Review Paper

Is there an association between caregiver antipathy and psychosis? A systematic review

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Purpose. Existing reviews of trauma and psychosis have identified associations between childhood emotional abuse (CEA) and psychosis. However, conceptual issues relating to assessment of CEA limit the conclusions that can be drawn from the literature. The aim of this review was to identify and evaluate studies reporting an association between childhood experiences of caregiver antipathy (i.e. criticism, hostility, coldness, or rejection from a parental figure experienced prior to age 17 years) and psychosis symptoms/diagnosis.

Methods. Five databases were systematically searched for articles published until May 2020. Studies were evaluated against inclusion/exclusion criteria, and a narrative synthesis of findings was completed. Study quality was assessed by two independent raters.

Results. Fourteen studies comprised of 1,848 participants met inclusion criteria. Twelve of these studies found significant associations between caregiver antipathy and psychosis, and two did not. There was evidence that adults with schizophrenia-spectrum diagnoses report more severe caregiver antipathy in childhood than non-clinical controls and that caregiver antipathy severity is positively correlated with psychosis symptom severity. Most studies received weak or moderate quality ratings and all used cross-sectional or case–control designs which showed associations, rather than causal relationships, between childhood caregiver antipathy and later psychosis.

Conclusions. Future research would benefit from more rigorous and valid assessment of CEA, use of multivariate methods to account for possible patterns of co-occurrence, and longitudinal study designs to make more robust causal claims. The findings may have important implications for the delivery of psychological care for people with psychosis who report adverse caregiving experiences.

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Practitioner points

- People with schizophrenia-spectrum diagnoses may report more severe caregiver antipathy in childhood than non-clinical controls.
- Caregiver antipathy severity appears to be positively correlated with psychosis symptom severity in clinical and non-clinical populations.
- Clinicians should consider the possible impact of caregiver antipathy on psychosis symptoms, their content and distress maintenance.
- Clinicians should also recognize the potential impact of adverse caregiving experiences on therapeutic relationships, patterns of help-seeking and service engagement.
- Best practice in clinical services would be to adopt individual, formulation-based approaches within trauma-informed models of care.

Introduction

Childhood emotional abuse (CEA) is commonly defined as persistent psychological maltreatment that may take the form of verbal hostility, degrading insults, threats, or rejection (Chamberland, Fallon, Black, Trocmé, & Chabot, 2012). By this definition, CEA includes harmful attitudes as well as emotionally abusive acts (Egeland, 2009) and is likely to elicit psychological harm through a range of emotional, cognitive, and behavioural processes, such as fearing that one is in frequent danger or developing beliefs of being worthless or unlovable (Taillieu, Brownridge, Sareen, & Afifi, 2016).

CEA is thought to be widely prevalent; however, it can be a challenge to measure the scale and nature of this abuse type due to issues around definition and measurement of CEA (North, 2019). For example, a meta-analysis by Stoltenborgh, Bakermans-Kranenburg, Alink, and Van Ijzendoorn (2012) found an estimated worldwide CEA prevalence of 0.3% for studies using informant-based interviews and 36.3% for studies using self-report measures. However, there is robust evidence that CEA is often chronic and pervasive and may be a particularly potent causal risk factor for a range of adverse mental health outcomes (Dias, Sales, Hessen, & Kleber, 2015; Vachon, Krueger, Rogosch, & Cicchetti, 2015). Exposure to CEA is associated with higher anxiety and depression, and lower self-esteem and school achievement in adolescence (Egeland, 2009). Some studies have even shown that when controlling for other victimization types, CEA independently predicts symptom severity in adult major depression (Nelson, Klumparendt, Doebler, & Ehring, 2017), anxiety disorders (Fonzo et al., 2016), and personality disorders (Rosenstein et al., 2018). Further work is needed to increase understanding of the impact of CEA across different mental health outcomes.

