How do changes in individual or household income impact on mental health for working-age adults? A protocol for a systematic review and meta-analysis

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Author contributions
RT and SVK conceived the idea for the review. RT performed initial scoping of the literature, following which RT, SVK, AP, AL and HT formulated an analysis plan. RT wrote the first draft of the protocol and all co-authors subsequently provided critical feedback. RT serves as the guarantor of this review. The authors are grateful to Professor Simon Capewell and Dr Ben Barr for providing additional helpful feedback on the protocol.

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BACKGROUND/RATIONALE
The public health importance of achieving good population mental health is well established: poor mental health is one of the leading causes of disability worldwide,1 and those with an established mental illness are at higher risk for poorer social and physical health outcomes such as reduced labour market participation,2 cardiovascular disease,3 and premature death.4,5 Socioeconomic position is a key determinant of mental health and wellbeing, and a key driver of mental health inequalities.6,7 Population mental health is also known to be highly sensitive to macroeconomic events.8 At the individual level, there is a convincing argument that lack of income is causally related
to poorer mental health, with those on lower incomes both less materially able to access health-promoting goods and services\textsuperscript{9,10} and psychologically less able to maintain a feeling of control or security over their lives.\textsuperscript{11}

Governments have the ability to redistribute incomes across populations through the use of welfare or social security policies and therefore decisions taken around these policies can strongly influence health and health inequalities,\textsuperscript{12,13} particularly for mental health.\textsuperscript{14,15} It is argued that such societal-level, ‘upstream’ policy interventions have greater potential to improve population health than those affecting healthcare provision or health behaviours.\textsuperscript{16,17} To better inform policymakers, there would be considerable value in knowing to what extent redistribution of income using such policies is likely to impact on the burden of poor mental health.\textsuperscript{18}

However, existing literature in this area is heterogenous, and varies in its ability to allow causal inference or make assertions which are directly applicable to policy. There is an unarguable cross-sectional association between low socioeconomic position and poor mental health,\textsuperscript{19–21} but fewer studies consider the impact of a change in income.\textsuperscript{10} There are difficulties in establishing the causal effect of income on mental health status: there is likely to be a bidirectional relationship between income and poor mental health, and a considerable number of confounding factors influencing the perceived relationship.\textsuperscript{22}

One fairly frequently used approach to examining the impact of a change in income has been to evaluate how lottery wins affect mental health; while these frequently find at least some degree of positive impact on mental health or wellbeing,\textsuperscript{23–25} their focus on large exogenous income shocks makes their findings in isolation less relevant to the welfare policy context. Other work has more policy relevance (e.g. considering endogenous changes in income or smaller exogenous changes resulting from policy interventions) has often focused on specific population groups e.g. mothers and children\textsuperscript{26} or older adults,\textsuperscript{22} which may be of less relevance to social security or income and taxation policies affecting the working-age population as a whole.

The source of income changes may also influence any causal relationship. Considering the evidence base for children, a 2008 Cochrane review by Lucas et al found that giving direct cash transfers as a benefit to low-income families did not improve child health and wellbeing in high-income countries, though they felt their conclusions may be limited by the small value of payments and attached conditionality in included studies.\textsuperscript{27} Contrastingly, Cooper and Stewart’s systematic review, which applied a broader definition of ‘any change in income’ regardless of source, found strong evidence of a causal relationship between income and a wide range of children’s outcomes.\textsuperscript{28} Context and setting may be equally important – in contrast to Lucas et al’s findings in high-income countries, Owusu-Addo et al in their review of evidence from sub-Saharan Africa found moderate evidence for a positive impact of cash transfers on mental health.\textsuperscript{29} There is also evidence that any impact may vary by population subgroup, including socioeconomic position, and that this may be under-reported in existing literature.\textsuperscript{30}

Two existing systematic reviews of the relationship between changes in income and general physical health found small positive associations between income increases and health improvements,\textsuperscript{31,32} though the most recent of the two reported mixed results for the impact of social security policies specifically.\textsuperscript{32} However, mental health outcomes were not included within the scope of either review despite their particular sensitivity to macroeconomic events and policies,\textsuperscript{8} in contrast with measures of physical health which may respond less consistently to such changes.\textsuperscript{33} Indeed, while many individual studies report some association between reductions in income and worsening mental health,\textsuperscript{7} there has to date been no systematic review of the literature synthesising these findings to
provide a policy-relevant quantitative or qualitative summary of the evidence. Such a review could help inform policymakers interested in protecting or promoting population mental health.

