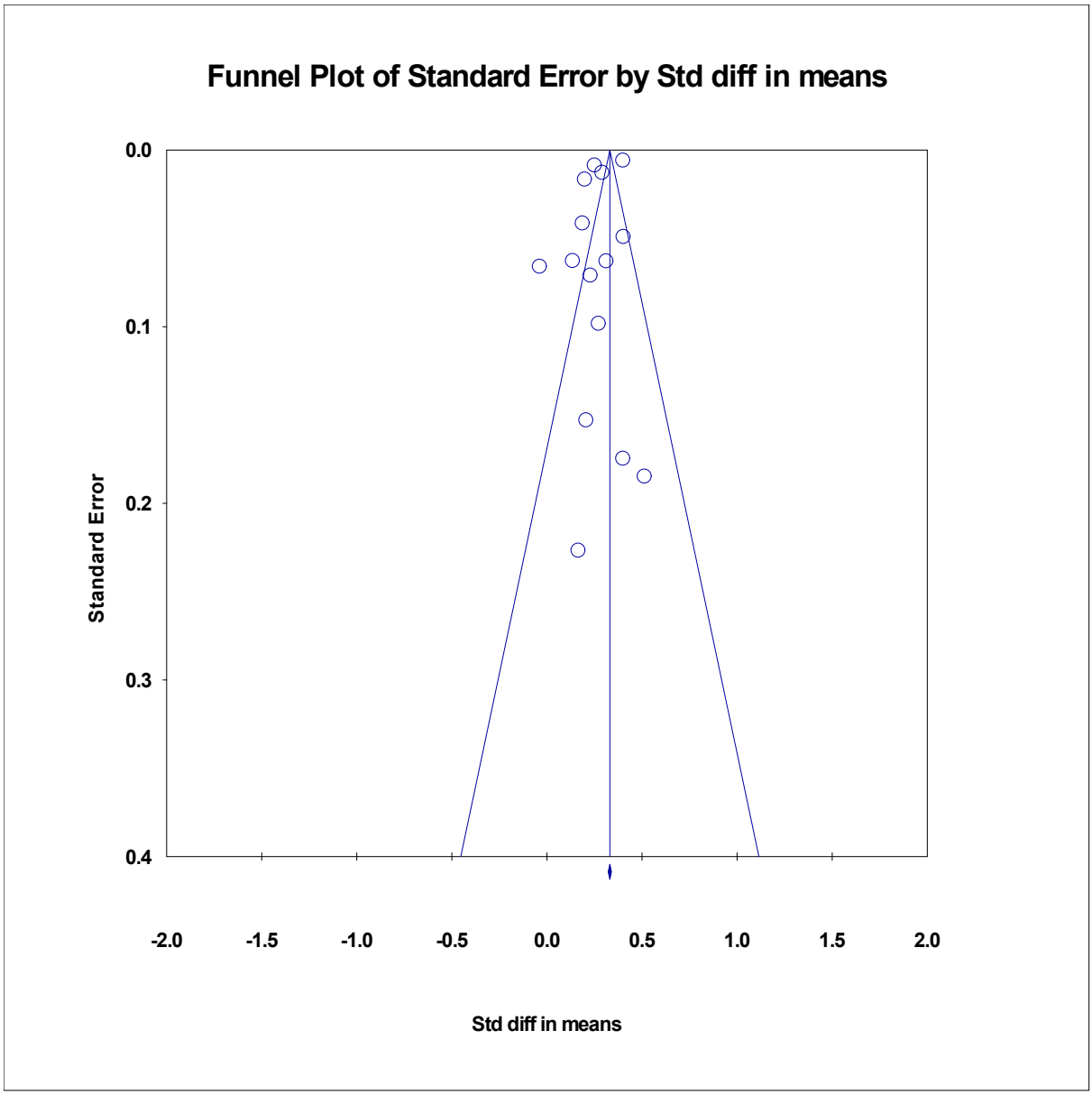
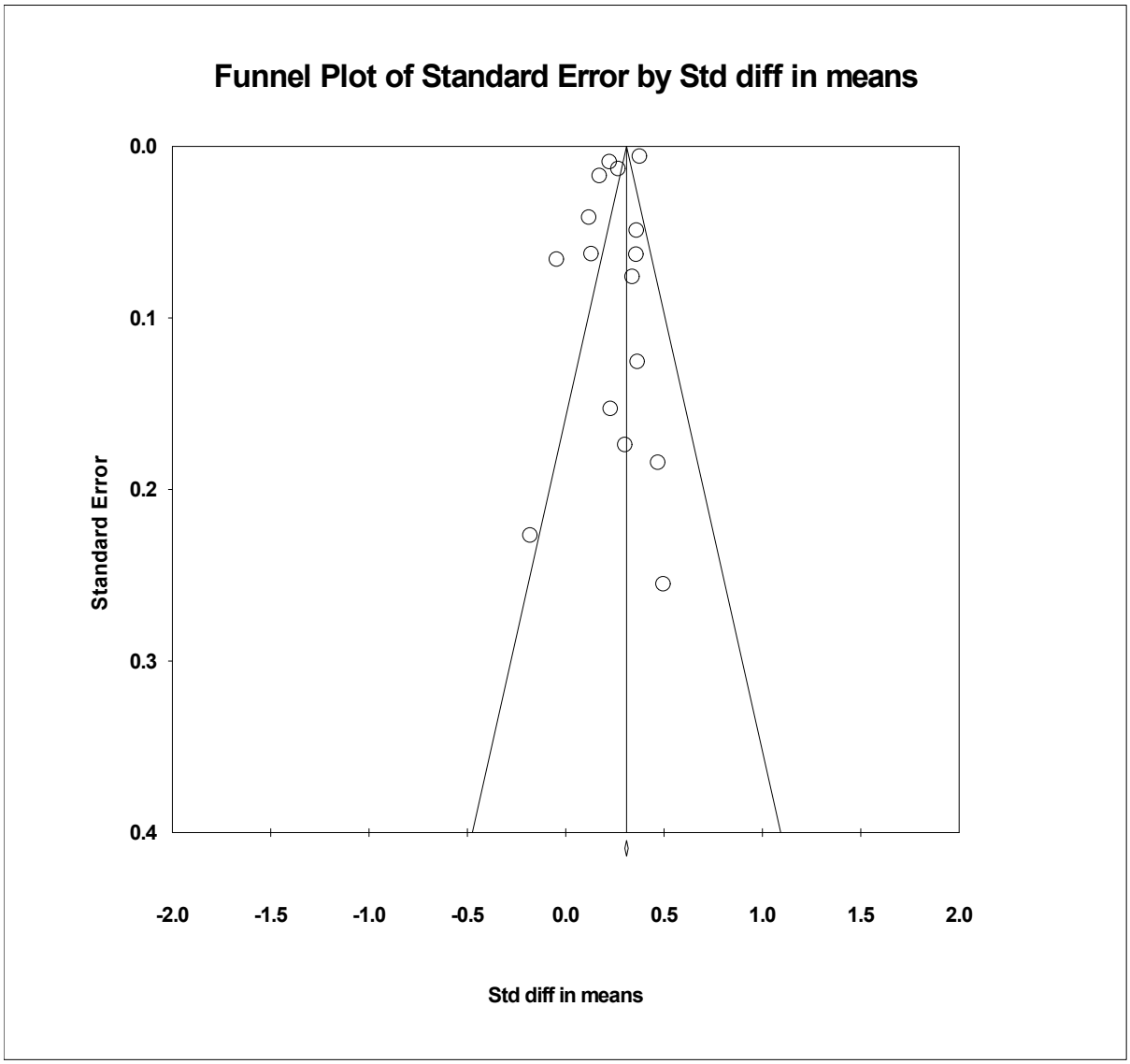


Figure S2

Funnel Plot for Depression Meta-Analysis



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The Relationship Between Financial Disruption during the COVID-19 Pandemic and Mental Health in Adults: A Systematic Review and Meta Analysis

Abstract

Objective: Financial difficulties are associated with poor mental health. This paper aimed to systematically review the ~~e~~ impact of COVID-19 related financial difficulties on mental health in adults.

Methods: A systematic search was conducted across Web of Science, Medline, and PsycINFO, from March 2020 to March 2023 to identify studies examining the mental health impact of COVID-19 related financial disruption in adults. We performed two meta-analyses to quantify the effect of income loss due to the pandemic on anxiety and depression. ~~The study was pre-registered with PROSPERO and PRISMA guidelines were followed, and~~Studies were rated using the Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies from the National Heart, Lung and Blood Institute was used.

Results: A total of 2659 papers were identified of which 76 (59 cross-sectional and 17 longitudinal) met inclusion criteria. The results show that COVID-19 related financial disruption (income loss and financial stress) negatively impact mental health across a range of adult populations globally, including the general population, students, and other specific groups. The meta-analyses examined data from 278,854 participants from fifteen studies indicated that those who lost income reported greater anxiety levels than those who did not experience income loss. Similarly for 268,128 participants across sixteen studies, a meta-analysis showed greater depression symptoms for those experiencing income loss.

Conclusion: COVID-related financial constraints, both objective and subjective, are associated with poor mental health outcomes (particularly anxiety and depression) in various populations

around the world. The results highlight the need for targeted clinical interventions for those experiencing mental health problems linked to financial problems during global crises.

Keywords: COVID-19, pandemic, mental health, financial difficulties

Significance for public health

Previous research has demonstrated that financial difficulties lead to poor mental health at a population level. This systematic review and meta-analysis demonstrate that the covid-19 pandemic impacted mental health in a range of populations globally, due to the financial disruption it caused. Income loss during COVID-19 was associated with more severe symptoms of anxiety and depression. Both objective and subjective financial strain are associated with poor mental health. Whereas most of the research was cross-sectional, some studies demonstrated a longitudinal impact of covid-109 related financial disruption. Targeted interventions may help those with finance-related mental health problems.

The Relationship Between Financial Disruption during the COVID-19 Pandemic and Mental Health in Adults: A Systematic Review and Meta Analysis

Introduction

The World Health Organization (WHO) declared that the coronavirus (COVID-19) outbreak reached global pandemic status on 11 March 2020. Over three years later, on 5 March 2023, the WHO announced that COVID-19 no longer constituted a public health emergency of international concern (PHEIC). This pandemic drastically altered people's lives and has had profound consequences on society in terms of physical health, mental health, and the economy. From research regarding previous pandemics, such as that of the severe acute respiratory syndrome (SARS, 2002–2003), it is understood that the diverse and far-reaching effects of pandemics are likely to endure beyond the period of the pandemic [1]. The effects of the COVID-19 pandemic on mental health have been suggested to follow three main routes, namely: the disease itself, the associated imposed quarantine and social measures, and the economic consequences of the pandemic.

An established and expanding body of research has focused on the relationship between mental health and economic concepts such as socioeconomic status (SES) and unemployment. While research has focused broadly on SES and mental health [2, 3], recent research has focused on specific socioeconomic variables. For example, studies show that financial hardship (difficulty meeting financial obligations) is a stronger predictor of depression than other socioeconomic variables such as educational attainment and household income while controlling for differences in household demographic composition, size, and subsequent financial requirements [4]. Research has also distinguished objective and subjective financial impact, with the former describing measurable financial impact (e.g., income loss, debt amount) and the latter describing perceived financial impact (e.g., financial

stress/worry). Research shows that subjective financial worries have a greater impact on mental health than objective economic impact[5].

A recent systematic review assessed the impact of the COVID-19 pandemic, previous pandemics, previous epidemics, and the 2008 economic crisis on mental health [6]. The review showed that socioeconomic factors and unemployment resulting from the 2008 economic crisis had negative effects on mental health, including an increase in affective disorders. The main risk factors mediating the effects of the economic crisis on poor mental health included unemployment, indebtedness, precarious working conditions, inequalities, housing instability and lack of social connectedness[6]. Another review examining the impact of economic decline on mental health found that while the effects of economic crises most negatively impacted individuals who were considered poor, less educated, or unemployed, these also affected the general population and individuals in employment, indicating that the negative impact on mental health is experienced widely by diverse groups[7].

Current Review

While several systematic reviews have examined the psychological impact of the COVID-19 pandemic [8-11] , to our knowledge, no systematic review and meta-analysis has investigated the relationship between COVID-19 related financial changes and mental health. A recent review looks at the association between socioeconomic condition indicators (e.g., education, economic factors) and anxiety and depression[12]; the present review offers a more focused and detailed examination of how financial change during the pandemic relates to mental health. As COVID-19 has caused significant detrimental economic consequences on individual, community, and wider societal levels, and given the established association between financial hardship and mental health difficulties, it is imperative that this area is examined and understood to inform local and national policy and intervention, resource, and support planning.

The objective of this review is to synthesise the existing evidence from cross-sectional and longitudinal quantitative studies that examine the relationship between COVID-19 related financial change and mental health.

Method

Databases and Search Terms

The review protocol was prospectively registered on Prospero (CRD42023400004) prior to conducting the systematic searches. We followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines[13] (see checklist in online supplementary information). Three electronic databases, Web of Science, Medline and PsycINFO, were searched in March 2023. The following search terms were used to search all fields: (poverty OR "financ* difficult*" OR "financ* hardship" OR debt OR "financial stress" OR income) AND (COVID* OR coronavirus OR SARS-CoV* OR "severe acute respiratory syndrome coronavirus*") AND ("mental health" OR "mental illness" OR "mental disorder" OR depression OR anxiety OR stress OR distress OR "psychological disorder" OR "psychological wellbeing" OR "psychological well-being"). The following limiters were set for all searches: scholarly (peer reviewed) journals published between March 2020 and March 2023. The age limiter was set to include studies related to adults (18+years) only. Language was restricted to the English language due to time and translation constraints.

Inclusion and Exclusion Criteria

Papers were included if they: (a) were original quantitative studies published in a peer-reviewed journal (b) used a cross-sectional or longitudinal design, and (c) examined the relationship between mental health and financial changes during the COVID-19 pandemic in adults aged 18+ years. For the purposes of this review, *financial changes* were defined as any changes in individuals' financial situations during the COVID-19 pandemic, including objective financial changes (e.g., reduced income) and subjective financial stress or worry (e.g., concern over debt repayment). Financial changes during COVID-19 must have been

explicitly measured by a minimum of one question regarding financial situation (e.g., 'over the last 2 weeks, to what extent have you experienced financial distress related to COVID-19?'). Studies which investigated job loss without specified financial changes were not included due to the scope of this review and the fact that several countries' governments subsidised wages during the COVID-19 pandemic, such as the UK government's Coronavirus Job Retention Scheme, also known as the Furlough Scheme. Inclusion required that mental health be considered using a standardised measure, preferably the full measure but shortened versions used in previous research with demonstrated validity and reliability were also included. We sought to conduct a comprehensive review and therefore used broad inclusion criteria of any financial change during COVID-19 and any mental health outcome (e.g., anxiety, depression, stress) including symptoms and pre-existing conditions. Reviews, meta-analyses, and commentaries/letters were excluded, as were papers that did not meet the inclusion criteria.

Search Procedure

We used the software Rayyan[14] to conduct the screening process. We first screened titles against the inclusion and exclusion criteria, and then abstracts. Abstracts that were retained were assessed for eligibility. A record was kept of the reasons for rejection. For abstract and full paper review, the most prevalent reasons for rejection included: multiple reasons, no financial measure, no standardised mental health measure and the relationship between COVID-19 financial changes and mental health not being measured. Due to the large volume of studies identified in the initial search and time constraints, a second reviewer screened a random 10% of the studies at abstract stage (following recommendations [15]). The inter-rater reliability was calculated using Cohen's kappa, which indicated 'substantial' agreement ($\kappa = .830$). Finally, a citation search was performed for all included papers.

Data Extraction and Analysis

Relevant information from each paper was extracted (e.g., design, COVID-19 phase, population description, sample size, recruitment strategy, data collection method, measures of mental health/financial change measure, analyses). Data was extracted by one of the authors and then verified another author. We then conducted a narrative synthesis following guidance by the Cochrane Consumers and Communication Review Group (Ryan, R., 2013). Meta-analysis was conducted using Comprehensive Meta-Analysis version 4.0.

We also conducted two meta-analyses on a portion (n = 31) of the cross-sectional studies to examine the association between income loss (vs. no income change) during the pandemic and anxiety and depression. A random effects model was utilised to calculate pooled effect sizes. Following recommendations [16] heterogeneity was assessed using a number of statistics (Cochran's Q, Tau^2, and I^2) to provide a comprehensive account. Egger's test was used to assess publication bias.