CEA may be the most common trauma type amongst clinical samples of adults with psychosis (Duhig et al., 2015), with an estimated prevalence rate of 34% (Bonoldi et al., 2013). There is some evidence that CEA may be associated with higher odds of psychosis diagnosis compared to other forms of childhood victimization, including childhood sexual abuse (CSA) and childhood physical abuse (CPA) (e.g. Fusar-Poli et al., 2017; Varese et al., 2012), though others have not replicated this finding (Trotta, Murray, & Fisher, 2015). Some meta-analyses have focused specifically on the relationship between CEA and psychosis. Ackner, Skeate, Patterson, and Neal (2013) identified 15 studies and found evidence for associations between CEA and schizophrenia-spectrum diagnoses in clinical samples, and CEA and hallucination and delusion severity in non-clinical samples. However, this was not a systematic review and no quality assessment was completed.

There are key conceptual issues relating to assessment of CEA in the trauma–psychosis literature. First, reviews that report separate associations of CEA and psychosis tend to
combine both active and passive forms of victimization (e.g. emotional abuse and emotional neglect) to obtain a composite CEA measure. This is problematic, as emotional abuse encompasses a range of acts of commission and omission, and evidence suggests that these may have differential effects on symptoms in other mental health diagnoses (Kuo, Goldin, Werner, Heimberg, & Gross, 2011; Lobbestael, Arntz, & Bernstein, 2010). It is therefore reasonable to suggest that further investigation is needed to assess the impact of specific CEA types in psychosis.

Second, retrospective and prospective methods of trauma assessment appear to capture overlapping but distinct groups of individuals (Baldwin, Reuben, Newbury, & Danese, 2019). Therefore, research needs to differentiate the role of prospectively or retrospectively identified CEA to inform understanding of whether CEA plays a causal role in psychosis.

A final critical issue is that CEA can occur at home or outside the home. Specific reviews of childhood bullying and psychosis tend to fall under the broader category of CEA (e.g. Cunningham, Hoy, & Shannon, 2016); however, emotional abuse at home may have a more detrimental impact than peer bullying as it represents a greater violation of relational safety (Taillieu et al., 2016). Most studies included in trauma–psychosis reviews have employed measures such as the Childhood Trauma Questionnaire (CTQ; Bernstein et al., 2003) which assess experiences of abuse and neglect prior to age 18 years. Whilst the CTQ covers five widely studied trauma domains, including a separate emotional neglect subscale, the CEA subscale items do not refer specifically to caregiver attitudes or behaviours and do not ask about CEA outside of the family home. Thus, existing reviews are limited in their ability to draw nuanced conclusions about the impact of CEA within the core caregiving relationship. Disentangling the effects of different CEA types will improve our understanding of relationships between trauma and psychosis and help to inform approaches that could be used to identify and prevent CEA.

Caregiver emotional abuse is broadly defined as adverse behaviours from the parent or caregiving figure, occurring in sustained interactional patterns and inappropriate to the child’s developmental needs (Thompson & Kaplan, 1996). One construct that specifically captures CEA from parental figures is caregiver antipathy, defined as ‘criticism, hostility, coldness, or rejection shown by parent figures towards the child’ (Bifulco, Brown, & Harris, 1994). The concept has led to measures being developed to assess this CEA type, including the Childhood Experience of Care & Abuse interview (CECA-I) (Bifulco et al., 1994) and questionnaire (CECA-Q) (Bifulco, Bernazzani, Moran, & Jacobs, 2005). These measures separately assess antipathy and neglect from the mother and father caregiving figures prior to the age of 17 years. Using this specific index, existing studies have found associations of caregiver antipathy with symptom severity in depression (Li, Carracher, & Bird, 2020), anxiety disorders (Schimmenti & Bifulco, 2015), and eating disorders (Cardi, Matteo, Corfield, & Treasure, 2013). There has not yet been a review investigating associations of caregiver antipathy with psychosis.

This review aimed to build upon the existing trauma-psychosis literature by focusing exclusively on parental antipathy, a subtype of caregiver emotional abuse, which previous reviews have typically included in the larger CEA domain. We hope that the findings may be used to inform theoretical understanding of the psychological processes mediating links between trauma and psychosis that could be targeted in clinical interventions.
Method

Search strategy
This review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher, Liberati, Tetzlaff, & Altman, 2009). The proposed methodology for the review was specified beforehand and registered on the Prospective Register of Systematic Reviews (PROSPERO; protocol number: CRD42019125015). Searches were performed on Embase, MEDLINE, and PsycINFO databases using the OVID interface. PubMed and Scopus were also searched. Google Scholar and citations of identified articles were hand-searched to source relevant articles that were not on the databases. The last search was conducted on 9th May 2020. To identify studies relevant to the review question, a list of search terms was developed using the Medical Subject Headings (MeSH) terms for ‘Psychotic Disorders’. Search terms for caregiver antipathy were devised based on the definition by Bifulco et al. (1994). This strategy was employed to ensure that as many studies as possible were captured that assessed this specific abuse type. The list of key search terms for each database is presented in Table A1.