**Logic model**

Where the mechanisms between an intervention and an outcome in a systematic review are predicted to be complex, producing a logic model may help capture and summarise some of this complexity in advance of undertaking the review. Additionally, it is recommended that logic models are included in any systematic review aiming to assess the health equity effects of interventions. The completed logic model should elucidate hypotheses for how the intervention is expected to work, and how factors associated with disadvantage may interact with the hypothesised mechanism of action. The logic model developed for this review is based on scoping of relevant literature – drawing especially on a systematic theoretical review by Benzeval et al and the advice of subject experts (Figure 1).

**Figure 1: Logic model indicating theory of change for income and mental health (MH)**
As illustrated in the logic model, there are several interrelated and interdependent pathways through which income changes may influence mental health, and many characteristics of the intervention, the individual and the societal context may modify the relationship. In particular, the pre-existing socioeconomic position of individuals affected and the social policy context in which the income change occurs (e.g. availability and accessibility of social security, healthcare and education) are likely to be of importance. There is also potential for the apparent exposure-outcome relationship to be complicated by reverse causation due to health selection, which should be considered when assessing evidence of effect.

Finally, there is unique complexity around the behavioural mechanism. The impact of income changes on behaviours linked with poor mental health (such as excessive alcohol or drug consumption) are likely to vary according to an array of individual and societal factors which are specific to this mechanism – the embeddedness of the behaviour, presence of addiction, purchase price(s), supply and availability, legal penalties, and cultural attitudes towards the behaviour. Due to this additional complexity, and the high likelihood that data on these factors will not be available for all included studies, outcomes related to such health behaviours (either markers of consumption or directly-associated harms) will be excluded from this review. The behavioural mechanism has been retained in the logic model both to demonstrate the rationale for this decision and to fully illustrate all anticipated causal pathway(s) between income and the included mental health outcomes, so that these can be taken into account during analysis and interpretation.

**Aim of review:** This systematic review will aim to evaluate the impact of changes in individual or household incomes on mental health outcomes for working-age adults. Drawing upon the logic model, the review will be framed around the following research questions:

1. What is the average impact of income changes on mental health outcomes for working-age adults?
2. Does the relationship between income change and mental health differ according to the source or size of the change in income?
3. Does the relationship between income change and mental health differ according to baseline income/socioeconomic position of those affected?
4. Does the relationship between income change and mental health differ between high-income and low/middle-income settings?

**RELEVANT GUIDELINES**

The review will be carried out and reported according to Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) guidance, Meta-Analysis of Observational Studies in Epidemiology (MOOSE) guidance and Synthesis Without Meta-Analysis (SWiM) in Systematic Reviews guidance. This protocol has been written with reference to the PRISMA-P 2015 checklist of recommended items to include in a systematic review protocol.37

**INCLUSION CRITERIA**

**Table 1: PECOS criteria**

<table>
<thead>
<tr>
<th>Population</th>
<th>Working-age adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure(s)</td>
<td>Experiencing a change in household or individual income</td>
</tr>
<tr>
<td>Comparison</td>
<td>Those not experiencing an equivalent change in household or individual income</td>
</tr>
<tr>
<td>Outcome</td>
<td>Any outcomes relating to mental health or wellbeing</td>
</tr>
</tbody>
</table>
Study type

Randomised and non-randomised quantitative studies. To include: longitudinal studies; cross-sectional studies which include sufficient recording of change in income; natural experiment studies; trials.

Population

The population of interest is working-age adults. We will define working-age as 16-64 years, though it is anticipated that definitions used within individual studies may vary and therefore we will include any studies where the majority of the study population falls within this age group.

Exposure(s)

The exposure of interest is any change in household or individual income. For the primary analysis this change in income may come from any source e.g. changes in salary, changes in social security policies/entitlements, or windfalls such as lottery wins. We intend to perform secondary subgroup analysis according to the source of the change in income and characteristics of the exposed population, anticipating based on existing literature that this may modify the relationship between exposure and outcome. Data permitting, exposures will be grouped as below:

- Changes in earned vs unearned income;
- Small vs large changes in income;
- Changes for those of low vs high socioeconomic position;
- High-income country settings vs low- and middle-income country settings.

It is anticipated that the exposure-outcome relationship may be additionally modified by gender, therefore sensitivity analyses will be performed stratifying by gender if there are sufficient data.