Quality Assessment

Following the guidelines [16] including the PRISMA 2020 statement [17], we assessed the internal validity and risk of potential bias of the included studies. We used the Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies from the National Heart, Lung and Blood Institute[18] as its criteria were relevant to the studies included. This tool has not been designed to provide an overall quality score, but to elicit the key concepts for evaluating the internal validity of a study; the tool guidelines indicate that the ratings be used to consider the risk of potential for selection bias, information bias, measurement bias, or confounding to determine the ability of the study to draw conclusions about the effects of the exposures on outcomes[18]. Twenty-five percent of the papers were reviewed by an independent rater (agreement score: 89.17%); disagreements/uncertainties were discussed between the reviewers and with a third reviewer, if necessary. All studies were included in

the review regardless of their quality rating and the implications of this are considered in the discussion.

Results

The database searches yielded 1935 papers (Figure 1). Of these, 383 abstracts were screened, and 121 full papers reviewed. A further 715 papers were retrieved by hand and citation searching; 627 of these were rejected at title and 46 at abstract-screening, leaving 42 full papers reviewed, of which six met inclusion criteria. In total, 76 studies (59 cross-sectional, and 17 longitudinal) were included for review.

Quality Assessment

Of the 59 cross-sectional studies included, 32 were rated as good, 23 as fair, and four poor (see Table S1, supplementary material). Most (n = 50) did not include a power analysis or clear power description to justify their sample size, though many had large sample sizes (with an average of 8747 participants across all studies). Just over half (n = 33) examined different levels of the exposure variable (i.e., financial change). Most studies (n = 57) did not use exposures that were clearly defined, valid, and reliable, though all included outcome measures that were, and most (n = 54) controlled for potential confounds (e.g., sociodemographic characteristics such as age, gender, education level).

Of the 17 longitudinal studies included, six were rated as good, seven as fair, and four poor (see Table S2, supplementary material). Most (n = 15) did not include a power analysis or description to justify their sample size. All assessed COVID-19 related financial changes at the same time as mental health outcomes were measured, not before, precluding claims regarding directionality. Most (n = 13) did not assess financial changes due to COVID-19 more than once, limiting assessment of changes over time. Despite these limitations, most studies (n = 14) controlled for potential confounders (e.g., pre-COVID-19 income, current income, employment, and sociodemographic characteristics); all included outcome measures

that were clearly defined, valid and reliable; and all but one included exposure measures that were clearly defined, valid, and reliable.

Data Extraction and Study Characteristics

Tables S3-S5 (supplementary material) summarise the data extracted from the 59 cross-sectional studies. Table S6 (supplementary material) summarises data extracted from the 17 longitudinal studies. The studies recruited from over 30 countries, with four recruiting from multiple countries.

The total sample size across the 59 cross-sectional studies was 513,308 (range 84–94,550). Twenty-six of these recruited general adult population samples (Table S3), 10 recruited University students (Table S4), and 23 recruited other, specific samples such as young/older adults, mothers, and working adults (Table S5). All recruited between 2020 and 2021 and were published 2020-2023. Most (n = 53) cross-sectional studies collected data in 2020, with the majority between March and June in the early phases of the pandemic. In terms of COVID-19, this was a time of significant uncertainty, increasing cases and COVID-19-related deaths, with local and national restrictions worldwide. The remaining studies collected data primarily before and during the second COVID-19 wave; nine studies collected data in 2021, during the easing of lockdown restrictions and later waves.

The total sample size across the 17 longitudinal studies was 31,680 (range 241–6057, Table S6). Eleven recruited general adult population samples. The remaining six recruited specific populations, including parents [19, 20], middle- and older-aged adults [21, 22] , young adults [22], and working adults[23]. Most longitudinal studies were prospective, and only one was ambispective [24]. Most (n = 13) longitudinal studies commenced data collection in 2020. Of these, most collected data between March and June 2020. The remaining studies which began in 2020 continued to collect data in 2021 and 2022, meaning that these studies collected data during the easing of lockdown and following the introduction of COVID-19 vaccines. Finally, four studies began earlier in the pre-pandemic phase, between 2015 and 2018, and

ended between May 2020 and March 2021. These utilised various data collection periods, from 12-15 days between surveys and surveys administered over 5 years. Most studies were conducted over 2-6 months.

We first report the results from the cross-sectional studies, in each of the various samples recruited, followed by the longitudinal studies. The results are organised to summarise the impact of objective financial changes (measurable financial impact, e.g., income loss, debt amount), subjective financial worries (perceived financial impact, e.g., concerns about debt repayment, financial stress), and financial hardship (difficulty meeting financial obligations, e.g., paying bills) on mental health.

Cross-sectional studies

Student samples (*n*=10).

Objective (n=10). Ten cross-sectional studies in student samples examined the impact of objective economic hardship, such as income loss due to the pandemic, on various mental health outcomes. Most (*n*=9) found that financial difficulties (i.e., income loss and financial struggles, stress, and insecurity) due to COVID-19 were associated with greater chances of experiencing distress, anxiety, depression, suicidal thoughts, and traumatic stress (including post-traumatic stress disorder). Two studies found contradictory results, with one[25] finding that depression scores were variable in those who lost income, whilst another[26] found no association between financial difficulties and stress (though financial difficulties were associated with increased depression and anxiety).

Subjective (n=2). Two cross-sectional student studies examined the subjective economic impact on student mental health [25, 27]. Both found that greater financial stress/worries were associated with worse mental health outcomes (e.g., increased depression, anxiety, suicidal thoughts, and traumatic stress).

General population samples (*n*=26).

Objective (n=20). Twenty cross-sectional studies in general population samples examined the objective financial impact on mental health. Eighteen found that having financial situation impacted by COVID-19, such as income loss, job loss, and general financial difficulties (e.g., inability to pay bills, problems managing debt) were associated with poor mental health including poorer psychological wellbeing, poorer quality of life, and greater psychological distress, anxiety, depression, stress, loneliness, and trauma-related distress. One study additionally found that distress mediated the relationship between financial difficulties and quality of life, with greater financial difficulties leading to greater distress and, in turn, poorer quality of life[28]. Another found a dose-response relationship between debt management issues and depression and anxiety, with greater debt management issues leading to greater mental health difficulties[29]. One study [30] found that the impact of income loss on depression, stress, and anxiety was exacerbated for those who also lost their jobs due to the pandemic. Another study[31] found that those with greater levels of anxiety and depression were more likely to have lost their jobs or income and struggle to meet financial obligations during the pandemic compared to those without anxiety and depression.

Two studies found that COVID-related financial impact (including income change) was not associated with psychological distress[32, 33].

Subjective (n=7). Seven cross-sectional studies in the general population examined the subjective financial impact on mental health. Five of these found that worries and distress about finances due to COVID-19 predicted poorer mental health, including less psychological wellbeing and greater depression, anxiety, distress. One study found that these worries mediated the positive association between deprivation and mental health disorders[34]. Another found that participants who perceived themselves as financially vulnerable due to the pandemic reported greater distress[35].

However, one study found that worries about the impact of COVID-19 on finances were not associated with psychological distress (though there was a non-significant trend for a positive relationship between these variables[36]).

Financial hardship (n=3). Three cross-sectional studies in the general population examined the impact of financial hardship on mental health. One of these found that difficulty meeting financial obligations due to COVID-19 was associated with greater anxiety [37]. Similarly, one study found that difficulty paying expenses was associated with anxiety and depression in a dose-response relationship: the more financial hardship participants reported, the greater risk they had of experiencing anxiety and depression compared to those without financial hardship[38]. Another study found that those reporting anxiety and depression were more likely to struggle to meet financial obligations compared to those without anxiety and depression[31].

Other samples (*n*=23). Twenty-three studies recruited other samples, including workers, clinical samples, mothers and pregnant women, young/older adults, and other specific samples.

Workers (*n*=10).

Objective (n=7). All seven studies found that objective financial changes due to COVID-19 (such as income loss, job loss, economic burden) were associated with a range of mental health problems such as greater stress, distress, anxiety, depression, PTSD risk, and reduced life satisfaction.

Subjective (n=1). One study examining subjective economic impact in remote workers found that financial concern was associated with greater stress, but *current* financial concern/situation did not predict *current* stress, anxiety, or depression[39].

Financial hardship (n=2). One study[40] found that perceived financial hardship was associated with poorer wellbeing and greater depression and loneliness in performing arts

professionals. Another[41] found that financial hardship predicted twice the risk of experiencing greater anxiety.

Clinical (*n*=2).

Objective (n=1). One study recruited participants with a history of mental illness (e.g., depression, anxiety, personality disorder) and examined the objective economic impact on mental health[42]. The study found that low income and having income impacted by the pandemic was associated with poorer mental health during the COVID-19 pandemic, including greater anxiety and depression symptoms and reduced wellbeing.

Financial hardship (n=1). A study in Bangladesh[43] found that among people with underlying physical/mental health conditions, financial difficulties negatively impacted mental health.

Mothers and pregnant women (*n*=3).

Objective (n=1). Pregnant women who lost income due to COVID-19 had greater odds of experiencing depression and anxiety[44].

Subjective (n=1). Pregnant women who were worried about their financial situation due to COVID-19 were more likely to experience clinically significant levels of depression, even when covarying demographic variables such as income level and education[45].

Financial hardship (n=1). In mothers and children with adversity before COVID, greater financial hardship was associated with greater maternal and child mental health problems while covarying pre-COVID mental health[46].

Older adults (*n*=3). All studies reported the objective financial impact on mental health; older adults who experienced financial difficulties (including income loss and inability to make a household payment on time) reported greater emotional distress[47], depression, and anxiety[48]. Older adults who expected further income losses and expected being unable to make the next house payment reported greater distress[47]. Conversely, another

study[49] found that those who had job security, less financial change, and were able to make ends meet had better mental health, even when controlling demographic characteristics.

Young adults (*n*=2). Both studies examined the objective financial impact on mental health and found that young adults aged 18-35 years who lost income or job due to COVID-19 had lower psychological wellbeing[50] and greater anxiety and PTSD (though not depression[51]).

Specific samples (*n*=3). Three studies recruited samples including middle income households[52], impoverished urban dwellers [53], and Black cisgender sexual minority men and transgender women [54]. All studies examined objective economic impact on mental health, and one examined both objective and subjective impact (i.e., income loss and worries about job loss[54]). A study in Bangladesh[52]found that middle income participants who experienced income loss or debt had greater depression and anxiety symptoms, though the impact of COVID-19-related income loss on anxiety and depression was small. Another study in Bangladesh[53] found that income loss did not impact PTSD and depression, though having a lower household income was associated with greater PTSD severity. Finally one study[54] found that income loss and worries about job loss were positively associated with loneliness, though not anxiety and depression.

Longitudinal studies

Most (*n*=11) longitudinal studies were conducted in the general population, with two of these including samples nationally representative of residents. The remaining were conducted in older adults (*n*=2), young adults (*n*=1), adult workers (*n*=1), parents of school children (*n*=1) and mothers (*n*=1).

Objective (*n*=9). Nine longitudinal studies examined the relationship between perceived objective economic impact due to COVID-19 and metal health outcomes[19, 20, 24, 55-59]. Of these, seven found positive associations between economic impact and depressive

symptoms, and five found positive associations between economic impact and anxiety. One study [57] found that, in both study cohorts, economic impact was more strongly associated with depression than anxiety. However, the increase in anxiety symptoms was steeper than that of depression [57]. Only one study found that economic impact was not associated with depressive or anxiety symptoms [56]; however, it received an overall quality assessment rating of 'poor' due to the risk of bias, hight attrition rate (54.95%), and sample variability. Regarding the other mental health outcomes studied, one study showed that COVID-19 related economic impact was associated with increased psychological distress[20]; another found that lower economic impact was associated with greater positive affect at two time points [55].

Subjective (*n*=7). Seven longitudinal studies examined the relationship between subjective financial worry due to COVID-19 and mental health [1, 57, 60-63] . All found positive associations between COVID-19-related financial stress and worse mental health, including depression, anxiety, and global mental health. Hertz-Palmor et al.[57]demonstrated a positive association between financial worries and depression. This association was unique to financial worries as health-related worries were associated with general symptom load but not depression. Furthermore, this finding remained while controlling for pre-COVID-19 income which suggests that variability in depressive symptoms is only partially explained by objective financial situation and that financial stress may be a more significant predictor of depression [57]. In terms of general mental health, Simonse et al. [1] also conducted a mediation analysis where mental health was the dependent variable, financial stress was the mediator, and income, savings, and debts were the independent variables. This analysis found that financial stress mediated the relationship between savings and debts on the one hand, and changes in mental health on the other.

Financial hardship (*n*=4). All studies reported positive associations between financial hardship and poor mental health, including increased depression [22], negative affect [21], psychological distress [23], and maternal anxiety and depression [19].

Meta-Analyses

We performed two random effects meta-analyses using Comprehensive Meta-Analysis version 4.0 to examine the impact of income loss due to COVID-19 on anxiety and depression.

Anxiety. Fifteen cross-sectional studies with a total of 278,854 participants were included to examine mean differences in anxiety between those who lost income and those who did not. The pooled standardised mean difference was 0.26 (95% CI: 0.19-0.32, $p <$ .001), indicating that those who lost income had greater anxiety than those who did not (Figure 2). There was substantial heterogeneity among the included studies ($Q = 349.36$, $df[Q] = 14$, $p < 0.001$; $T = 0.10$, $T^2 = 0.01$; $I^2 = 95.99\%$), however due to a relatively low number of studies a subgroup analysis could not be conducted to determine the cause of this heterogeneity. Egger's test indicated no evidence of publication bias ($B0 = -2.32$, $p = 0.16$), suggesting that the asymmetry observed in the funnel plot (Figure S1, supplementary material) is due to chance rather than selective reporting.

Depression. Sixteen cross-sectional studies with a total of 268,128 participants were included to examine mean differences in depression between those who lost income and those who did not. The pooled standardised mean difference was 0.24 (95% CI: 0.18-0.31, $p < 0.001$), indicating that those who lost income had greater depression than those who did not (Figure 3). There was substantial heterogeneity among the studies ($Q = 351.95$, $df[Q] = 15$, $p < 0.001$; $T = 0.10$, $T^2 = 0.01$; $I^2 = 95.74\%$)%), however due to a relatively low number of studies a subgroup analysis could not be conducted to determine the cause of this

heterogeneity. Egger's test indicated no evidence of publication bias ($B0 = -1.98$, $p = 0.20$; see Figure S2, supplementary material).

Discussion

This review sought to explore the relationship between COVID-19-related financial changes and mental health. A total of 76 studies (17 longitudinal and 59 cross-sectional) met the inclusion criteria; these recruited diverse groups across the globe and examined various mental health outcomes and COVID-19-related financial disruption. The most common mental health outcomes examined were depression and anxiety. Most studies examined objective economic impact, followed by subjective financial stress and financial hardship. Together, the review findings suggest that COVID-19 related financial disruption (including income loss, financial stress, and financial difficulty) negatively impacts mental health (e.g., increased depression, anxiety, and stress) across a range of populations. The findings from the meta-analyses show that those who lost income during COVID-19 (compared to those who did not) experienced greater anxiety and depression levels.

The studies demonstrated mixed findings but evidenced an overall impact of COVID-19 on people's mental health, independent of objective economic impact. Similar results are reported by a systematic review examining the psychological impact of COVID-19 on the general population and healthcare workers [64]. Research on the psychological impact of COVID-19 shows that poor mental health was exacerbated in with pre-existing mental health conditions[65] (. The current review found comparable results, supporting external validity.

Forty-seven cross-sectional studies examined objective economic impact on mental health in the general population, students, and other samples including clinical groups, workers, mothers and pregnant women, older and younger adults, middle-income households, impoverished urban dwellers, and sexual minorities. Most studies (n=45) found that objective economic impact due to COVID-19 (e.g., income loss, job loss, economic burden) was associated with poor mental health including greater anxiety, depression, and stress, and

reduced wellbeing and quality of life. Most studies (*n*=26) recruited general population samples across 14 countries (with one study recruiting from 59 countries), suggesting the results are generalisable to the wider population across the globe. Only three studies found somewhat contradicting results, with objective economic impact not associated with mental health in the general population [32, 33]and Black cisgender sexual minority men and transgender women [54]. The results from Clarke-Deelder et al.'s[32] study are particularly surprising given this study was rated as 'good' in quality due to the large sample, measuring valid outcomes, including a continuous measure of COVID-19-related financial impact, and covarying confounds. Cultural differences and differences in the severity of COVID-19 and country responses to the pandemic may partly explain the findings. Rahman et al.'s [33] heterogenous sample (including patients, healthcare workers, and the public) may explain the surprising results; isolating these samples may lead to different findings (e.g., the authors found that, relative to their counterparts, those with pre-existing mental health difficulties were more likely to develop moderate to high levels of distress). Similarly, Timmins et al.'s [54] very specific sample may exhibit different effects than those typically observed in general population samples; further work is required to closely examine these effects and the potential mechanisms involved (e.g., resilience in minoritised communities). Together, the results strongly suggest that objective economic factors such as income loss are associated with poor mental health.