Inclusion/exclusion criteria
Studies were assessed for inclusion based on general characteristics, study design, sample characteristics, and measures used to assess the key variables.

Inclusion criteria
Studies were included based on the following: (1) published in English; (2) published in a peer-reviewed journal between January 1980 and May 2020; (3) empirical quantitative study (randomized controlled trials, controlled/uncontrolled cohort studies, prevalence studies, case–control, or cross-sectional studies); (4) predominantly adult sample (mean age ≥ 18 years), with no participants < 16 years; (5) clinical or general population samples; (6) if using clinical samples, diagnosis of at least one psychosis-spectrum condition (schizophrenia, schizoaffective disorder, delusional disorder, brief psychotic disorder, and first episode psychosis); (7) used a self-report or clinician-rated measure of global/specific psychosis symptoms (including schizotypy dimensions); and (8) used a retrospective self-report measure of caregiver antipathy, as experienced in childhood (prior to aged 16 years). All aspects of caregiver antipathy based on the definition by Bifulco et al. (1994) were included, which was any study that had assessed childhood experiences of criticism, hostility, coldness, or rejection from caregiving figures. Lastly, studies were included if results reported a test of association between the psychosis and caregiver antipathy, irrespective of whether this was the primary study outcome.

Exclusion criteria
Studies were excluded according to the following (1) not an empirical quantitative design (qualitative studies; personal accounts; case studies; review articles, and book chapters); (2) grey literature (unpublished dissertations, conference abstracts, posters); (3) used child/adolescent (<17 years) or older adult (>65 years) samples; (4) final sample size of 10 or less participants; (5) if using clinical samples, had included participants with a diagnosis of bipolar affective disorder, substance-induced psychosis; post-partum psychosis or...
dementia; and (6) had not discriminated between current caregiver antipathy and experiences occurring prior to 16 years. Studies assessing experiences of expressed emotion (EE) in psychosis were excluded as this term typically reflects the quality of current family relationships and interactions rated by an interviewer (Vaughn & Leff, 1981).

**Study selection**
In total, 3,187 articles were initially identified. An additional 11 articles were sourced through searches of reference lists. These identified 1,925 articles after de-duplication which were screened against inclusion and exclusion criteria based on both titles and abstracts. At this stage, 10% (n = 193) of articles were evaluated by a second independent assessor (LJ) to verify reliability of inclusion/exclusion before full-text screening. This yielded an agreement rating of 100%. Following this step, 52 articles potentially met inclusion criteria and were subject to full-text screening. At full-text assessment, 37 articles were excluded. At this stage, six papers (10%) comprised of 3 included and 3 excluded studies, and were evaluated by the independent assessor to verify reliability of inclusion/exclusion. Five out of six papers were initially agreed upon, and an agreement was reached on the final paper following clarification of the inclusion criteria. To verify reliability, an additional six papers (10%), three included and three excluded, were evaluated through independent assessment, yielding a 100% agreement rate. In total, 14 articles were included in the final narrative synthesis. A four-phase flow diagram outlining the review process is shown in Figure 1.

**Data extraction**
For each study, data on study characteristics, socio-demographic, and clinical variables were collected. Descriptive data included (1) study design and sample type (i.e. clinical or non-clinical); (2) recruitment setting (e.g. inpatient or outpatient); (3) age and sex of participants; (4) diagnostic tool used to confirm schizophrenia-spectrum diagnosis (clinical samples); (5) measures used to assess psychosis symptoms and caregiver antipathy; and (6) statistical analysis. We used a narrative integration approach to structure the results, which were organized according to whether an association was identified with parental antipathy in relation to different types of psychosis outcome. We did not conduct a meta-analysis as part of this review, as the data were too heterogeneous to meaningfully aggregate effect sizes.