Comparison

The comparator group will be those who do not experience an equivalent change in income during the same time period OR, for before-and-after study designs, pre-exposure outcome(s) for the same individual. Within trials and natural experiment studies the comparator group may be individuals formally designated as a control group by researchers, or within other observational studies may be another subgroup of the sample who have not experienced the exposure of interest (e.g. those whose income remained stable).

Outcome(s)

All outcomes related to mental health, wellbeing, quality of life or life satisfaction will be considered for inclusion in this systematic review. Such measures could include specific diagnoses such as depression or anxiety, suicides, mental health-related hospital admissions (excluding those for substance use disorders), prescription of psychiatric medication, self-reported mental health including screening tools such as the General Health Questionnaire (GHQ), measures of wellbeing such as the Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS), and measures of Quality of Life or Life Satisfaction such as EuroQOL. Where available, both adjusted and unadjusted effect estimates will be recorded with a note of which potential confounders have been adjusted for.

During analysis outcomes will be grouped into either ‘mental health’ or ‘wellbeing/quality of life/life satisfaction’.

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*Given the diverse nature of studies likely to be eligible for inclusion in the review (from observational studies of secondary data to trials of interventions – full details in Appendix), for the purposes of answering the research questions the terms exposure and intervention are deemed to be equivalent, and ‘exposure’ will be used preferentially throughout the protocol when describing these collectively.*
**Study type and characteristics**

Study design(s): Randomised and non-randomised quantitative studies estimating the effect of the exposure on outcome(s) of interest will be eligible for inclusion. Data collection may be longitudinal OR cross-sectional if including sufficient recording of exposure (see Exclusion Criteria below). Full details of the anticipated study designs are included in the Appendix.

Years: No limit will be applied.

Language: Papers must be reported in English.

Publication status: Peer-reviewed publications and relevant grey literature reporting primary research (e.g. economics working papers).

**EXCLUSION CRITERIA**

Table 2: Detail of exclusion criteria

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>1. Incorrect population</td>
<td>Studies which specifically exclude the working-age population (e.g. focusing only on children or the retired population) will be excluded. Where these additional population groups are included in a study alongside the population of interest, attempts will be made at full text screening to determine whether meaningful data can be extracted.</td>
</tr>
<tr>
<td>2. Static income</td>
<td>Studies which consider only the cross-sectional relationship between income level and mental health outcomes without explicitly measuring the impact of a change in income will be excluded.</td>
</tr>
<tr>
<td>3. Incorrect outcome</td>
<td>Studies which consider only physical health measures (including general self-assessed health) will be excluded. Studies which report health behaviours or outcomes related to substance use will be excluded.</td>
</tr>
<tr>
<td>4. No comparator group</td>
<td>Studies which do not allow comparison of outcomes with a group who did not experience an equivalent change in income will be excluded. Studies using within-individual outcome comparisons (e.g. before-and-after studies of interventions) will be eligible for inclusion.</td>
</tr>
</tbody>
</table>
| 5. Incorrect study type | a) Qualitative studies will be excluded;  
b) Commentary, editorial and non-systematic review articles and conference abstracts will be excluded;  
c) Cross-sectional studies will be included only if they allow calculation of change in income over time e.g. by providing previous and current salary or a calculation of this – otherwise these will be excluded;  
d) Systematic reviews will be excluded, but their citations will be checked following completion of the search to ensure inclusion of any appropriate studies not already captured. |
| 6. Incorrect language | Studies not reported in English will be excluded. |
Incorrect unit of analysis | Studies which do not report data on exposure at an individual or household level and/or do not report outcome data at an individual level will be excluded e.g. ecological studies.

SEARCH STRATEGY

Information sources
The databases searched will be Medline, Embase, Web of Science, PsycINFO, ASSIA, EconLIT and RePEc. Reference lists of included studies and relevant systematic reviews identified by the search will be scrutinised to identity any additional relevant studies.

Terms
The systematic search will be conceptualised as below and adapted to each database:

- **Health/wellbeing terms (any one of these):** Mental health, depression, anxiety, wellbeing, quality of life, life satisfaction, psychological distress
- **AND any one of the following exposure terms:** Income, earning, salary, wage, money, cash, social security, welfare, benefit, credit, finance, financial, loan, debt, payment, lottery, poverty, monies, wealth
- **With any of the above NEAR one of the following terms:** Effect, change, increase, decrease, alter, variation, transfer, shock, win, won, award, transition, additional

We are grateful to the authors of a recent systematic review considering the impact of changes in income on physical health for sharing their search strategy as a basis for our own.