Consistent with this, ten longitudinal studies suggest that objective economic impact due to COVID-19 was associated with worsening anxiety and depression in the general population. Seven of these ten studies received an overall quality assessment rating of 'fair' or 'good' and controlled for potential confounds (e.g., pre-COVID-19 and current income, employment, pre-pandemic mental health outcomes, and sociodemographic characteristics). Controlling for confounds enhances the internal validity by limiting the influence of variables that may affect the relationship between COVID-19-related financial changes and mental

health. Most of these studies recruited general population samples, supporting the generalisability of the findings to a wider population. However, one of the seven papers which examined the relationship between objective economic impact and mental health (anxiety and depression) found no association (Hagen et al., 2023). This may be because this study had a significant risk of bias (and an overall quality rating of 'poor') due to several methodological limitations, including the high attrition rate (54.95%), sample variability, and discontinuous measurement of economic impact.

Nineteen studies (12 cross-sectional and seven longitudinal) suggest that subjective financial stress due to COVID-19 was associated with worsening mental health. Twelve were in the general population, supporting the generalisability of the findings. One cross-sectional study in sexual minority groups found that greater worries about job loss were associated with greater loneliness, but not anxiety and depression [54]; this study found mixed results in general, possibly due to sample characteristics. Another cross-sectional study found that financial concern was positively associated with stress, though *current* financial concern did not predict *current* mental health [39]; this suggests that the association between financial stress and mental health differs at trait (general) and state (situational) levels.

All but one of the seven relevant longitudinal studies examining subjective economic impact on mental health received an overall quality assessment rating of 'fair' or 'good', and five controlled for potential confounding variables (e.g., job and health stressors, pre-COVID-19 income, and sociodemographic characteristics). There was some evidence that COVID-19-related financial stress may be a more significant predictor of mental health than objective financial hardship. This supports Frankham et al. [5]who found that subjective financial hardship, but not objective financial hardship, predicted mental health and Marjanovic et al. [66] who found that the financial threat scale mediated the relationship between economic hardship and mental health as measured by the General Health Questionnaire. The evidence of subjective financial hardship being a more significant

predictor than objective financial hardship is limited in this review and further research is required. Research measuring both subjective and objective financial hardship and mental health over time would be a useful addition to the literature.

Some studies (seven cross-sectional and four longitudinal) suggest that financial hardship due to COVID-19 was associated with worsening mental health. While fewer studies examined this relationship, all had a low risk of bias, controlled for potential confounds, and many (*n*=7) received an overall quality assessment rating of 'good'. However, most these studies recruited from specific populations (i.e., clinical groups, working adults, middle- and older-aged adults, and mothers/pregnant women), with only three cross-sectional studies in the general population, limiting the generalisability of the results. Further research on the relationship between financial hardship and mental health in the general population is required.

Limitations of the Reviewed Literature

Most studies were cross-sectional and correlational, limiting causal and directional claims. The longitudinal studies demonstrate an impact of COVID-related finances on mental health over time, but there is no way to compare outcomes pre- and post-COVID. Most longitudinal studies were conducted in the first six months of the COVID-19 pandemic, which poses limitations as economic impact, financial stress, and financial hardship may not occur soon after a loss of income or other financial disruption. Similarly, the time between data collection points in the longitudinal studies were brief for several studies, such as Canet-Juric (2020) which had only 12-15 days between surveys. This impacted the validity of the results and contributed to this study receiving an overall quality assessment rating of 'poor'.

There was significant heterogeneity in how studies measured COVID-19-related financial changes. Some used operational definitions of COVID-19-related financial changes with some lacking a clear definition (e.g., Baranov et al. [20]used job loss as a proxy for economic impact). For nearly all studies, it was unclear whether financial consequences were

due to getting ill with COVID, lockdown restrictions, or both. Few studies used standardised, validated financial measures. Most studies used one question to measure financial variables (e.g., income loss) and when several items were used, they did not assess the internal consistency of the scales used. Several studies also dichotomised measurements (e.g., 'economic impact' and 'no economic impact') despite using Likert scales, resulting in information loss and reduced statistical power. Another limitation of dichotomising data is that the extent of variation in outcome between groups can be underestimated, and considerable variability may be subsumed within each group[67]. All these factors have consequences for validity and reliability, given the uncertainty that the specific financial variable is the construct being assessed, whether this assessment is accurate, and ultimately whether it is acceptable to compare these financial constructs across different studies.

All studies used self-rated measures of mental health rather than a formal diagnosis or semi-structured assessment. Participation rates were frequently unclear or unreported, as was information describing the relevant COVID-19 context and relevant restrictions. Most studies recruited self-selecting participants and, therefore, may not be representative of the target populations due to self-selection bias and non-response bias. Relatedly, as most studies utilised online methods, likely due to COVID-19 social distancing measures, people without access to the necessary devices are likely to be underrepresented. Many studies reported that there were limitations in their generalisability due to underrepresentation of specific groups, such as people from ethnic minority backgrounds and of lower socioeconomic status. Most studies reviewed were conducted in countries with a largely individualistic culture and the evidence, therefore, may be different in countries with largely collectivistic cultures.

Strengths and Limitations of the Review

To the best of our knowledge, this is the first systematic review and meta-analysis examining the relationship between COVID-related financial changes and mental health. We

followed PRISMA guidelines and prospectively registered the review on Prospero to enhance transparency and replicability.

Given the nature of the studies included, from this review alone, we cannot determine if the mental health impact of COVID-related financial challenges is different to that of financial problems generally. Additionally, not all financial changes assessed may be a direct impact of COVID, as some studies simply assessed financial changes during the pandemic and other factors may be involved. However, as the COVID-19 pandemic was an unprecedented and catastrophic event impacting individuals, the society, and the economy globally, with many losing their jobs and income, it was important to examine the impact of such financial challenges on mental health. An important public health consideration for future pandemics is that there may be a considerable indirect impact on mental health due to worsened finances.

Most studies were symptom based, demonstrating a short-term increase in symptoms of depression, anxiety, and more, though we cannot assume that there was increase in the prevalence of mental health problems at a community level.

Due to resource and time constraints, studies that were not written in English were excluded. This may have caused selection bias and cultural bias, which may limit the generalisability of the findings. Additionally, only three databases were searched meaning that some papers may have been missed; to partly address this, we conducted hand and citation searches to identify further articles. While one author screened and quality assessed most papers independently, a portion of the papers were screened/quality assessed by an independent rater to reduce risk of bias (10% abstracts screened and 25% papers quality assessed by independent raters). There was substantial agreement between independent raters for both screening and quality assessment, enhancing the validity and reliability of the assessment outcome. Given the subjective nature of the quality assessment tool, we suggest that the ratings (and particularly the overall ratings) be interpreted with caution. Due to a

range of samples and populations studied, and the relatively small number of studies, there was insufficient data for a sensitivity analysis to determine how robust the findings are and any variables that might have impacted the meta-analysis results, and it was also not possible to examine possible causes of heterogeneity via sub-group analyses.

Clinical Implications

This review shows that the COVID-19 pandemic has negatively impacted people's financial circumstances and mental health. Increased vulnerability to poor mental health related to COVID-19-related financial changes may have long-term consequences for both individuals and communities. Government policies which aimed to reduce the financial impact of the pandemic may have improved the mental health at a population level; however, this was not directly assessed by any of the studies here. For any future pandemics, financial assistance may help to mitigate the impact on mental health.

The results suggest that mental health practitioners should assess personal financial circumstances and incorporate these in formulations and interventions, particularly during global economic crises. Therapeutic interventions that benefit individuals facing difficult life events should be offered to people whose mental health has been impacted by COVID-19-related financial disruption. For example, Acceptance and Commitment Therapy and Compassion-Focused Therapy seek to reduce psychological distress by increasing psychological flexibility and the ability to receive compassion, respectively; such interventions could be tailored to those experiencing financial difficulties and linked mental health problems.

Future research

Further research is required to address the limitations and gaps identified in the existing literature. For example, research is needed to understand the mechanisms by which COVID-19-related financial changes impact mental health. As most studies reviewed were conducted in the general population, future research should investigate the effect of COVID-related

financial difficulties on mental health in clinical populations (e.g., those with clinical levels of anxiety and depression) to inform clinical interventions. Studies should also utilise standardised measures of economic impact, financial stress and financial hardship which more adequately measure these constructs and their severity. While this review was conducted in the UK, there was a lack of good quality UK-based studies that met the review criteria. This paucity needs to be addressed to understand the nuances of these relationships in the context of British culture.

Conclusions

Overall, this review demonstrates that COVID-related financial constraints (both objective and subjective) are associated with poor mental health outcomes (particularly anxiety and depression) in the general population, students, and other specific samples such as young and older adults. Given that the COVID-19 pandemic has had significant individual, societal, and global economic effects, further research is needed to continue to understand this relationship and inform relevant policy and interventions.

Acknowledgements

Thank you to the authors of included papers who responded to our queries and provided additional data for our meta-analysis.

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Data Availability Statement

Data files for the meta-analysis are available upon author contact.

Conflict of Interest Statement

TR has received payment and receives royalties for the use of 'Space from Money Worries' by Silvercloud health and is an advisor for 'TellJo' a company around financial vulnerability for which he receives shares and payments. The remaining authors have no conflicts of

Figure 1

PRISMA Flow Diagram

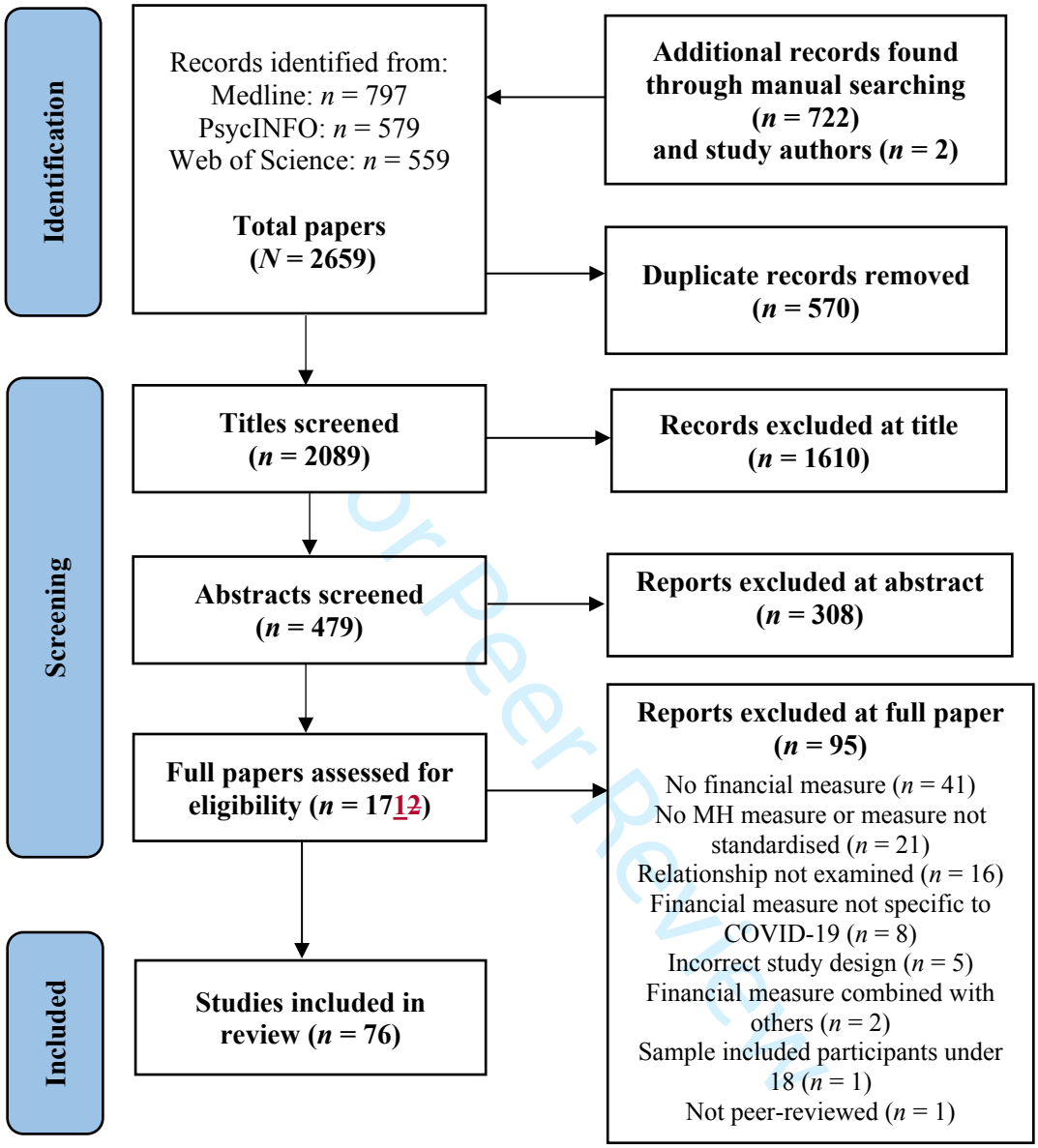


Figure 2

Meta-Analysis Statistics and Forest Plot for Anxiety

Study name	Std diff in means	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Allen et al. (2021)	0.514	0.185	0.034	0.152	0.876	2.780	0.005
Bryson et al. (2021)	0.208	0.153	0.023	-0.092	0.508	1.357	0.175
Bui et al. (2020) - week 3	0.401	0.006	0.000	0.389	0.413	66.866	0.000
Clark-Deelder (2022)	-0.037	0.066	0.004	-0.167	0.092	-0.562	0.574
García-Fernandez et al. (2020)	0.401	0.175	0.031	0.059	0.744	2.296	0.022
Halim et al. (2022)	0.166	0.227	0.051	-0.278	0.611	0.734	0.463
Hyland et al. (2020)	0.313	0.063	0.004	0.190	0.437	4.971	0.000
Irfan et al. (2021)	0.273	0.098	0.010	0.080	0.466	2.772	0.006
Miquel et al. (2022)	0.188	0.042	0.002	0.107	0.270	4.523	0.000
Ruengorn et al. (2021)	0.230	0.071	0.005	0.090	0.369	3.232	0.001
Shevlin et al. (2020)	0.403	0.049	0.002	0.307	0.500	8.197	0.000
Trogolo et al. (2022)	0.137	0.063	0.004	0.014	0.260	2.175	0.030
Wathelet et al. (2020) T1	0.252	0.009	0.000	0.234	0.269	28.792	0.000
Wathelet et al. (2021) T2	0.200	0.017	0.000	0.167	0.233	11.952	0.000
Wathelet et al. (2022) T3	0.292	0.013	0.000	0.266	0.317	22.645	0.000
Pooled	0.255	0.032	0.001	0.193	0.317	8.016	0.000
Prediction Interval	0.255			0.029	0.481		