**Quality assessment**
The methodological quality of included studies was assessed using the Effective Public Health Practice Project Quality Assessment Tool for Quantitative Studies (EPHPP, 2009). This tool was selected based on evidence that it is suitable to use for evaluating the quality of non-randomized studies (Evans, Lasen, & Tsey, 2015) and is reported to have good content and construct validity (Armijo-Olivo, Stiles, Hagen, Biondo, & Cummings, 2012). All EPHPP quality factors were considered for inclusion by GB and AH. In total, six components were judged as critical for the quality evaluation of included papers: (1) selection bias; (2) study design; (3) confounders; (4) data collection–psychosis; (5) data collection-caregiver antipathy; and (6) statistical analysis. For each study, the six factors were assigned a rating of 1 = strong; 2 = moderate; or 3 = weak, based on the quality
Overall quality scores were assigned according to the total number of weak ratings across the six components (strong = 0 weak ratings; moderate = 1 weak rating; weak = 2 or more weak ratings). The sixth factor (statistical analysis) is not included in the global quality rating in the EPHPP, so this was excluded from the overall quality rating for studies in this review. The EPHPP tool dictionary (EPHPP, ) was used to clarify components and support the quality assessment process. All included papers were evaluated for quality by a second independent rater (LJ). Final agreement on the overall quality rating of the studies was 100%. Table A2 outlines the EPHPP quality criteria for the six factors.

**Interpretation of effect sizes**

Effect sizes for each reported association of caregiver antipathy and psychosis were interpreted based on standardized effect size conventions. As the majority of studies had estimated correlations, Pearson’s $r$ (or Spearman’s $Rho$) was used as the main outcome.

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**Figure 1.** Four-phase PRISMA flow diagram outlining the review process.
metric and effect sizes were interpreted accordingly (small = 0.10; medium = 0.30; large = 0.50). If not reported in the primary studies, Cohen’s $d$ was estimated from available descriptive statistics (means and standard deviations) and effect sizes were interpreted (small = 0.20; medium = 0.50; large = 0.80) (Cohen 1988). For studies using ANOVA for between-groups analyses, reported $\eta^2$ (Eta) values and sample sizes were used as an estimate of effect size (small = 0.01; medium = 0.05; large = 0.14). For studies reporting odds ratios (OR), these were converted into $d$ values to make effects more comparable across studies. Lastly, for studies using multiple regression, reported standardized beta ($\beta$) values were converted to an $r$ statistic (for $\beta$ values between $-0.50$-$0.50$) or an $f^2$ statistic (for $\beta$ values $> 0.50$) based on guidelines by Peterson & Brown (2005). The $f^2$ values were interpreted accordingly (small = 0.1; medium = 0.25; large = 0.40).

Results
The systematic review yielded 14 studies that met the inclusion criteria (participant $n = 1,848$) that had outcomes assessing the relationship between caregiver antipathy and psychosis diagnosis or symptoms. Methodological characteristics and key results of the studies are described in Table 1.

Sample characteristics
Of the 14 studies reviewed, 12 (86%) were conducted in Europe (Turkey = 4 studies; UK = 3 studies; Portugal = 2 studies; Spain = 1 study; Greece = 1 study; Sweden = 1 study) and 2 studies were conducted in the United States. The mean age reported for the samples ranged from 18.5 to 43.5 years. Two studies included a small number of individuals aged 16 years in their First Episode Psychosis (FEP) samples. All recruited mixed-sex samples; the percentage of male participants ranged from 22% to 70%. Just two studies reported sample ethnicity, with most participants categorized as ‘White’ (65.1–79.8%). In total, eleven studies recruited a clinical sample of adults with schizophrenia-spectrum diagnosis; seven included participants with an ICD or DSM diagnosis of Schizophrenia, two only included individuals with a DSM-IV diagnosis of paranoid schizophrenia and two studies only included individuals with an ICD-10 diagnosis of FEP. The remaining three studies used non-clinical samples from undergraduate student populations.