STUDY SELECTION AND DATA EXTRACTION

Data management
A reference library will be created for the review and maintained in Endnote X9. During the search and screening Covidence will be used to manage records, and Excel will be used for data extraction.

Selection process
The results of the searches will be imported into Covidence following initial de-duplication in EndNote. Each study will be independently screened by the lead reviewer (RT) and a second reviewer at all stages. Initially, studies which appear to meet the inclusion criteria based on title and abstract will be selected to proceed to full text screening. Any studies where the title and abstract clearly do not meet the inclusion criteria will be excluded at this stage. Conflicts will be dealt with by discussion or, where necessary, the adjudication of a third independent reviewer.

At full text screening only studies which fully meet the inclusion criteria will be selected to progress to data extraction. Rationale for exclusion will be captured in Covidence and reported accordingly along with the recommended PRISMA flow diagram, which will be created in Covidence. Conflicts will be dealt with in the same way as the previous stage. Where included studies contain overlapping or duplicate data, the decision taken on which study to include will be based on the study’s risk of bias, sample size and ability to standardise effect estimates for the meta-analysis. Subject experts will be contacted to check the adequacy of searches once full text screening is completed.
Data collection/extraction

A spreadsheet to facilitate data extraction will be produced in Excel. Data extraction will be performed by the lead reviewer (RT) and independently checked by a second reviewer. Where relevant data appear to have been collected but are not sufficiently reported for data extraction, the study investigators will be contacted to request these.

RISK OF BIAS (RoB) ASSESSMENT

It is anticipated based on initial scoping of the literature that the majority of included data will be from non-randomised or observational studies including natural experiments, with the exception of a limited number of trials of cash transfer schemes. RoB assessment is particularly complex in non-randomised studies due to the potential for selection bias and confounding to influence results. However, in the absence of sufficient evidence from randomised controlled trials these studies can provide sufficient evidence of the effect of interest for systematic reviewers, provided robust and systematic judgements are made concerning the potential sources of bias for each individual study.

To ensure a comprehensive approach is taken for all included studies, RoB assessment will be performed independently by two reviewers using tools developed by the Cochrane Collaboration: the ‘RoB 2’ tool for randomised studies and the ‘ROBINS-I’ (Risk of Bias in Non-randomized Studies – of Interventions) tool for non-randomised studies. ROBINS-I allows for the systematic assessment of the RoB in non-randomised studies of interventions, covering seven domains/sources of potential bias: confounding, selection, mis-classification, deviation from intended intervention, missing data, outcome measurement, and reporting of results. While the tool is designed for cohort-like studies, it is also relevant and applicable to other observational study designs.

Stage 1 of using the ROBINS-I tool occurs during the protocol stage of the systematic review, and involves a priori consideration of all relevant potential confounding factors and co-interventions which could impact on outcomes for the specific research question. The following directed acyclic graph (DAG) (Figure 2) and list of confounders/co-interventions are based on initial scoping of the literature and discussion within the reviewing team, as recommended by the Cochrane Group.

Figure 2: Directed Acyclic Graph showing exposure, outcome and anticipated confounding variables

![Directed Acyclic Graph showing exposure, outcome and anticipated confounding variables](image-url)
Confounding factors relevant to all or most studies

- Age
- Sex
- Ethnicity
- Other measures of socioeconomic position excluding income e.g. educational attainment, area-level deprivation, benefit status, housing tenure
- Employment status
- Household composition e.g. marital status, presence of dependents
- Physical health/disability
- Previous mental health

Co-interventions that could be different between intervention groups and could impact on outcomes

Potential co-interventions will include any pathway not flowing solely through income between an intervention which results in the exposure of interest (e.g. a social security policy change) and mental health/wellbeing outcomes. This would include:

- Any direct protective effects of secure employment vs insecure employment vs unemployment on mental health;
- Any benefit or disadvantage of conditions attached to policy e.g. conditional cash transfers where conditions directly affect mental health;
- Increased or decreased access to healthcare e.g. through work-related insurance.

Another source of potential co-interventions would be contemporaneous policy changes which do not impact on income but may impact on mental health outcomes e.g. housing quality standards.