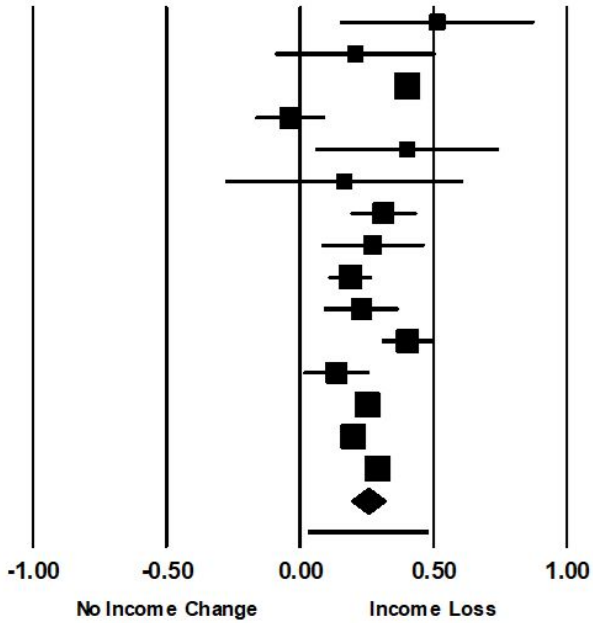


Figure 3

Meta-Analysis Statistics and Forest Plot for Depression

Study name	Std diff in means	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Allen et al. (2021)	0.470	0.184	0.034	0.109	0.832	2.551	0.011
Bryson et al. (2021)	0.229	0.153	0.023	-0.071	0.529	1.495	0.135
Bui et al. (2020)	0.377	0.006	0.000	0.365	0.389	62.923	0.000
Clark-Deelder (2022)	-0.045	0.066	0.004	-0.174	0.085	-0.676	0.499
García-Fernandez et al. (2020)	0.303	0.174	0.030	-0.038	0.644	1.739	0.082
Halim et al. (2022)	-0.179	0.227	0.051	-0.624	0.265	-0.790	0.430
Hyland et al. (2020)	0.360	0.063	0.004	0.236	0.483	5.696	0.000
Islam et al. (2021)	0.497	0.255	0.065	-0.003	0.998	1.949	0.051
Miquel et al. (2022)	0.119	0.042	0.002	0.038	0.201	2.873	0.004
Ruengorn et al. (2021)	0.340	0.076	0.006	0.191	0.489	4.465	0.000
Shevlin et al. (2020)	0.361	0.049	0.002	0.265	0.458	7.357	0.000
Spiro et al. (2021)	0.366	0.126	0.016	0.119	0.612	2.910	0.004
Trogolo et al. (2022)	0.131	0.063	0.004	0.008	0.255	2.093	0.036
Wathelet et al. (2020)	0.224	0.009	0.000	0.206	0.242	24.279	0.000
Wathelet et al. (2021)	0.173	0.017	0.000	0.139	0.207	9.993	0.000
Wathelet et al. (2022)	0.268	0.013	0.000	0.242	0.294	20.248	0.000
Pooled	0.243	0.033	0.001	0.179	0.307	7.459	0.000
Prediction Interval	0.243			0.012	0.474		

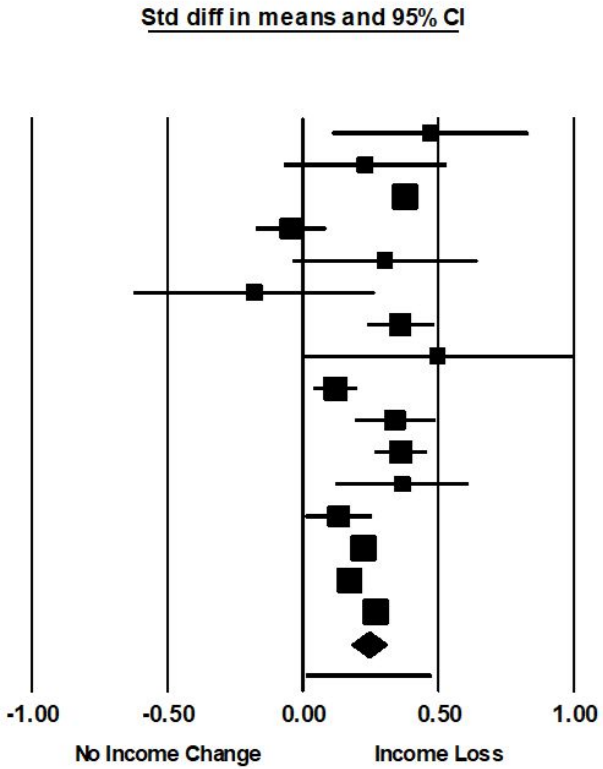


Table S1

Quality Assessment Ratings for Cross-Sectional Studies

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Allen et al. (2021)[68]	Yes	Yes	Yes	Yes	No	No	No	No	No	NA	Yes	NA	NA	No	Poor
Aruta (2021)[28]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	No	Fair
Aruta et al. (2021)[69]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	No	Fair
Bahar Moni et al. (2021)[70]	Yes	Yes	CD	Yes	Yes	No	No	No	No	NA	Yes	NA	NA	Yes	Fair
Bryson et al. (2021)[46]	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	NA	Yes	NA	NA	Yes	Good
Bui et al. (2021)[47]	Yes	Yes	No	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Fair
Chung et al. (2021)[34]	Yes	Yes	Yes	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Clark-Deelder (2022)[32]	Yes	Yes	No	Yes	CD	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Coulombe et al. (2020)[71]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Davis et al. (2021)[25]	Yes	Yes	No	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Fair
Dawel et al. (2020)[72]	Yes	Yes	No	Yes	Yes	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Elaidy et al. (2023)[73]	Yes	Yes	CD	Yes	Yes	No	No	No	No	NA	Yes	NA	NA	Yes	Fair
ElTohamy et al. (2022)[74]	Yes	Yes	No	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Ertl et al. (2022)[75]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Frankenthal et al. (2023)[76]	Yes	Yes	Yes	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Good
Galanza et al. (2023)[26]	Yes	Yes	CD	Yes	No	No	No	No	No	NA	Yes	NA	NA	No	Poor

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
García-Fernandez et al. (2020)[48]	Yes	Yes	CD	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Fair
Guerrero and Barnes (2022)[31]	Yes	Yes	CD	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Good
Halim et al. (2022)[52]	Yes	Yes	CD	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Good
Haque et al. (2022)[77]	Yes	Yes	Yes	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Fair
Hyland et al. (2020)[78]	Yes	Yes	CD	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Good
Irfan et al. (2021)[79]	Yes	Yes	CD	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Fair
Islam et al. (2021)[53]	Yes	Yes	CD	Yes	Yes	No	No	No	No	NA	Yes	NA	NA	Yes	Good
Kim (2021)[38]	Yes	Yes	No	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Lee (2022)[22]	Yes	Yes	CD	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Fair
Lewis et al. (2022)[42]	Yes	Yes	CD	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Good
Li et al. (2023)[50]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Li et al. (2020)[80]	Yes	Yes	Yes	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Liu et al (2021)[44]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Lu et al. (2020)[81]	Yes	Yes	CD	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Fair
Miquel et al. (2022)[82]	Yes	Yes	No	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Fair
Mougharbel et al. (2021)[83]	Yes	Yes	No	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Fair
Nagasu et al. (2021)[36]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Fair

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Nelson et al. (2020)[84]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Odani et al. (2022)[85]	Yes	Yes	No	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Good
Patwary et al. (2022)[41]	Yes	Yes	CD	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Poor
Rahman et al. (2020)[33]	Yes	Yes	CD	Yes	Yes	No	No	No	No	NA	Yes	NA	NA	Yes	Fair
Ruengorn et al. (2021)[86]	Yes	Yes	CD	Yes	Yes	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Sato et al. (2023)[87]	Yes	Yes	No	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Fair
Sekscinska et al. (2022)[88]	Yes	Yes	CD	Yes	Yes	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Şentürk et al. (2021)[39]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Fair
Sharma et al. (2022)[51]	Yes	Yes	CD	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Fair
Shevlin et al. (2020)[89]	Yes	Yes	CD	Yes	Yes	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Shevlin et al. (2022)[29]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Shuster et al. (2021)[58]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Fair
Simha et al. (2020)[35]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Spiro et al. (2021)[40]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Fair
Sujan et al. (2022)[43]	Yes	Yes	CD	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Fair
Sun et al. (2021)[27]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Thayer & Gildner (2020)[45]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Timmins et al. (2022)[54]	Yes	Yes	Yes	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Poor
Trógoloet al. (2022)[90]	Yes	Yes	CD	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	No	Fair
Van de Velde et al. (2021)[91]	Yes	Yes	NR	Yes	No	No	No	Yes	Yes	NA	Yes	NA	NA	Yes	Good
Wathelet et al. (2020)[92]	Yes	Yes	No	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Good
Wathelet et al. (2021)[93]	Yes	Yes	No	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Wathelet et al. (2022)[94]	Yes	Yes	No	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good
Wichaidit et al. (2022)[95]	Yes	Yes	Yes	Yes	Yes	No	No	NA	No	NA	Yes	NA	NA	Yes	Good
Zajacova et al. (2020)[37]	Yes	No	No	Yes	No	No	No	No	No	NA	Yes	NA	NA	Yes	Fair
Zhao et al. (2021)[30]	Yes	Yes	Yes	Yes	No	No	No	Yes	No	NA	Yes	NA	NA	Yes	Good

Note: See key below for quality assessment questions. Given the subjective nature of the quality assessment tool, we suggest that the ratings (and particularly the overall ratings) be interpreted with caution.

Key:

1. Was the research question or objective in this paper clearly stated?

2. Was the study population clearly specified and defined?

3. Was the participation rate of eligible persons at least 50%?

4. Were all the subjects selected or recruited from the same or similar populations (including the same time period)? Were inclusion and exclusion criteria for being in the study prespecified and applied uniformly to all participants?

5. Was a sample size justification, power description, or variance and effect estimates provided?

6. For the analyses in this paper, were the exposure(s) of interest measured prior to the outcome(s) being measured?

7. Was the timeframe sufficient so that one could reasonably expect to see an association between exposure and outcome if it existed?

8. For exposures that can vary in amount or level, did the study examine different levels of the exposure as related to the outcome (e.g., categories of exposure, or exposure measured as continuous variable)?

9. Were the exposure measures (independent variables) clearly defined, valid, reliable, and implemented consistently across all study participants?

10. Was the exposure(s) assessed more than once over time?

11. Were the outcome measures (dependent variables) clearly defined, valid, reliable, and implemented consistently across all study participants?

12. Were the outcome assessors blinded to the exposure status of participants?

13. Was loss to follow-up after baseline 20% or less?

14. Were key potential confounding variables measured and adjusted statistically for their impact on the relationship between exposure(s) and outcome(s)?

15. Overall quality rating

Abbreviations: CD = cannot determine; NA = not applicable; NR = not reported; Pop. = population; Part. = participation

Table S2

Quality Assessment Ratings for Longitudinal Studies

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Badellino et al. (2022)[60]	Yes	Yes	NR	No	No	No	Yes	Yes	Yes	No	Yes	NA	No	No	Poor
Baranov et al. (2022)[20]	Yes	Yes	Yes	Yes	No	No	Yes	No	No	No	Yes	NA	Yes	Yes	Fair
Batterham et al. (2021)[61]	Yes	Yes	NR	Yes	Yes	No	Yes	Yes	Yes	No	Yes	NA	No	Yes	Fair
Bierman et al. (2021)[61]	Yes	Yes	NR	Yes	No	No	Yes	Yes	Yes	Yes	Yes	NA	No	Yes	Good
Canet-Juric et al. (2020)[55]	Yes	Yes	NR	Yes	No	No	No	Yes	Yes	No	Yes	NA	NR	No	Poor
Choi et al. (2023)[21]	Yes	Yes	NR	Yes	No	No	Yes	Yes	Yes	No	Yes	NA	NR	Yes	Good
Feter Et al. (2021)[24]	Yes	Yes	NR	Yes	Yes	No	Yes	No	Yes	No	Yes	NA	Yes	No	Fair
Graupens-Berger et al. (2022)[62]	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good
Hagen et al. (2023)[56]	Yes	Yes	NR	No	No	No	Yes	No	Yes	No	Yes	NA	No	Yes	Poor
Hertz-Palmor et al. (2021) - Study 1[57]	No	Yes	NR	Yes	No	No	Yes	Yes	Yes	No	Yes	NA	No	Yes	Fair
Hertz-Palmor et al. (2021) - Study 2[57]	No	Yes	NR	Yes	No	No	Yes	Yes	Yes	No	Yes	NA	No	Yes	Fair
Lee et al. (2022)[22]	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes	NA	NR	Yes	Good
Murray et al. (2023)[19]	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes	NA	Yes	Yes	Good
Shuster et al. (2021)[58]	Yes	Yes	NR	No	No	No	Yes	Yes	Yes	Yes	Yes	NA	No	Yes	Fair

Simonse et al. (2022)[1]	Yes	Yes	NR	Yes	No	No	Yes	Yes	Yes	Yes	Yes	NA	No	Yes	Good
Strizzi et al. (2023)[59]	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes	No	Yes	NA	No	Yes	Fair
Weber et al. (2023)[63]	Yes	Yes	NR	Yes	No	No	Yes	Yes	Yes	No	Yes	NA	No	Yes	Fair

Note: See Table 1 note for quality assessment questions. Given the subjective nature of the quality assessment tool, we suggest that the ratings (and particularly the overall ratings) be interpreted with caution.

Table S3. *Data Extracted from Cross-Sectional Studies in General Population Samples*

Authors, date, country	**Study period / COVID-19 phase**	**Analytic sample**	**Mental health variable and measure**	**Financial change during COVID-19 variable and measure**	**Main (relevant) findings**
Allen et al. (2021)[68], United Kingdom	15 Apr - 8 Jun, 2020: First lockdown	General adult population (*N* = 200). Age 18-62; 7.86.0% female, 93.0% White, 92.5% UK-based, 73.5% students	**Psychological well-being:** Psychological well-being scale (PWB18) **Anxiety:** Generalized Anxiety Disorder Scale (GAD-7) **Depression:** Patient health questionnaire (PHQ-9) **Loneliness:** UCLA loneliness scale (UCLA3)	**Financial changes:** "Are you facing reduced work hours and reduced income due to the COVID-19 pandemic?" (Yes, no or not applicable)	Those who had less income had poorer psychological wellbeing. People with less working hours/income reported significantly more anxiety, depression and loneliness.

Authors, date, country	**Study period / COVID-19 phase**	**Analytic sample**	**Mental health variable and measure**	**Financial change during COVID-19 variable and measure**	**Main (relevant) findings**
Aruta (2021)[28], Phillipines	Last week of Apr to second week of May 2020: Early phase of community quarantine	General Filipino adult population (N = 401). Age 18-68 years (M = 30.09, SD = 11.15); 63.34% female, 36.41% male, 1 did not report gender	**Distress:** Brief Symptoms Inventory (BSI) - symptoms related to anxiety and depression	**Financial difficulties:** "Do you or your family currently experience financial difficulties due to the Coronavirus crisis (such as unemployment, reduced business activity and so on)?" With a Likert scale (1-5)	Those with more familial financial difficulties were more likely to experience higher psychological distress (β = .18, t = 4.00, $p \leq .001$).

Authors, date, country	**Study period / COVID-19 phase**	**Analytic sample**	**Mental health variable and measure**	**Financial change during COVID-19 variable and measure**	**Main (relevant) findings**
Aruta et al. (2021)[69], Phillipines	Last week of Apr to second week of May 2020: Early phase of community quarantine	General Filipino adult population (N = 401). Age 18-68 years (M = 30.09, SD = 11.15); 63.34% female, 36.41% male, 1 did not report gender	**Psychological distress:** Brief Symptoms Inventory (BSI) - symptoms related to anxiety and depression **Quality of life:** My LifeToday scale (MLT)	**Financial difficulties:** "Do you or your family currently experience financial difficulties due to the Coronavirus crisis (such as unemployment, reduced business activity and so on)?" with a Likert scale (1-5)	Those with more financial difficulties had more psychological distress. Psychological distress mediated the negative relationship between financial difficulties and quality of life (B = −0.04, β = −0.06, SE = 0.02, p ≤ 0.001).

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Chung et al. (2021)[34], China	Sept 11 to Oct 12, 2020	General adult population in Hong Kong (*N* = 1053). Age: 33.2% 18–39, 45.6% 40–64, 21.2% ≥65; 55.2% female	**Depression and Anxiety:** Patient Health Questionnaire (PHQ-4)	**Financial worry:** 1. Financial and livelihood worries (e.g., job or income loss), rated on a 5-point scale. 2. Worry about personal savings rated on a 5-point scale.	Financial and livelihood worries predicted poorer mental health (β=0.134; p=0.007). These worries mediated the association between greater deprivation and mental health disorders (β = 0.222 × 0.134 = 0.030; p = 0.004).
Clark-Deelder (2022)[32], Uganda	Dec 2020 to Apr 2021: Peak of first wave in Dec 2020	General Ugandan adult population (*N* = 4066)	**'Psychological distress':** Patient Health Questionnaire (PHQ-4)	**Financial change:** Change in income since March 2020 due to COVID-19 restrictions (4 response options for extent of change)	No clear association between psychological distress (anxiety and depression) and income change.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Dawel et al. (2020)[72], Australia	Mar 28–31. 2020: First wave	General adult population (*N* = 1296). Age (*M* = 46, *SD* = 17.3). 50.2% female, 49.8% male	**Depression** Patient Health Questionnaire-9 (PHQ-9) **Anxiety** Generalized Anxiety Disorder-7 (GAD-7) **General psychological wellbeing** World Health Organization Wellbeing Index (WHO-5)	**Income loss:** Job loss due to COVID-19" (yes or no) **Financial distress:** Financial distress due to COVID-19 (6 point scale)	COVID-19 induced financial distress predicted greater depression and anxiety and less general psychological wellbeing.