Study methodology and quality
Eight of the 14 studies were cross-sectional in design (seven within-subjects and one between-subjects). The remaining six were case–control designs. In the quality assessment, seven studies were rated as weak overall, five as moderate and two as strong. The lowest quality criterion was study design, as over half of studies (57%) used uncontrolled designs based on cross-sectional data. The second lowest quality criterion was adjustment of confounders in the analysis, as only six studies controlled for key demographic and clinical variables in the analysis. Quality criteria for the assessment of caregiver antipathy were poorly met in over one third of studies, as valid/reliable data collection tools were not used. Scores across the six quality factors for each study are shown in Table A3.
| Author (date) | Study country | Study design | Sample type | Setting | N | Sub-group N | Age, M (SD) | Male % | Antipathy measure | Psychosis measure | Analysis | Main (relevant) findings | Effect size | Overall quality rating |
|-------------|-------------|-------------|-------------|---------|---|------------|-------------|--------|-------------------|------------------|----------|----------------------|-------------|----------------------|
| Akın (2017) | Turkey      | Case–control | SZ (DSM-V)  | Outpatient | 251 | SZ: 53     | 38.3 (10.6) | 62.3   | PARQ (Turkish)    | -                | ANOVA    | SZ group reported sig higher MR ($\eta^2 = 0.06$) and FR ($\eta^2 = 0.04$) than HC. NS for SZ/SA. | Small       | Moderate             |
| Akın and Batiğün (2019) | Turkey | Cross-sectional (w-s) | SZ (DSM-V)  | Outpatient | 52  | -          | 38.3 (10.7) | 61.5   | PARQ (Turkish)    | SANS Multiple regression | Sig. effect of PR on negative symptoms adjusting for gender and emotional maladjustment: MR ($b = 1.23, f^2 = 0.63$), FR ($b = 1.97, f^2 = 0.80$). | Large       | Weak                 |
| Akın et al. (2018) | Turkey | Cross-sectional (w-s) | SZ (DSM-V)  | Outpatient | 53  | -          | 38.2 (10.6) | 62.3   | PARQ (Turkish)    | SAPS Correlations | Positive symptoms NS correlated with MH ($r = 0.15$), MR $r = 0.16$, FH ($r = 0.02$) or FR $r = 0.01$). | None        | Weak                 |
| Aydin et al. (2019) | Turkey | Case–control | SZ (DSM-V)  | Outpatient | 99  | SZ: 34     | 30.1 (7.4)  | 64.0   | EMBU (Turkish)    | PANSS Multiple regression | SZ higher PR than HS ($F = 0.91$) & HC ($F = 0.70$). NS for HS/HC ($F = 0.10$). | Large       | Strong               |
| Baker and Hoerger (2012) | USA | Cross-sectional (w-s) | Non-clinical (students) | - | 286 | -          | 19.7 (2.1)  | 34.9   | EMBU (English)    | MMPI-2 Correlations | PR sig. correlated with persecutory ideas ($r = 0.43$) and aberrant experiences ($r = 0.31$). | Medium      | Weak                 |
| Carvalho et al. (2015) | Portugal | Cross-sectional (w-s) | Paranoid SZ (NR) | NR | 48  | -          | 43.3 (13.2) | 37.5   | CECA-Q PSYRATS BAVQ | Correlations Multiple regression | MA sig. correlated with voice source ($r = 0.34$); FA sig correlated with malevolence ($r = 0.43$) and omnipotence ($r = 0.31$). FA strongly predicted malevolence ($b = 0.33, r = 0.38$). | Medium      | Weak                 |