DATA SYNTHESIS

Meta-analysis

Outcomes will be grouped into two broad domains for meta-analysis, based on our initial scoping of literature: ‘mental health’ measures and ‘wellbeing/quality of life’ measures (with the latter including measures of life satisfaction). Primary meta-analyses will synthesise datapoints from all included studies for the two outcome domains. Data permitting, secondary subgroup analysis will then be performed stratifying the datapoints for each domain by the source of income change (earned vs unearned), the size of the income change (small vs medium vs large), baseline socioeconomic position (low vs high) and the study context/setting (high income countries vs low- and middle-income countries).

Random-effects models will be used to account for anticipated heterogeneity across studies. In addition to the planned subgroup analysis, heterogeneity will be explored using the $I^2$ statistic for each model. Any conclusions on the certainty of pooled effect sizes will incorporate this assessment of heterogeneity. Pooled estimates and $I^2$ values will be displayed in forest plots, and a funnel plot will be generated to assess the likelihood of publication bias if there are more than ten data points for any analysis.

Where possible, income changes reported as absolute values will be converted to a percentage change in income for data synthesis. These values will then be used to calculate elasticities i.e. measurements of the proportional change in mental health outcome in response to a change in income for each study. Meta-regression will be used to explore the potential moderating effect of
receiving an increase vs a decrease in income or receiving a relevant co-intervention e.g. the attachment of conditions to the change in income.

Studies which do not report numeric changes in income (e.g. those which consider transition into or out of poverty) will be considered separately. If sufficient numbers of such studies are available for meta-analysis this will be performed, but if not this area will be considered within the synthesis without meta-analysis (SWiM).

**Synthesis without meta-analysis (SWiM)**

Where meta-analysis is not possible due to incomplete data, alternative synthesis methods may still provide a useful summary for decision-makers which is superior to a simple narrative description of results. As there is anticipated to be some degree of statistical heterogeneity across included studies and variation in classification and reporting of effect estimates, we expect to complete some element of SWiM as part of this review. The form of synthesis will be dependent on the availability of data, but is likely to include either summarising of effect estimates or vote counting based on direction of effect, with data then displayed alongside the RoB assessments for each study. If effect size cannot be standardised across all or most study types, these will be categorised into small, medium and large effects. Where conclusions of synthesised data rely on SWiM and the data for any single exposure group cannot be reported using a forest plot, the data and key study characteristics will be presented in a table or plot, for example an effect direction plot or a Harvest plot (which may be particularly useful for investigating differential effects by socioeconomic position).

**Sensitivity analysis**

To provide the most useful results for the end-user, in the primary analysis data from randomised controlled trials and non-randomised studies will be synthesised together. However, sensitivity analyses will be performed to explore any differences by study design or when excluding studies judged to be at high risk of bias. Additional sensitivity analysis is planned stratifying analyses by gender where possible, and excluding any datapoints where the study’s sample overlaps with other populations (e.g. retired individuals).

**CERTAINTY ASSESSMENT**

When attempting to ascertain an unbiased effect size estimate for an intervention from non-randomised studies, the study type alone may not necessarily be an indication of certainty. Therefore, in this review the certainty of evidence will be assessed using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) system. Results of the GRADE certainty assessment for each outcome will be presented alongside other key information for included outcomes in a Summary of Findings (SoF) table, as specified in the Cochrane Handbook. The outcomes intended to be included in the SoF table are:

- Grouped mental health (MH) outcomes secondary to changes in income;
- Grouped MH outcomes secondary to changes in unearned income;
- Grouped MH outcomes secondary to income changes for those on low incomes;
- Grouped wellbeing (WB) outcomes secondary to changes in income;
- Grouped WB outcomes secondary to changes in unearned income;
- Grouped WB outcomes secondary to income changes for those on low incomes.

It is acknowledged that these planned outcomes may change during the course of analysis due to data availability. However, it will be noted if there are critical outcomes for which there is a lack of available evidence.
As per the most recent GRADE guidelines on use of ROBINS-I in rating the certainty of evidence, an initial rating of ‘high certainty’ will be given to all outcomes included in the SoF table.\textsuperscript{48} Consideration will then be taken of the likely impact of lack of randomisation (for NRSs) and risk of bias, which is likely to mean most will be down-rated by at least two levels to low or very low certainty. However, it is possible that the extent of down-rating may be lowered based on the ROBINS-I assessment of included studies.