Authors, date, country	**Study period / COVID-19 phase**	**Analytic sample**	**Mental health variable and measure**	**Financial change during COVID-19 variable and measure**	**Main (relevant) findings**
Elaidy et al. (2023)[73], Kuwait	Nov 2020 - Jan 2021 (exact dates not reported)	General adult population (*N* = 415). Age (*M* = 35.03, *SD* = 10.9) years, 63.1% female	**Distress:** Arabic version of Kessler Psychological Distress Scale (K-10)	**Financial change:** COVID-19 impacted financial situation (yes or no)	Psychological distress was greater for those whose financial situation was affected by COVID-19 (OR = 1.184, 95% CI 1.040, 1.348).
Ertl et al. (2022)[75], 59 countries	April 19 to May 3, 2020: Early phase; effects of pandemic different in each country though most had peak cases and restrictions	General adult population (*N* = 6882). Age: 18-94, (*M* = 42.30 years, *SD* = 13.95); 78.8% female, 20.9% male, 0.2% transgender or nonbinary	**Trauma-Related Distress:** Child-Revised Impact of Events Scale (CRIES-8) posttraumatic intrusion/avoidance	**Financial changes and difficulties:** Epidemic-Pandemic Impacts Inventory (EPII), 9 items: 1. 7 questions from Work and Employment subscale including, "Laid off from job or had to close own business"	Job loss (β = 0.029, *p* = 0.022), reduction of work hours (β = 0.042, *p* = <.001) and inability to pay bills (β = 0.045, *p* = 0.001) predicted trauma-related distress.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
				2. 2 questions from Economic subscale including, “Unable to get enough food or healthy food”)	

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Frankenthal et al. (2023)[76], Israel	May - Sept, 2020. T1: May – Jun 2020 (reduction of cases and restrictions) T2: July – Sept 2020 (rising cases and restrictions)	General adult population (*N* = 2504). Age: 31.8% 21-34; 29.8%35-49, 22.3% 50–64, 16.1% 65+; 51.1% female, 48.9% male	**Depression and Anxiety:** 5-item Mental Health Inventory	**Financial changes:** Change in average monthly household income (declined or no change/increased)	A decrease in average household income per month during COVID-19 was associated with poor mental health (i.e., greater anxiety and depression)
Guerrero and Barnes (2022)[31], Canada	T1: fall of 2020 (second COVID wave); T2: spring of 2021 (third wave began in Mar with more restrictions).	General adult population (*N* = 22,721). Age 18+ years - overall age and gender not reported (reported by mental health profile in Table 2 of article)	**Anxiety:** Generalized Anxiety Disorder Scale (GAD-7) **Depression:** Patient Health Questionnaire-9 (PHQ-9) **Distress:** Kessler	**Financial changes:** Loss of job or income **Financial difficulty:** Difficulty meeting financial obligations/ essential needs.	Those with low/moderate and severe mental health difficulties (including anxiety, depression, and distress) had increased odds of struggling to meet financial obligations and losing their job/income compared to those without mental health difficulties.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
	Exact dates not recorded.		Psychological Distress Scale (K10)		
Hyland et al. (2020)[78], Ireland	Mar 31 and Apr 5, 2020: first week of quarantine (31 days post first COVID-19 case in Ireland; 19 days after initial social distancing	General adult population (*N*=1041). Age 18-88 (*M* = 44.97, *SD* = 15.76). 51.5% female, 48.2% male, 0.3% transgender or prefer not to say	**Depression:** Patient Health Questionnaire-9 (PHQ-9) **Anxiety:** Generalized Anxiety Disorder 7-item Scale (GAD-7)	**Financial changes:** Loss of income due to COVID-19 (yes, no or unsure)	Income loss due to COVID-19 was positively associated with screening positive for anxiety and depression.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
	restrictions began).				

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Kim (2021)[38], United States	Sept 2—Dec 21, 2020: Rise in infection rates with some restrictions in place	General adult population (*N* = 91,222). Age 18-64 (*M* = 40.3); 51.9% female	**Anxiety and depression:** Patient Health Questionnaire (PHQ-2)	**Financial hardship:** Difficulty paying expenses (not at all/a little/somewhat/very difficult)	Those who reported experiencing financial hardship 'somewhat' had twice as greater risk of experiencing anxiety (1.96, 95% CI = 1.85–2.08, $p < .001$) and depression (2.75, 95% CI = 2.54–2.98, $p < .001$) than those who reported no hardship. Those who reported 'considerable' financial hardship had 3 times greater risk of experiencing anxiety (2.61, 95%CI = 2.46–2.76, $p < .001$) and depressive symptoms (2.75, 95%CI = 2.54–2.98, $p < .001$) than no hardship.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Lu et al. (2020)[81], China	Jun 8-18, 2020: Two months since lockdown eased; few cases of COVID	Adults in Wuhan (N = 1417): 73% general public; 27% frontline healthcare workers; 70% aged 26-40. 83.4% female, 16.6% male	**Depression:** Patient Health Questionnaire (PHQ-9) **Anxiety:** Generalised Anxiety Disorder scale (GAD-7) **Post-Traumatic Stress Disorder:** Posttraumatic Stress Disorder Checklist (PCL)	**Financial changes:** Income change during the COVID-19 outbreak (increase, no change or decrease)	Those with income loss were at more risk of anxiety (OR [95%CI]: 2.49 [1.43–4.33]; $p = 0.001$) and depression (OR [95%CI]:1.85 [1.07–3.21]; $p = 0.028$).

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Mougharbel et al. (2021)[83], Canada	May 8-12, 2020: First wave (peak of first wave was end of May)	English-speaking Canadian adults (*N* = 1005); 504 male, 498 female, 3 other; 698 white	**Depression:** Centre for Epidemiologic Studies Depression Scale 3-item (CES-D) **Anxiety:** Generalized Anxiety Disorder scale (GAD-7)	**Financial worry:** Worries about the impact of COVID-19 on personal financial situation (very, somewhat, not very, not at all)	Financial worries were associated with greater likelihood of anxiety and depression. Binge drinking and anxiety (OR 3.09; 95% CI, 1.97–4.85), binge drinking and depression (OR 1.81; 95% CI, 1.12–2.94).
Nagasu et al. (2021)[36], Japan	Mar 26-28, 2020: Early phase	General adult population (*N* =11,342). Age 20-64 (*M* = 43.5, *SD* = 12.0); 50.6% men, 49.4% women	**Psychological Distress:** Japanese version of Kessler Psychological Distress scale (K6)	**Financial worry:** Worry about impact on finances (e.g., income) after COVID-19 (yes or no)	There was a non-significant trend for a positive association between worries about the impact of COVID-19 on finances with psychological distress (Adjusted OR 1.084, 95% Cl[0.941-1.191]).

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Nelson et al. (2020)[84], Unites States, Canada, and Europe	Mar 19-Apr 10, 2020: Early phase	General adult population (N = 2065). Age 18-77 (M = 34.40, SD = 11.49); 69.20% female	**Anxiety:** Generalized Disorder Scale (GAD-2) **Depression:** Patient Health Questionnaire-2 (PHQ-2).	**Financial strain:** 1. "Have you lost income?" (yes or no) 2. "Money situation" (comfortable, enough, cutting back, not enough) 3. "Job loss" (yes or no) 4. "Food security: ran out and didn't have money to get more" (never, sometimes, often)	There was a positive association between employment loss and depressive symptoms (B = 0.456, SE = 0.084, $p < 0.001$, 95% CI [0.291 – 0.622]) and anxiety (B = 0.346, SE = 0.093, $p < 0.001$, 95% CI [0.165 – 0.528]).

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Odani et al. (2022)[85], Japan	August 25 - September 30th, 2020: Early phase	General population (*N* = 2065). Age 15-79; 50.3% female, 49.7% male	**Psychological Distress:** Kessler 6 scale (K6)	**Financial hardship:** 1. Income change since COVID-19 began (scale 0-100) 2. If they had a shortage of money for necessities 3. Whether the hardships only began after COVID-19 started **Financial anxiety:** 1. If they felt anxious regarding the budget for their household	Income loss was associated with experiencing serious psychological distress. Shortage of money and anxiety about finances were significantly associated with serious psychological distress.
Rahman et al. (2020)[33], Australia	Jun 1-30, 2020: During strict	General adult population (*N* = 587). Age 18-77 (*M* = 41.3,	**Distress:** Kessler Psychological Distress Scale (K10)	**Financial change:** "Covid-19 impacted	Having a financial situation impacted by COVID-19 was not associated with having

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
	lockdown restrictions	*SD* = 12.5); 61.8% female		financial situation" (yes or no)	psychological distress (adjusted OR 1.14, 95% Cls 0.76-1.72).
Sekscinska et al. (2022)[88], Poland	May 5-12 2020: First wave	General adult population (*N* = 977). Age 18-87 (*M* = 38.68, *SD* = 11.59); 64.5% female	**Anxiety:** Polish version of the General Anxiety Disorder scale (GAD-7) **Depression:** Polish version of the Patient Health Questionnaire (PHQ-9)	**Objective financial situation:** Income, ownership of savings, whether they saved money pre COVID-19, financial liabilities. **Subjective financial situation:** Rated: financial situation, COVID-19-related financial change, financial security, and job security.	Objective and subjective financial difficulties predicted greater anxiety and depression. Higher financial security associated with reduced anxiety and depression. Objective financial variables: anxiety (R2 change = 0.006, *p* = 0.235); depression (R2 change = 0.005, *p* = 0.308). Subjective financial variables: anxiety (R2 change = 0.029, *p* <

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
					0.001); depression (R2 change = 0.027, $p < 0.001$).
Shevlin et al. (2020)[89], United Kingdom	March 23 and 28 2020: First wave - study began on same day that lockdown was announced	General adult population (N = 2025). Age 18-83 (M = 45.55, SD = 15.9); 51.7% female, 48.0% male, 0.3%	**Depression:** Patient Health Questionnaire (PHQ-9) **Anxiety:** Generalized Anxiety Disorder (GAD-7) **Traumatic stress:**	**Income change:** Household income lost due to COVID-19 (yes, no, not sure)	Those who had a reduction of income during COVID-19 had greater risk of depression and anxiety. Income reduction had little effect on traumatic stress.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
		transgender/prefer not to say/other	International Trauma Questionnaire (ITQ) ICD-11 PTSD		
Shevlin et al. (2022)[29], United Kingdom	Aug 6 - Sept 28, 2021: Wave 6 - only some social distancing restrictions in place	General adult population (*N* = 2025). Age 18-83 (*M* = 45.55, *SD* = 15.9); 51.9% female, 47.8% male, 0.2% transgender/prefer not to say/other	**Generalised Anxiety Disorder:** Generalised Anxiety Disorder scale (GAD-7) **Major Depressive Disorder:** Patient Health Questionnaire (PHQ-9)	**Debt changes:** 1. "Has your overall debt increased or decreased this month due to COVID-19" 2. Subjective rating of the manageability of their debt on Likert scale (1-5)	Dose-response association with greater debt management issues and greater depression and anxiety. Adjusted odd ratios anxiety: 2.28-11.18 from some debt problems to very serious. Adjusted odd ratios depression: 2.8-16.21 from some debt problems to very serious.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Shuster et al. (2021)[58], United States	Apr 2 - Jun 4, 2020: First wave - some restrictions	General adult population (N = 743). T1 Age (M = 35.04, SD = 13.08); 49.18% females	**Depression:** Zung Self-Rating Depression scale (SDS) **Anxiety:** State-Trait Anxiety Inventory (STAI)	**Economic impact:** "Rate the impact that COVID-19 had on your financial situation"	Lower income and worsening financial situation due to COVID-19 was associated with greater depression and anxiety.
Simha et al. (2020)[35], United Kingdom	April 23 and 28, 2020: First wave	Clinically high risk and financially vulnerable participants (N = 15, 691). Age (M = 51.2); 58.4% females. 21% financially vulnerable	**Mental Distress:** General Health Questionnaire (GHQ-12)	**Financial Vulnerability:** How financially vulnerable participants thought they were (very low, low, medium, high, extreme vulnerability)	Participants who thought they were financially vulnerable due to COVID-19 had greater mental distress (β = 0.294, 95% CI, LLCI = 1.88, ULCI = 2.09).

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Wichaidt et al. (2022)[95], Thailand	Late Apr 2021: Beginning of third wave	General adult population (N = 1555). Age (M = 41.0, SD = 0.3). 51.7% female, 48.3% male	**Anxiety:** Generalised Anxiety Disorder Scale (GAD-7) Thai version **Depression:** Patient Health Questionnaire (PHQ-2) Thai version	**Emergency cash reserves:** How participants would cover an emergency cash payment within one week (responses selected from a list of options) **Economic Distress:** Economic distress since COVID-19 and economic distress in previous 30 days	Anxiety and depression were higher in those who experienced economic distress within last 30 days than those who did not (the effect for depression was rendered non-significant when demographic characteristics were covaried). Having emergency cash reserves did not moderate the association between economic distress and anxiety and depression.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Zajacova et al. (2020)[37], Canada	Survey 1: Mar 29 - Apr 3, 2020. Survey 2: May 4 - May 10, 2020: Early phase with distancing restrictions	General population (*N* = 4627 in Mar, 4600 in May): Age 15+ years: 14.2% 15-24, 16.9% 25-34, 16.1% 35-44, 15.2% 45-54, 16.7% 55-64, 14.9% 65-74, 6.1% 75+; 51.7% female, 48.3% male	**Anxiety:** Generalized Anxiety Disorder Scale (GAD-7) (Cycle 2 only)	**Employment security:** "I might lose my main job or main self-employment income sources in the next four weeks" (1-5 agreement scale) **Financial hardship:** Impact of COVID-19 on meeting financial obligations (major, moderate, minor, none, cannot tell) **Food security:** Food secure or insecure (Cycle 2 only)	Greater financial hardship due to COVID-19, food insecurity, and unsecure employment status were associated with greater anxiety.

Authors, date, country	**Study period / COVID-19 phase**	**Analytic sample**	**Mental health variable and measure**	**Financial change during COVID-19 variable and measure**	**Main (relevant) findings**
Zhao et al. (2021)[30], China	Apr 9-23, 2020: 2–4 weeks after second wave peaked	General Chinese adult population in Hong Kong (*N* = 1501). Age (*M* = 41.3); 55.2% female, 44.8% male	**Stress:** Perceived Stress Scale (PSS-4) **Anxiety and depression:** Patient Health Questionnaire (PHQ-4) including 2 questions from General Anxiety Disorder scale (GAD-2)	**Income loss:** Income reduction since the start of COVID-19 (none, small, half, larger or unemployed)	Income loss due to COVID-19 was positively associated with stress, anxiety, and depression; these mental health problems were further increased for those who lost their jobs during the pandemic.

Table S4. *Data Extracted from Cross-Sectional Studies in Student Samples*

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Davis et al. (2021)[25], Liberia	Jul 1 - Oct 31, 2020: During first (Mar -Sept 20) and second (Sept 20-May 21) waves	Medical/pharmacy students (N = 113). Median age 28 years (IQR = 26, 32). 61.9% men, 75.2% single	**Depression:** Patient Health Questionnaire - Depression Scale (PHQ-8)	**COVID-19-related financial concerns:** Series of questions about how finances were impacted by COVID-19 (range of response options varying per question)	Worries about finances were associated with increased stress, distress, and depression. Variable depression scores in those who reported actual income loss.
ElTohamy et al. (2022)[74], United States	Jan - early Jun, 2021 (most data collected in Feb and Mar): Wave of COVID-19 variant 'alpha' (some social distancing restrictions; rise of cases through winter and spring 2021)	Undergraduate students (N = 65,568). Age 87.3% 18-24 years; 68.2% female	**Psychological Distress:** Kessler Screening Scale for Psychological Distress **Anxiety:** Asked if ever diagnosed by professional **Depression:** Asked if ever diagnosed by professional	**Financial hardship:** Effect of the COVID-19 pandemic on financial situation - rated on a 5-point scale from 'a lot more stressful' to 'a lot less stressful'.	Those with greater financial hardship due to the pandemic had the greatest chances of experiencing psychological distress (OR: 1.78, $p < 0.0001$).