**Table 1.** Methodological characteristics and key results of included studies (n = 14)
| Author (date) | Study design | Sample type | Setting | N | Sub-group N | Age, M (SD) | Male % | Antipathy measure | Psychosis measure | Analysis | Main (relevant) findings | Effect size | Overall quality rating |
|--------------|--------------|--------------|---------|---|-------------|-------------|--------|-------------------|------------------|----------|------------------------|-------------|------------------------|
| Carvalho et al. (2016) Portugal | Case–control | Paranoid SZ (NR) | NR | 187 | SZ: 91 HR: 32 HC: 64 | SZ: 42.5 (12.8) HR: 55.6 (13.0) HC: 45.2 (17.3) | SZ: 73 HR: 25 HC: 67 | CECA-Q GPS | MANCOVA | FA ($\beta = 0.40, r = 0.45$) and MA ($\beta = 0.24, r = 0.29$) sig. predicted paranoia severity. FA predicted freq ($\beta = 0.18, r = 0.23$) & conviction ($\beta = 0.15, r = 0.20$). MA sig. predicted distress ($\beta = 0.17, r = 0.22$). No sig b-g diffs when depression included ($\beta$ values $< 0.01$). | Medium Moderate |
| Chatziioannidis et al. (2019) Greece | Case–control | SZ (DSM-IV) | Inpatient | 124 | SZ: 63 HC: 61 | SZ: 40.4 (10.0) HC: 39.3 (9.6) | | CECA-Q PANSS | Correlations | MA sig correlated with positive symptoms ($r = 0.35$) and AH ($r = 0.40$). FA NS positive symptoms ($r = 0.16$) and AH ($r = 0.19$). SZ higher odds of FA (OR = 7.7, $d = 0.60$), MA NR*. | Medium Moderate |
| Edell and Kaslow (1991) USA | Cross-sectional | Non-clinical (students) | - | 79 | PA: 21 PAb: 29 HC: 29 | 18.5 (NR) PA: 47.6 PAb: 48.3 HC: 51.7 | | CES PPS | t-tests | PAb sig. higher MCr ($d = 0.71$) and FCr ($d = 0.54$) than HC. No sig. diffs between PA & HC on MCr ($d = 0.42$) or FCr ($d = 0.27$). | Medium Weak |
| Fisher et al. (2010) UK | Case–control | FEP (ICD-10) Mixed | | 428 | FEP: 182 HC: 246 | FEP: 31.0 (11.3) HC: 39.0 (12.7) | FEP: 53.8 HC: 41.9 | CECA-Q SCAN | Logistic regression | FEP sig. higher MA than HC (OR = 2.15, $d = 0.42$), NS controlling for other traumas (OR = 2.07, $d = 0.40$). NS for FA (OR = 0.9, $d = 0.06$). Antipathy from both | Small Strong |

Continued
| Author (date) | Study design | Sample type | Setting | N | Age, M (SD) | Male % | Antipathy measure | Psychosis measure | Analysis | Main (relevant) findings | Effect size | Overall quality rating |
|--------------|--------------|-------------|---------|---|-------------|--------|------------------|------------------|----------|----------------------|------------|-----------------------|
| Fisher et al. (2011) UK | Cross-sectional (w-s) | FEP (ICD-10) | Mixed | 84 | -          | 31.0 (12.1) | 56.0 | CECA-Q | SCAN | Mann-Whitney U | FA not sig. associated with global symptoms (d = 0.00). MA NR. | None | Moderate |
| McCreadie et al. (1994) UK | Cross-sectional (w-s) | SZ (ICD-9) | Mixed | 50 | -          | 37.8 (10.5) | 64.0 | EMBU (English) | PANSS | Correlations | MR sig. correlated with positive (r = 0.39), negative (r = 0.29) & general (r = 0.42). FR sig. corr with positive (r = 0.40) & general (r = 0.45) not negative (r = 0.23) symptoms. | Medium | Weak |
| Sheinbaum et al. (2015) Spain | Cross-sectional (w-s) | Non-clinical (students) | - | 214 | -          | 21.4 (2.4) | 22.0 | CECA-I | SCID | Correlations | PA correlated with positive symptoms (r = 0.22), paranoid PD traits (r = 0.25) & schizotypy (r = 0.23). | Small | Weak |
| Skagerlind et al. (1996) Sweden | Case-control | SZ (DSM-III) | Inpatient | 262 | SZ: 57 HC: 205 | SZ: 29.2 (73) HC: 24.9 (8.6) SZ: 53.0 HC: 58.0 | EMBU (Swedish) | t-tests | | SZ sig. higher MR (d = 0.35) & FR (d = 0.32) than HC. | | |