**DISSEMINATION**

We aim to disseminate our findings to the academic community through publication in a relevant high-impact peer-reviewed journal and at topic-specific conferences. We will disseminate outputs to policymakers through the Advisory Group for our wider research project ‘Predicting the impacts of universal basic income on mental health inequalities in the UK population: a microsimulation model’, funded by The Wellcome Trust (218105/Z/19/Z).
This systematic review will include randomised and non-randomised quantitative studies which estimate the effect of changes in income on mental health and wellbeing outcome(s). For most studies, the concurrent control/comparator group will be those who did not experience an equivalent change in income. The exception to this would be before-and-after studies, where individuals act as their own controls. Data collection may be longitudinal OR cross-sectional (if the exposure is adequately documented through recording of historic and current income). The anticipated study designs which will therefore be eligible for inclusion are described in the table below. As suggested by Higgins et al, to overcome inconsistencies in the application of study design labels within the literature (e.g. cohort, time-series) they are instead described according to study features.

Table 3: Study types which will be included in the systematic review

<table>
<thead>
<tr>
<th>Study Type</th>
<th>How Groups Formed</th>
<th>Exposed Group</th>
<th>Comparator Group</th>
<th>Potential Sources of Bias</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Trial of policy or intervention allocating additional monies to individuals within the population</td>
<td>Randomisation</td>
<td>Those who are allocated additional monies</td>
<td>Those who are not allocated additional monies</td>
<td>Allocation bias; attrition bias; lack of blinding</td>
</tr>
<tr>
<td>2. Trial of policy or intervention allocating additional monies to individuals within the population</td>
<td>Quasi-randomisation</td>
<td>Those who are allocated additional monies</td>
<td>Those who are not allocated additional monies</td>
<td>Allocation bias; attrition bias; confounding</td>
</tr>
<tr>
<td>3. Secondary analysis of data (routinely collected or survey) to evaluate the impact of lottery wins</td>
<td>Randomisation</td>
<td>Those entering the lottery who win</td>
<td>Those entering the lottery who do not win</td>
<td>Confounding; lack of blinding; selection bias</td>
</tr>
<tr>
<td>4. Secondary analysis of data (routinely collected or survey) to evaluate the impact of lottery wins</td>
<td>Pre/post-exposure</td>
<td>Those entering the lottery who win</td>
<td>The same individuals prior to their lottery win</td>
<td>Confounding; lack of blinding; selection bias; secular trends</td>
</tr>
<tr>
<td>5. Secondary analysis of data (routinely collected or survey) to evaluate a past policy or intervention allocating additional monies to individuals within the population</td>
<td>Policymaker decision</td>
<td>Those who are allocated additional monies</td>
<td>Those who are not allocated additional monies</td>
<td>Allocation bias; confounding</td>
</tr>
</tbody>
</table>
6. **Secondary analysis of data (routinely collected or survey) to evaluate a past policy or intervention allocating additional monies to individuals within the population**

| Pre/post-exposure | Those who are allocated additional monies | The same individuals prior to the intervention | Allocation bias; confounding; secular trends |

7. **Secondary analysis of data (routinely collected or survey) to evaluate a past policy or intervention removing money from individuals within the population**

| Policymaker decision | Those who lose money secondary to the policy/intervention | Those who do not lose money secondary to the policy/intervention | Allocation bias; confounding |

8. **Secondary analysis of data (routinely collected or survey) to evaluate a past policy or intervention removing money from individuals within the population**

| Pre/post-exposure | Those who lose money secondary to the policy/intervention | The same individuals prior to the intervention | Allocation bias; confounding; secular trends |

9. **Secondary analysis of data (routinely collected or survey) analysing the impact of an increase in income/wages without reference to the source or a specific intervention**

| Post-hoc by researcher | Those who experience an increase in income from any source | Those who experience a stable income OR decrease in income in the same time period | Allocation bias; confounding |

10. **Secondary analysis of data (routinely collected or survey) analysing the impact of an increase in income/wages without reference to the source or a specific intervention**

| Pre/post-exposure | Those who experience an increase in income from any source | The same individuals prior to the intervention | Allocation bias; confounding; secular trends |

11. **Secondary analysis of data (routinely collected or survey) analysing the impact of a decrease in income/wages without reference to the source or a specific intervention**

| Post-hoc by researcher | Those who experience a decrease in income from any source | Those who experience a stable income OR increase in income in the same time period | Allocation bias; confounding |

12. **Secondary analysis of data (routinely collected or survey) analysing the impact of a decrease in income/wages without reference to the source or a specific intervention**

| Pre/post-exposure | Those who experience a decrease in income from any source | The same individuals prior to the intervention | Allocation bias; confounding; secular trends |
REFERENCES


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