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Galanza et al. (2023)[26], Phillipines	Sept - Oct, 2020 (exact dates not reported)	Filipino university students (*N* = 681). Age 18-24 years (*M* = 19.45, *SD* = 1.13); 64.90% female	**Depression, Anxiety, Stress:** Depression Anxiety Stress Scale (DASS-21)	**Financial difficulties:** "Do you or your family currently experience financial difficulties due to the Coronavirus crisis?" (yes/no)	Financial difficulties predicted greater depression and anxiety (though not stress).
Irfan et al. (2021)[79], Malaysia	Jun - Jul, 2020: few cases during this time	University students (N = 958). Age 69.6% below 20 years; 70.9% female, 29.1% male.	**Anxiety:** Generalised Anxiety Disorder Scale (GAD-7)	**Income change:** Family income decreased (yes/no)	Reduction in family income due to COVID-19 increased odds of greater anxiety by 1.7 (95% CI = 1.34 to 2.17). Loss of family income was one of the strongest risks for experiencing greater anxiety.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Sato et al. (2023)[87], Japan	Aug 25 - Sept 30, 2020: Wave 2 (Aug - Sept 2020) where transmission was increasing	Undergraduate students (*N* = 958) median age 20; 56.8% women	**Distress:** Kessler Psychological Distress Scale (K6)	**Income change:** 1. Series of questions including income change (response as percentage lost), job loss (yes or no), unpaid wages (yes or no) 2. Cannot afford necessities, school fees or food (yes, no or started before pandemic)	Reduction in income was associated with psychological distress. Compared to those whose income did not change during COVID-19, those whose income decreased by 50-99% reported greater distress (prevalence ratio [PR] = 1.48). Distress in those with unpaid wages compared to paid wages: PR = 1.44. Distress in those with money shortage for necessities compared to no shortage: PR = 1.45.
Sun et al. (2021)[27], China	Mar 20 - Apr 10, 2020: Early in quarantine (two months after outbreak began)	University students (*N* = 1912). Age (*M* = 20.28, *SD* = 2.10); 69.77% female	**Anxiety:** Generalized Anxiety Disorder Scale (GAD-7) **Depression:** Patient Health Questionnaire (PHQ-9) **Traumatic stress:** Impact of Events scale (IES): questions asked in context of COVID-19	**Financial stress:** Amount of financial stress caused by COVID-19 (5-point scale)	Financial stress due to COVID-19 predicted increased anxiety, depression, and traumatic stress.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Van de Velde et al. (2021)[91], 26 high/middle income countries	Apr 27 - July, 2020: First wave with lockdown across all countries	Higher education students (*N* = 20, 103; 73.9% female; 78.2% less than 26	**Depression:** Center for Epidemiologic Studies (CES-D-8) questionnaire	**Financial status:** 1. Had enough money for monthly costs before COVID-19 (struggled or didn't) 2. Change in financial situation (worse or better during COVID-19) 3. How many people they can borrow money from (up to 5 or more)	Those with financial issues before COVID-19, those with no one or only 1-2 people to borrow money from, and those with more financial difficulty since COVID-19 had greater depression.
Wathelet et al. (2020)[92], France	Apr 17 - May 4, 2020: During lockdown in the acute phase	University students (*N* = 69,054). Age (median 20 years); 72.8% female, 26.1% male, 1.1% nonbinary	**Distress:** Impact of Events Scale - Revised (IES-R) **Stress:** Perceived Stress Scale (PSS-10) **Anxiety:** State-Trait Anxiety Inventory (STAIY-2) **Depression:** Beck Depression Inventory (BDI-13) **Suicidal thoughts** in preceding month (yes or no; unstandardised question)	**Financial change:** Income loss due to COVID-19	Income loss was associated with distress, stress, anxiety, depression, and suicidal thoughts. Compared to those who did not lose income, those who did were at greater risk of experiencing at least one mental health problem (OR, 1.28; 95%CI, 1.22-1.33; P < .001).

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Wathelet et al. (2021)[93], France	Jun 15 - Jul 15, 2020: One month after the end of the first lockdown	University students (N = 22,883). Female (72.2%), male (25.8%), others (1.5%); average age 21 (+4).	**Post Traumatic Stress Disorder (PTSD):** PTSD Checklist (PCL-5)	**Financial change:** Income loss due to COVID-19	Income loss associated with probable PTSD (OR =1.20 [95% CI: 1.09–1.31], $p < 0.001$).
Wathelet et al. (2022)[94], France	Jul 21 - Aug 31, 2021: 15 months after the start of the pandemic	University students (N = 44,898). Age 18-21 years (median = 19) Female (70.7%), men (27.7%), nonbinary (1.6% and were excluded).	**Post Traumatic Stress Disorder (PTSD):** PTSD Checklist (PCL-5) **Stress:** Perceived Stress Scale (PSS-10) **Depression:** Beck Depression Inventory (BDI-13) **Anxiety:** State-Trait Anxiety Inventory State (STAI Y-2) **Suicidal thoughts** in preceding month (yes or no; unstandardised question)	**Financial difficulties:** Difficulty making ends meet each month (significant, moderate, none)	Greater financial difficulties were associated with greater PTSD, stress, depression, anxiety, and suicidality. Relative to those with no/few financial difficulties, those with moderate difficulties had ORs ranging from 1.36 (95% CI, 1.27-1.45) for suicidal thoughts to 1.75 (95% CI, 1.67-1.84) for PTSD. Those with significant difficulties had ORs ranging from 2.19 (95% CI, 2.03-2.35) for suicidal thoughts to 3.44 (95% CI, 3.21-3.68) for depression.

Table S5. *Data Extracted from Cross-Sectional Studies in Other, Specific Samples*

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Bryson et al. (2021)[46], Australia	6 May - 23 Nov 2020: first wave ended by May, second wave not begun though ended in Oct with some restrictions	Mothers and children with adversity pre-COVID (N = 319); mothers' ages not reported, all female	**Maternal Mental Health:** Depression, Anxiety and Stress Scales (DASS-21) **Child Mental Health:** Coronavirus Health Impact Survey 3.0 Child Mood States Scale (CRISIS 3.0)	Questions from Household, Income and Labour Dynamics in Australia: **Changes to financial circumstances:** Has there been a job loss (yes or no) or a reduced ability to work? (yes or no) **Financial harship:** Struggle to pay rent, bills, food, healthcare or car insurance (yes or no)	More financial hardship was associated greater maternal and child mental health symptoms even after pre-COVID-19 mental health was controlled (β = 0.27, p<0.001).

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Bui et al. (2021)[47], United States	23 Apr 2020 surveys began: First wave (Mar-Sept 2020) - data pooled into cross-sectional dataset	Older adults (*N* = 94,550). Age: 55-88; 55.2% female; 80,5233 non-Hispanic white, 5,718 non-Hispanic black, 2,908 non-Hispanic Asian, 5371 Latino	**Emotional distress:** 4 questions from Patient Health Questionnaire and Generalized Anxiety Disorder Scale.	**Financial hardship:** 1. Has anyone in your household suffered a loss of employment income since March 13 (yes or no) 2. Did your household make the last rent or mortgage payment on time (did or didn't)	Those with income loss who expected further losses experienced greater distress. Those who did not make a house payment on time and didn't anticipate being able to experienced greater distress.
Coulombe et al. (2020)[71], Canada	Mar 2020: First wave (one week after social distancing measure)	Canadian workers (*N* = 1122) who had worked at least 20hrs per week pre-COVID. Age (*M* = 39.43, *SD* = 12.13); 74.2% female; 85.5% born in Canada; 89% Caucasian	**Stress:** Perceived Stress Scale (PSS) to assess perceived stress within the last week **Distress:** Patient Health Questionnaire (PHQ-4) for anxiety and depression	**Income Loss:** Report percentage of current income compared to pre-pandemic (scale of 0-100)	Income loss was associated with greater stress and distress.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
García-Fernandez et al. (2020)[48], Spain	Mar 29 - Apr 5, 2020: First wave: Peak of the SARSCoV-2 infection in Spain	Older adults (*N* = 1639). 150 were aged 60 years or over and 1489 were under 60	**Anxiety:** Hamilton Anxiety Scale (HARS) **Depression:** Beck Depression Inventory (BDI)	**Income loss: "**Economic losses" (yes or no)	Those who experienced financial losses had more anxiety ($F(1, 146) = 6.3$, $p = 0.013$, hp 2 = 0.04) and depression ($F(1, 146) = 4.2$, $p = 0.04$, hp 2 = 0.03) than those who did not.
Halim et al. (2022)[52], Bangladesh	Jan 5 - Feb 25, 2021: before start of second wave (which began in Mar), low no. of cases	Middle income participants (*N* = 150). Age (*M* = 40.73, *SD* = 10.07); 86% male	**Depression:** Patient Health Questionnaire (PHQ-9) **Anxiety:** Generalized Anxiety Disorder (GAD-7)	**Financial stress:** 4 questions about facing economic stress, poverty level since COVID-19, responsibility to financially support family and family budget **Income change:** 3 questions about income changes due to COVID-19, the amount of income change and household debt	Most had moderate depression and anxiety symptoms due to financial problems. Depressive and anxiety symptoms were greater among those with income loss and debt. Income loss due to COVID-19 increased anxiety by a small point scale (0.00, $p < .10$). Income loss reduced depression slightly (-0.00, $p < .05$).
Haque et al. (2022)[77]	Jun 2020: large no. of cases with lockdown restrictions	Informal waste workers (*N* = 176). 75.6% aged 26-50;	**Psychological Distress:** General Health Questionnaire (GHQ-12)	**Income change:** Whether income has reduced since COVID-19 based on household income	Income loss due to COVID-19 increased risk of psychological distress (RR: 1.60, 95% CI: 1.06–2.41).

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
		55.0% male, 45% female			
Islam et al. (2021)[53]	Aug - Sept, 2020: Restrictions lifted Sept 1 but cases were not particularly low	Impoverished urban Bangladeshi dwellers (N = 435). Age 18-85 (M = 45.0, SD = 12); 54.7% male	**Depression:** Patient Health Questionnaire (PHQ-9) - Bangla version **PTSD:** National Stressful Events Survey for PTSD - Short Scale (NSESSS-PTSD) - Bangla version	**Financial changes:** 1. "How has your family's monthly income changed due ot the impact of COVID-19?" (decreased, increased, unchanged) 2. Job loss due to COVID-19 (yes or no)	Income loss did not impact PTSD and depression, though having a household income of less than 10,000 BDT per month was linked to greater PTSD severity.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Lee (2022)[49], 27 European countries	Apr 9-30, 2020: During the beginning of the outbreak	Middle- and older-adults aged 50 years or above (*N* = 31,757). Age (*M* = 59.99, *SD* = 7.03); 26.2% male, 73.8% female	**Mental health**: World Health Organization—Five Well-Being Index (WHO-5)	**Financial impact**: 2 items - perceived likelihood of losing job in next 3 months and having to leave current accommodation in next 6 months due to costs (5-point scale from *very likely* to *very unlikely*). **Financial changes**: 2 items: whether household financial situation changed compared to 3 months ago (3-point scale of *became worse*, *remained same*, *became better*) and how well expenses cover necessary expenses (6-point scale of difficulty level)	Job security, less change in finances, and ability to make ends meet were all associated with better mental health, even when covarying demographic characteristics.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Lewis et al. (2022)[42], United Kingdom	Jun - Aug, 2020: After first wave (approx. end May); some restrictions lifted, lower cases than during peak	Participants with history of mental illness (*N* = 2869). Age 18-94 (69.2% ≥35 or over, 30.4% <35); 77.6% female, 0.7% transgender, 20.1% male, 39% gender variant/non-conforming/non-binary; 95% white	**Anxiety:** Generalised Anxiety Disorder **Depression:** Patient Health Questionnaire (PHQ-9) **Psychological well-being:** Word Health Organization Well-Being Index (WHO-5)	**Financial impact:** Work, study or employment status change (yes or no)	Having a low income and income affected by the COVID-19 pandemic was associated with poorer mental health during the pandemic, including greater anxiety and depression and reduced wellbeing.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Li et al. (2023)[50], 6 countries (China, Italy, Lithuania, Portugal, Slovenia, and United States)	Jul - Sept, 2020 (exact dates not recorded): small no. of cases in China. First wave in American and European countries	Young adults (*N* = 1679). Age 18–30 (*M* = 23.48, *SD* = 3.49); 20.8% male, 78.2% female, 1% gender queer	**Wellbeing:** Brief Inventory of Thriving (BIT-10)	**Financial changes:** 1. "I have lost job-related income due to the coronavirus" (5-point scale from *completely not true* to *completely true*) 2. Job loss due to COVID-19	Income loss and job loss negatively correlated with psychological wellbeing. Job loss negatively predicted current financial wellbeing but did not predict future financial wellbeing or psychological wellbeing. Income loss negatively predicted present and future financial wellbeing but did not predict psychological wellbeing.
Li et al. (2020)[80], China	25 Apr - 9 May, 2020: Strict restrictions, lower no. of cases than in initial outbreak	Chinese workers with COVID-related income loss (*N* = 398). Age (68.3% aged 26-40); 50.5% male, 49.5% female	**Depression:** Patient Health Questionnaire (PHQ-9) **Anxiety:** Generalized Anxiety Disorder (GAD-7) **Insomnia:** Insomnia Severity Index (ISI-7) **Distress:** Revised Impact of Event Scale (IES-7) Chinese versions of tools used.	**Income loss:** Loss of income caused by COVID-19 (light >0 to 25%, middle 25–50%, or heavy >50%)	Those whose income was heavily impacted reported high levels of depression, anxiety, and insomnia. Adjusted odds of severe depression, anxiety, and distress symptoms were greater for those with larger income losses.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Liu et al. (2021)[44], United States	May 6-8, 2020: Early acute phase, wave 1	Pregnant women (N = 715), ≥8 weeks' pregnant, aged 18-44 years, residing in and with prenatal care status in the US. Age: 91.5% aged 25 to 35; all female	**Postnatal Depression:** Edinburgh Postnatal Depression Scale (EPDS-10) **Anxiety:** Generalized Anxiety Disorder Scale (GAD-7)	**Income loss:** Losing a source of income due to COVID-19	Losing income due to COVID-19 was associated with greater odds of experiencing depression (adjusted OR 1.2 [0.5-3.0]) and anxiety (adjusted OR 1.7 [0.7-4.1]).

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Miquel et al. (2022)[82], Spain	Jun 2020 (exact dates not recorded): Directly after the first lockdown	Employees (*N* = 2381). Age (*M* = 43.0, *SD* = 11.8); 47,48% female, 52.53% male	**Depression:** Patient Health Questionnaire (PHQ-8) **Anxiety:** General Anxiety Disorder Scale (GAD-7) **PTSD:** DSM-5 Checklist (PCL-5) **Panic attacks:** World Mental Health-International College Student (WMH-ICS) **Substance use disorders:** CAGE-AID questionnaire **Suicide severity:** Columbia Suicide Severity Rating Scale (C-SSRS)	**Income change:** 1. "Are you unemployed or temporarily laid off due to the coronavirus pandemic?" 2. "Did you experience a significant loss of personal or family economic income due to the coronavirus pandemic?" **Perceived financial stress:** Adapted version of the Peri Life Events Scale	Those with job loss were more likely to have depression (OR = 1.48, 95% CI = 1.12–1.95). Those with income loss were more likely to have depression (OR = 1.30, 95% CI = 1.00–1.69). Those with job and income loss had greater risk for PTSD. Those with income loss had increased risk for panic attacks. Job and income loss were not associated with generalised anxiety disorder and substance use disorder.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Patwary et al. (2022)[41], Bangladesh	17 Apr - 1 May, 2020: Early phase - beginning of lockdown	Students and working professionals (*N* = 744). Age: 94% 30 years or below; 58% male, 42% female	**Anxiety:** Generalized Anxiety Disorder (GAD-7) **Stress:** Perceived Stress Scale-4 (PSS-4)	**Financial hardship:** "Are you worried about the financial condition of your family during COVID-19?" (yes or no)	Financial hardship during the pandemic was positively associated with anxiety and predicted clinically significant anxiety levels in both students and workers. In students, but not workers, having financial hardship during the lockdown (vs. not) led to nearly twice the risk of greater anxiety levels (OR = 1.84, 95% CI = 1.11–3.05, $p < 0.05$).
Ruengorn et al. (2021)[86], Thailand	Apr 21 - May 4, 2020: Early phase / wave 1	Workers aged 18+ (*N* = 2303). Age (*M* = 34.5, *SD* = 10.2 years); 60% female, 37% male, 3% other	**Depression:** Patient Health Questionnaire (PHQ-9) **Anxiety:** Generalised Anxiety Disorder Scale (GAD-7) **Stress:** Percieved Stress Scale (PSS-10)	**Economic burden:** 1. Job loss (yes or no) 2. Income loss (yes or no) 3. Financial problems (yes or no)	Job loss, income loss, and self-reported financial problems were associated with having depression, anxiety, and stress. Job loss increased odds of all mental health outcomes but the effect on depression was diluted when controlling covariates. Income loss (50% or less) increased odds of depression; income loss (50% or more) increased odds of anxiety; income loss did not predict stress.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Senturk et al. (2021)[39], Turkey	Oct 25 - Dec 24, 2020: During lockdown; Dec included highest no. of cases and hospitalisations	Remote workers (*N* = 459). Age 24-60 (*M* = 35.64, *SD* = 6.8); 55.3% male, 44.7% female	**Depression, Anxiety, Stress:** Depression Anxiety Stress Scales (DASS-21)	**Financial state:** "How would you rate your financial situation in these days?" (0-10) **Financial concern:** "What is your financial expectation six months from now?" (0-10)	Financial concern predicted stress (β = –0.100, *p* = 0.040), though current financial state did not (β = -0.034, *p* = 0.482). No significant effect of current financial state and financial concern on depression and anxiety.
Sharma et al. (2022)[51], Nepal	Jan 2021: End of the first wave (low cases)	Young adults (*N* = 1229). Age 18-35 (*M* = 25.0, *SD* = 4.1); 54.5% female	**Depression:** Patient Health Questionnaire-9 (PHQ-9) **Anxiety:** Generalized Anxiety Disorder-7 (GAD-7) **PTSD:** PTSD checklist (PCL-C)	**Financial impact:** "Decrease in family income during COVID" (yes or no) **Financial worry:** "Worry about economic influences" (yes or no)	Income loss was positively associated with anxiety and PTSD, but not depression. Having 3 or more COVID-19 related stressors (including financial worry as one stressor) increased risk of depression and PTSD.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Spiro et al. (2021)[40], United Kingdom	Apr 1 - Jun 15, 2020: First lockdown	Workers, performing arts professionals (*N* = 385). Age 18-86 (M = 44.08, SD = 13.9; 63% female	**Mental Wellbeing:** Mental Health Continuum – Short Form (MHC-SF) **Depression:** Center for Epidemiologic Studies Depression Scale (CES-D) **Social Connectedness:** 15-Item Social Connectedness Scale **Loneliness:** 3-Item Loneliness Scale	**Financial hardship:** "Do you consider yourself to be in financial hardship as a result of the current public health situation?" (*no, a little, a lot*)	Perceived financial hardship was associated with worse mental wellbeing (B = -1.28, p = 0.006), depression (B = 0.18, p = 0.030), and loneliness (B = 0.13, p = 0.024).

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Sujan et al. (2022)[43], Bangladesh	Nov 2020 - Jan 2021: Before second wave in March 2021 (lower cases)	Adults with underlying health conditions (*N* = 971). Age (*M* = 42.29, *SD* = 15.86); 50.5% male, 49.95% female	**Depression:** Patient Health Questionnaire (PHQ-9) **Anxiety:** Generalized Anxiety Disorder (GAD-7) **Loneliness:** UCLA loneliness scale	**Financial hardship:** 1. Lost job (yes or no) 2. Financial difficulties (yes or no) 3. Eleven questions about managing the cost of medical treatment including being in debt, borrowing money, and receiving help from organisations to cover medical expenses	Those who reported poor health were 5x more likely to have anxiety and depression, and 3x more likely to experience loneliness, than those who reported good health. Those with lower family income were 0.67 more likely to have depression than those with higher income. Those who spent their savings on medical treatment were 1-2x more likely to have anxiety and loneliness than those who did not; those who did not save money for medical expenses were more likely to have depression than those who did.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Thayer & Gildner (2020)[45], United States	Apr 16-30, 2020: First wave with partial restrictions	Pregnant women (*N* = 2099). Age (*M* = 31.3, *SD* 4.4); all female	**Postnatal Depression:** Edinburgh Postnatal Depression Score (EPDS)	**Financial stress:** "I am worried about my financial situation due to the COVID-19 crisis" (5-point agreement scale)	COVID-19-related financial stress was associated with a greater likelihood of experiencing clinically significant depression levels, while controlling demographic characteristics including education and income level (adjusted OR = 2.23, 95% CI = 1.80, 2.77, $p < .001$).
Timmins et al. (2022)[54], United States	Apr 20 and Jul 31, 2020: Initial peak in first wave	Black cisgender sexual minority men and Black transgender women (N = 226). Age (*M* = 25.7, *SD* = 4.0; 88); 88.1% cisgender men, 10.6% transgender women or another gender and assigned male at birth	**Anxiety:** 2 items adapted from General Anxiety Disorder scale (GAD-7) **Depression:** 3 items adapted from the Center for Epidemiologic Studies Depression Scale (CES-D)	**Financial Loss:** "Lost an income source because of the COVID-19 pandemic" (yes, no, no income to lose) **Financial Worries:** "Percentage chance you will lose your job because of the COVID-19 pandemic within 3 months?" (response with percentage)	Income loss and worry that there was a ≥1% chance of losing one's job were associated with loneliness. Income loss and job loss worries were not associated with anxiety and depression.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Trógoloet al. (2022)[90], Argentina	Oct 2020: Peak of first wave	Pre-pandemic workers (N = 1049). Age (M = 42.15, SD = 12.61; 51% male, 49% female	**Burnout:** Maslach Burnout Inventory (MBI-GS) **Depression:** Patient Health Questionnaire (PHQ-9) **Anxiety:** Generalised Anxiety Disorder Scale (GAD-7) **Life satisfaction:** Satisfaction with Life Scale (SWLS)	**Financial hardship:** 1. Income change since COVID-19 (percentage loss) 2. Self-reported financial problems (yes or no)	Workers with financial problems reported greater depression (F[1,1045] = 10.53, p < 0.001, ηp2 = 0.010) and anxiety (F[1,1045] = 6.87, p = 0.009, ηp2 = 0.007). Workers with income loss reported lower life satisfaction (F [5,1011] = 2.72, p = 0.019, ηp2 = 0.013).

Table S6. *Data Extracted from Longitudinal Studies*

Authors, date, country	**Study period / COVID-19 phase**	**Analytic sample**	**Mental health variable and measure**	**Financial change during COVID-19 variable and measure**	**Main (relevant) findings**
Badellino et al. (2022),[60] Argentina	T1: 29th March – 12th April 2020 T2: 23rd May – 12th June 2020, first wave peaked in October 2020, national lockdown began late-March	General population sample of adults living in Argentina without having previous mental disorder and/ or dyslexia. **T1**: *N* = 1985, 1505 females, 480 males/other; age: *M* = 36.83 years, *SD* = 14.4 **T2**: *N* = 2839, 2137 females, 702	**Depressive symptoms:** Patient Health Questionnaire (PHQ-9)	**Financial worries:** 1. 'How concerned have you been about your financial situation in the last month?" A Likert scale from 1 to 10 (0 = no concern and 10 = maximum concern) was used, and the level of concern was ranked as mild (0–4), moderate (5–7) or maximum (8–10) 2. Question about Concern regarding 'running out of money to pay expenses,	Significant increase in the prevalence and average score of depression in Argentine population between late-March and mid-June 2020. Respondents who expressed concern about running out of money were at a significant risk for depression. Unemployed participants, who feel more worried about job changes and who were at risk of (or at least concerned about) running out of money to meet their usual expenses,

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
		males/other; age: *M* = 27.95 year, *SD* = 12.23 *N* = 853 respondents participated in both T1 and T2		rent and taxes.' Likert scale from 1 to 4 (1 = not concerned; 2 = little concerned; 3 = concerned; 4 = very much concerned).	were the most susceptible to depression.
Baranov et al. (2022)[20], Pakistan	T1: November - December 2019 T2: July 2020, 'height of the pandemic' (first peaked in mid-June 2020 in Pakistan), national lockdown ended	Parents of a school-going child (aged 10-14 years) (*N* = 883; 725 females, 158 males; age: *M* = 37 years)	**Psychological distress** (Kessler-10 [K10] questionnaire)	**Economic impact:** Job loss was used as a proxy for economic impact (respondents were asked if they or their partner lost their job due to the COVID pandemic)	COVID-19-related economic impact was significantly associated with increased psychological distress. While mental health has not deteriorated overall from baseline during the lockdowns for adults, for those who have suffered

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
	mid-May and partial restrictions continued				economically, it has significantly worsened.
Batterham et al. (2021)[61], Australia	Seven time points between March – June 2020 (fortnightly surveys), first peak in March/April, national lockdown began in late March, restrictions were eased in early May but local lockdowns and	General population sample representative of the Australian adult population by age group, gender, and state/territory (quota sampling) (*N* at T1 = 1296, *N* at T7 = 762 [59%]; 649 females, 647 males;	**Depressive symptoms** Patient Health Questionnaire (PHQ-9) **Anxiety symptoms** Generalised Anxiety Disorder (GAD-7)	**Financial distress:** 'Over the last 2 weeks, to what extent have you experienced financial distress related to COVID-19?' (Not at all/A little/ Somewhat/Quite a lot/Considerably/ Extremely)	Mean levels of depression and anxiety symptoms early in the COVID-19 pandemic were higher than estimated by earlier Australian population-based surveys, but most adults did not experience changes in mental health symptoms during the first three months of the pandemic. COVID-19-related financial distress was positively associated with

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
	international quarantine continued	age: *M* = 46.0 years, *SD* = 17.3)			higher depression and anxiety at baseline.
Bierman et al. (2021)[23], Canada	T1: March 2020 T2: April 2020 T3: May 2020 T4: June 2020 (monthly surveys), first wave peaked on 30 May 2020, partial national lock-down began	Adults working at time of baseline measures (retained in the sample in subsequent waves if they became unemployed) (*N* at T1 = 2456, *N* at T4 = 1809 (74%); 1194 females, 1262	**Psychological distress** Shortened version of the Kessler-6 [K6] scale	**Economic hardship:** Measured using 3 questions: 1. 'How often in the past month did you have trouble paying the bills?' 2. 'How often in the past month did you not have enough money to buy food, clothes or other	Positive association between economic hardship prior to the pandemic and periods of economic hardship during the pandemic. Economic hardship experienced during the COVID-19 pandemic degraded mental health, even when prior mental health and economic hardship was taken into account. Psychological distress predicted

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
	in mid-March 2020	males; age: *M* = 41.94 years)		things your household needed?' 3. How did your finances work out in the past month?	economic hardship during the pandemic.
Canet-Juric et al. (2020)[55], Argentina	T1: late-March 2020 T2: April 2020 (12-15 days between surveys), first wave peaked in October 2020, survey launched two days after	General population - 18 years and older, not suffering from physical or psychological illnesses. (*N* = 6057; 4886 females, 1131 males, 20 'other', 20 'prefer	**Depressive symptoms** Beck Depression Inventory (BDI-II) **State anxiety** State-Trait Anxiety	**Perception of economic impact:** Question regarding variation in economic income due to quarantine (response options: no, few, some, much, very much)	After 2 weeks of quarantine, depression increased, and anxiety and negative and positive affect

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
	national lockdown began	not to answer'; age groups: 18-25 = 929 26-40 = 2910 41-60 = 1803 60+ = 415)	Inventory (STAI) **Affect** Positive and Negative Affect Schedule (PANAS)		decreased, all with small effect sizes. Depressive symptoms increased due to economic hardship. Lower economic impact was positively associated with more positive affect at both time points. People who reported no economic impact showed higher positive affect, but larger decrease in positive affect over time.

Authors, date, country	**Study period / COVID-19 phase**	**Analytic sample**	**Mental health variable and measure**	**Financial change during COVID-19 variable and measure**	**Main (relevant) findings**
Choi et al. (2023)[21], USA	T1: 2016 T2: June 2020 (biennial interviews), upswing of first peak, partial restrictions in most states	Nationally representative sample of adults aged 51 years and older and their spouses or cohabiting partners of any age. (*N* = 1312; 550 females, 762 males; age: *M* = 69.8 years)	**Affect** International Positive and Negative Affect Schedule Short-Form (I-PANAS-SF)	**Financial hardship:** Measured as a count and included missing any regular payment on (a) rent or mortgage, (b) credit cards or other debt, or (c) utilities or insurance; or any indication of difficulty (d) paying medical bills or (e) having enough money to buy food. Observed values ranged from 0 to 5.	During the COVID-19 pandemic, financial hardship was related to increased negative affect and decreased positive affect among, after adjusting for emotional well-being at baseline, and sociodemographic characteristics and health variables at follow-up during the pandemic.

Authors, date, country	**Study period / COVID-19 phase**	**Analytic sample**	**Mental health variable and measure**	**Financial change during COVID-19 variable and measure**	**Main (relevant) findings**
Feter et al. (2021)[24], Southern Brazil (Rio Grande do Sul state)	T1: June – July 2020 but participants were asked to complete MH measure using the period before	General population sample of adults *(N* = 2321; 1776 females, 540 males [*n* = 2319]; age groups: 18-30 = 858 31-59 = 1246 60+ = 196 [*n* = 2300])	**Depressive symptoms** Hospital Anxiety and Depression Scale (HADS) **Anxiety** Hospital Anxiety and Depression Scale (HADS)	**Economic impact:** 'Did social distancing affect your monthly income?' In case of an affirmative response, participants asked whether income decreased or increased during the COVID-19 pandemic.	Prevalence of moderate-to-severe anxiety and depression increased 7.4x and 6.6x, respectively, after the implementation of COVID-19 social distancing restrictions. A negative economic impact was reported by 45.3% (95% CI: 42.7%, 47.8%) of the respondents. COVID-19- related income loss was positively associated with higher depression and higher likelihood of more severe anxiety symptoms.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
	the COVID-19 pandemic as reference. T2: June – July 2020 (retrospective longitudinal design), up to 73.4% of state population were in the second highest level of social distancing restriction				

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Graupensperger et al. (2022)[62], USA	T1: January 2020 T2: April-May of 2020 T3: six bimonthly follow-ups from September-October 2020 until July-August 2021; T2: acute early phase, partial restrictions in most states, T3: increase in cases over winter and in July 2021, partial	Young adults who were aged 18–23 years at screening in 2015-2016. (Sample for T1 & T2: *N* = 519; 326 females, 193 males/other; age: *M* = 25.4 years, *SD* = 1.84) (Sample for T3: *N* = 566, 350 females, 216 males/other; age:	**Depressive symptoms** Patient Health Questionnaire (PHQ-2 or PHQ-8) **Anxiety** Generalized Anxiety Disorder Scale (GAD-2 or GAD-7)	**Financial stress:** 'How concerned are you about the novel coronavirus (COVID-19)….' Measured on a 5-point Likert-type scale with responses ranging from 'not at all' to 'extremely'	Depression symptoms increased between pre- and early-pandemic. Worse mental health and well-being from pre-pandemic to early-phase-pandemic were positively associated with increased stress in several life domains (e.g., financial stressors and job insecurity stressors.) Financial stress was uniquely positively associated with symptoms of depression and anxiety across the bimonthly surveys.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
	restrictions in most states	*M* = 25.8 years; *SD* = 1.83)			
Hagen et al. (2023)[56], Norway	T1: April 2020 T2: December 2020, increasing cases, national restrictions began mid-March 2020	General population sample of adults living in Norway (*N* = 6017; 4680 females, 1292 males, 45 other gender; age: *M* = 34.68 years, *SD* = 13.75)	**Depressive symptoms** Patient Health Questionnaire-9 (PHQ-9) **Anxiety** Generalized Anxiety Disorder-7 (GAD-7)	**Negative economic impact:** Self-reported (yes/no)	Anxiety and depression slightly worsened during the first wave of the pandemic, during national lockdown. People without pre-existing mental health conditions showed a subclinical increase in symptoms, while people with a pre-exiting mental health condition disorder before the pandemic reported the

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
					highest levels of anxiety and depression. Economic impact was not associated with either depressive or anxiety symptoms.
Hertz-Palmor et al. (2021), (study 1)[57], International but majority from USA and Israel	T1: 6th April – 5th May 2020 T2: 12th May – 21st June 2020, USA: first wave, partial restrictions in most states; Israel: first wave between March-April, gradual easing of	General population sample of adults (*N* = 1318; 1077 females, 241 males; age *M* = 40.79 years, *SD* = 13.55) (Reported income loss: *n* = 246)	**Depressive symptoms** Patient Health Questionnaire-2 (PHQ-2) **Anxiety** Generalized Anxiety	**Income loss:** Asked whether they had lost their job or whether their pay/ hours were reduced since the beginning of the outbreak. Collapsed	Income loss due to the COVID-19 pandemic was positively associated with more anxiety and depressive symptoms, but was associated more strongly with depression than anxiety symptoms. The increase in anxiety symptoms was steeper than that of depression symptoms. There was a positive association between financial worry and

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
	restrictions from early May		Disorder-7 (GAD-7)	into a binary income loss measure (yes/no) **Financial worry:** Measured on a 5-point Likert-type scale (from not at all to a great deal)	depression, whilst controlling for pre-COVID-19 income. This suggests that objective financial situation only partly explains variability in depressive symptoms, and that worries about the financial situation may be a sensitive marker for depressive symptoms during the pandemic.
Hertz-Palmor et al. (2021), (study 2)[57], Israel	T1: 18th – 26th March 2020 T2: 22nd April – 7th May, first wave between March-April,	General population sample of adults living in Israel (*N* = 241; 166 females, 75 males; age: *M* = 37.32 years,	**Anxiety** Patient-Reported Outcomes Measurement Information System	**Income loss:** Measured on a 5-point Likert-type scale (no	COVID-19-related income loss and financial worry was positively associated with depression. COVID-19-related income loss contributed to initial depressive response and its amplification over

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
	gradual easing of restrictions from early May	*SD* = 12.26; reported income loss: *N* = 102)	(PROMIS) – anxiety items **Depressive symptoms** PROMIS depression items	income loss to extreme income loss) **Financial worry:** Measured on a 4-point Likert-type scale (from 'not at all' to 'always')	time, with a 1-month exacerbation in depressive symptoms associated with worsening in income loss. COVID-19 stress was positively associated with depression but increase in financial worry did not cause an increase in depressive symptoms.
Lee et al. (2022)[22], Singapore	T1: 2017 T2: June 2020 (Contacted if prior measures completed minimum of 6 months prior), two	Older Asian adults of Chinese, Malay, or Indian ethnicity, aged 60 years and older (without severe	**Depressive symptoms** Patient Health Questionnaire (PHQ)	**Financial hardship:** Economic Hardship Questionnaire (EHQ) with two items removed as these activities could not be	Over a quarter of the sample experienced a decrease in family income, with one-fifth experiencing financial problems. Slight reduction in depressive symptoms (after adjusting for

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
	peaks during March and April, strict national restrictions which began to ease in June 2020	cognitive, hearing, or speech impairment) (N = 496; 272 females, 224 males; age M = 73.8 years, SD = 7.6)		undertaken due to lockdown measures **Changes in lifestyle:** Due to financial constraints associated with the lockdown (eight items, individual scores used in analyses)	covariables) during a 2-month COVID-19 lockdown. Financial hardship was positively associated with depressive symptoms. Common lifestyle changes made due to financial constraints included: cutting back on charitable contributions (22.3%), changing food shopping or eating habits to save money (11.5%) and reducing household utility use (9.7%).

Authors, date, country	**Study period / COVID-19 phase**	**Analytic sample**	**Mental health variable and measure**	**Financial change during COVID-19 variable and measure**	**Main (relevant) findings**
Murray et al. (2023)[19], Pelotas, city in Southern Brazil	T1: 2015 - 2019 T2: May - September 2020, Pelotas experienced sharp increase in cases, 1 week lockdown, then partial social distancing restrictions	Mothers of 99.9% of all children born in Pelotas in 2015 (*N* = 2083; 2083 females; age groups: < 20 = 283 20-34 = 1492 ≥ 35 = 308)	**Maternal depressive symptoms** 3 items from Edinburgh Postnatal Depression Scale (EPDS).	**Income loss:** Asked whether family income in the last month 'got a lot worse,' 'got a little worse,' 'stayed the same,' or 'got better'. Coded as 'yes' ('got a lot worse') or 'no' for analyses.) **Emergency welfare receipt:** Only made to families with financial difficulties. Coded as 'yes' or 'no' to question asking whether this had been received by someone in the household.	During the COVID-19 pandemic, maternal depressive symptoms increased substantially, while there were small decreases in maternal anxiety. Both COVID-19-related income loss and emergency welfare receipt during the pandemic were positively associated with maternal depression and maternal anxiety, after adjusting for both baseline levels of these variables and pre-pandemic family income.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
			Rated on a 4-point scale. (Measured in 2019 and T2) **Maternal anxiety** Generalized Anxiety Disorder (GAD-7) (Measured in 2016 and T2)		

Authors, date, country	**Study period / COVID-19 phase**	**Analytic sample**	**Mental health variable and measure**	**Financial change during COVID-19 variable and measure**	**Main (relevant) findings**
Shuster et al. (2021)[58], USA	Weekly surveys for 10 weeks between 2nd April – 4th June 2020, first wave of COVID-19, partial restrictions in most states	General population sample of USA residents aged between 18–64 (N = 743; 359 females/other, 384 males; age: M = 37.1 years)	**Depressive symptoms** Zung Self-Rating Depression scale **Anxiety** State Anxiety Inventory	**Economic impact:** 'Rate the impact that COVID-19 has had on your economic situation' (rated from very negative impact, −50 to very positive impact, +50, scaled to be between −0.5 and 0.5 for analysis)	Depression and anxiety initially peaked but then declined over 10 weeks during the first wave of COVID-19. COVID-19-related economic impact was positively associated with depressive and anxiety symptoms.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Simonse et al. (2022)[1], Netherlands	T0: April – November 2018 T1: December 2019 – March 2020 T2: December 2020 – March 2021, T2: increasing cases of new variant, national lockdown in place	Population representative sample of residents (T0: *N* = 1114; 613 females, 501 males/ other; age: *M* = 53.0 years, *SD* = 17.8) (T1: n = 838; 451 females, 387 males/ other; age: *M* = 54.5 years, *SD* = 16.9) (T2: *N* = 736; 390 females, 346 males/	**Mental health** Mental Health Index (MHI-5)	**Financial stress:** Psychological Inventory of Financial Scarcity (PIFS); responses range from 1 (totally disagree) to 7 (totally agree).	Mean levels of mental health did not change in the first six months of the pandemic compared to pre-pandemic. This, however, masked underlying heterogeneity as for four out of five respondents, mental health either increased or decreased. Increase in financial stress predicted worsened mental health, and vice versa. Financial stress mediated the relation between savings and debts together, and mental health.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
		other; age: 55.6 years, *SD* = 16.6)			
Strizzi et al. (2023)[59], Denmark	T1: October – November 2020 T2: March - May 2021, increasing cases, national restrictions began 12th March 2020	Sample drawn from nationally representative sample of 5,000 Danish residents aged >18 (*N* = 1,302) (**T1**: *N* = 914; 493 females, 421 males; age: *M* = 51.29 years, *SD* = 16.67) (**T2**: *N* = 304; 154 females, 150; age: *M*	**Depressive symptoms** Patient Health Questionnaire (PHQ-9) **Anxiety** Generalized Anxiety Disorder (GAD-7)	**Loss of income:** 'Since the COVID-pandemic, have you personally experienced a loss of income?' (response options: 1 = *yes, a total loss of income*, 2 = *yes, a partial loss of income*, 3 = *no loss of income*, 4 = *I had no personal income before COVID-19*). Response options dichotomized for analyses: 0 = no income loss	Mean levels of anxiety and depressive symptoms did not change during the first year of the pandemic and did not differ from those of matched controls assessed before the pandemic. After adjusting sociodemographic variables (e.g., age, gender) COVID-19-related income loss was positively associated with depression and anxiety symptoms.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
		= 56.38 years, *SD* = 15.82) (**Both T1 and T2**: *N* = 84; 47 females, 37 males; age: 52.22 years, *SD* = 14.05)		(3–4) and 1 = income loss (1–2).	

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
Weber et al. (2023)[63], Germany	T1: May 2020 T2: September 2020 T3: December 2020 T4: March 2021 T5: March 2022, T3 = height of COVID-19-related death rate, first national lockdown on 23rd March – May 2020, second lockdown	General population sample of adults living in Germany (**T1**: *N* = 636; 535 females, 85 males, 15 diverse gender, 1 missing; age: *M* = 39.5 years, *SD* = 16.11) (**T5**: *N* = 216; 176 females, 31 males, 9 diverse gender, 1 missing; age: *M* =	**Depressive symptoms** Patient Health Questionnaire (PHQ-9) **Anxiety** Generalized Anxiety Disorder Scale (GAD-7)	**Financial worry:** 'During the past 4 weeks, have you worried about your financial situation?' (responses include 'not at all', 'not more than usual', 'more than usual', much more than usual')	Depression and anxiety declined following the lifting of lockdown measures, peaked during the two national lockdown phases in Germany, and dropped during the easing phases. Initial financial worry due to COVID-19 was positively associated with anxiety and depression at each time point. Initial financial worry due to COVID-19 was positively associated with greater symptom decreases in anxiety and depression across the pandemic.

Authors, date, country	Study period / COVID-19 phase	Analytic sample	Mental health variable and measure	Financial change during COVID-19 variable and measure	Main (relevant) findings
	November 2020 – May 2021	40.48 years, *SD* = 17.03)			

Abbreviations: T = time point (e.g., T1 = time point 1)

Figure S1

Funnel Plot for Anxiety Meta-Analysis

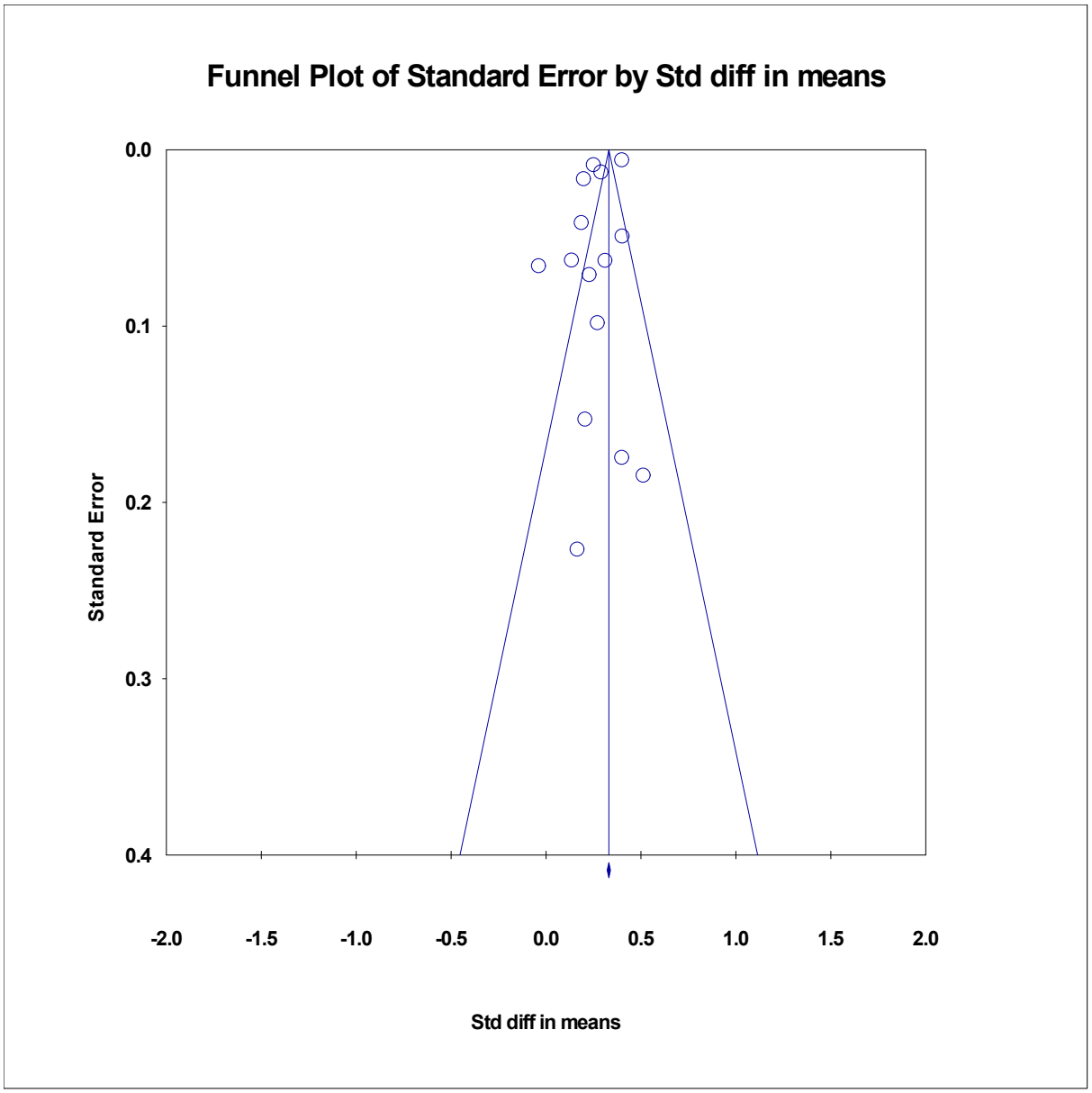
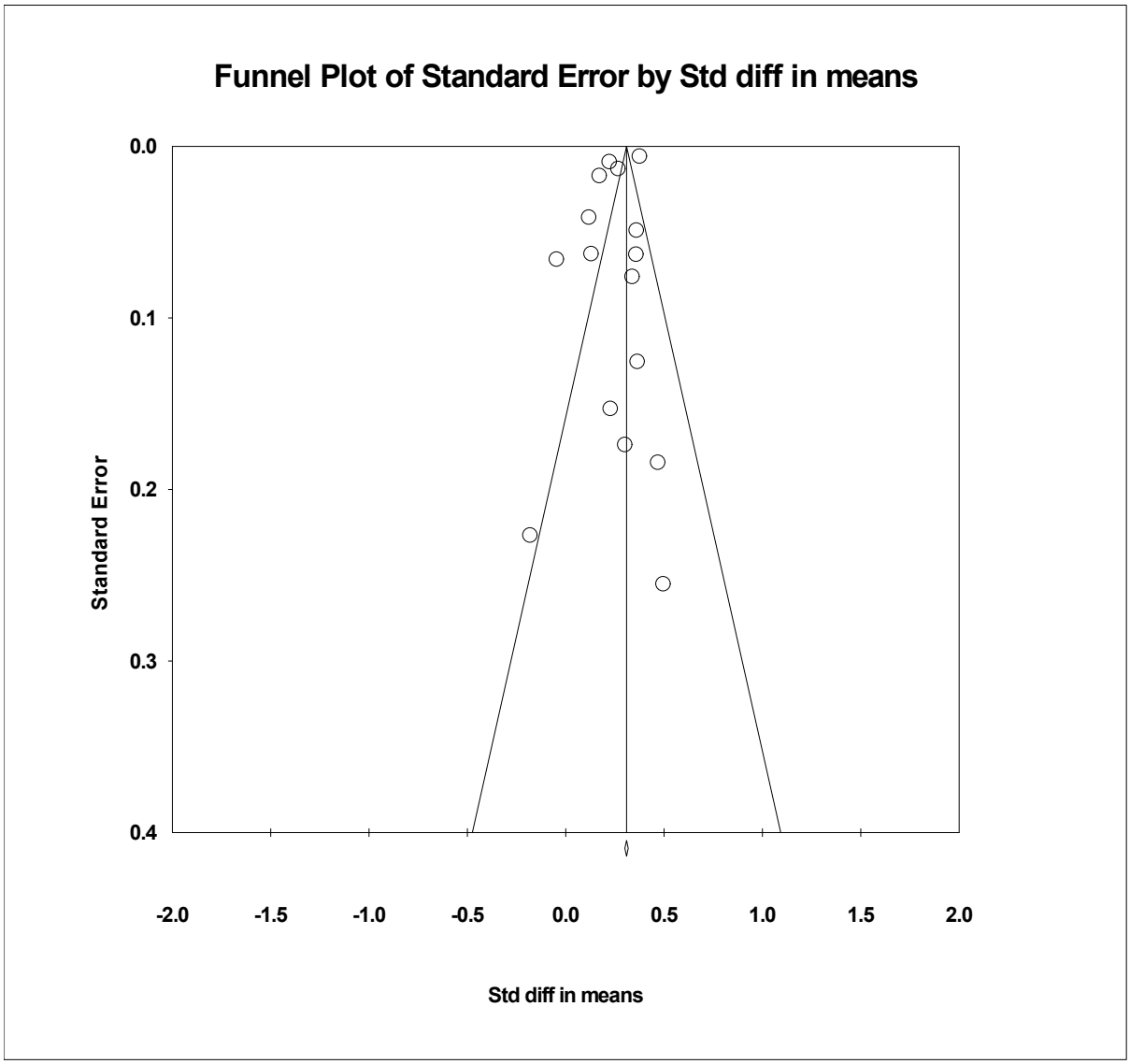


Figure S2

Funnel Plot for Depression Meta-Analysis



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