**Note:** Design: Between-subjects (b-s); Within-subjects (w-s); Sample type: First Episode Psychosis (FEP); Schizophrenia (SZ); Sub-group: Healthy Controls (HC); Healthy Relatives (HR); Healthy Siblings (HS); Perceptual Aberration (PAb); Physical Anhedonia (PAn); Social Anxiety Disorder (SAD); Antipathy measure: Childhood Experiences of Care and Abuse Interview (CECA-I); Childhood Experiences of Care and Abuse Questionnaire (CECA-Q); Childhood Experience Scale (CES); Egna Minnen Betraffande Uppfostra (EMBU); Parental Acceptance–Rejection Questionnaire (PARQ). Psychosis measure: Beliefs About Voices Questionnaire (BAVQ); General Paranoia Scale (GPS); Minnesota Multiphasic Personality Inventory – 2nd Edition (MMPI-2); Paranoia Checklist (PC); Positive and Negative Syndrome Scale (PANSS); Psychosis Proneness Scales (PPS); Psychotic Symptom Rating Scales (PSYRATS); Scale for the Assessment of Positive Symptoms (SAPS); Scale for the Assessment of Negative Symptoms (SANS); Scale for the Assessment of Positive Symptoms (SAPS); Schedules for the Clinical Assessment of Neuropsychiatry (SCAN); Structured Clinical Interview for DSM-V (SCID). Main (relevant) findings: Antipathy: Father Antipathy (FA); Father Criticism (FCr); Father Rejection (FR); Mother Antipathy (MA); Mother Criticism (MCr); Mother Rejection (MR); Parental Antipathy (PA); Parental Rejection (PR).
Assessment measures

Measures used to assess psychosis symptoms and caregiver antipathy across the fourteen studies are described in Table 1.

Psychosis diagnosis/symptoms

Ten studies measured relationships between caregiver antipathy and psychosis symptom severity. Seven studies using clinical samples used either a semi-structured interview: Positive And Negative Symptom Scales (PANSS; Kay, Fiszbein, & Opler, 1987) (2 studies); Schedules for Clinical Assessment in Neuropsychiatry (SCAN; Wing, 1990) (2 studies); Psychotic Rating Symptom Scales (PSYRATS; Haddock, McCarron, Tarrier, & Faragher, 1999) (1 study); Scales for the Assessment of Positive and Negative Symptoms (SAPS/SANS; Andreasen & Grove, 1986) (2 studies) or self-report measures: Beliefs About Voices Questionnaire (BAVQ; Chadwick, Lees, & Birchwood, 2000) (1 study); General Paranoia Scale (GPS; Carvalho et al., 2017) (1 study); Paranoia Checklist (Carvalho et al., 2018) (1 study) or a combination of both. The three non-clinical studies used semi-structured interviews: Structured Clinical Interview for DSM-V (SCID; American Psychiatric Association, 2013) (1 study) or self-report measure: Minnesota Multiphasic Personality Inventory (MMPI-2; Ben-Porath & Tellegen, 2008) (1 study); scales of psychosis proneness (Chapman, Edell, & Chapman, 1980) (1 study) to assess symptom severity across schizotypy domains associated with persecutory/paranoid ideas and aberrant experiences.

We rated most studies as strong for this factor as they used at least one valid and reliable tool to assess psychosis symptoms. Only one study (Edell & Kaslow, 1991) received a weak rating as their measure was used before the psychometric properties were formally established.

Caregiver antipathy

Five measures were used to assess caregiver antipathy across the studies. Five studies used the CECA-Q (Bifulco et al., 2005) and one used the CECA interview (Bifulco et al., 1994). Two self-report measures were used to assess caregiver rejection; four studies used the Egna Minnen Betraffande Uppfostran (‘My Memories of Upbringing’) Questionnaire (EMBU) originally developed in Sweden (Arindell et al. 1998) (Swedish – 1 study; Turkish – 1 study; English – 2 studies). Three studies used a Turkish version of the Adult Parental Acceptance-Rejection Questionnaire (Adult-PARQ; Rohner, 2005). One study assessed caregiver criticism using the Childhood Experiences Scale (Frank & Paris, 1981).

The six studies using the CECA received a strong rating for the caregiver antipathy data collection quality factor, as this measure has well-established psychometrics (Bifulco et al. 2010). Assessment of caregiver rejection/criticism across the remaining eight studies was more variable. Four studies used adapted questionnaires without established psychometric data and did not describe whether their measures were valid or reliable. Therefore, these studies received weak ratings for this data collection factor in the quality assessment.
Synthesis of study results

Studies showing no association between caregiver antipathy and psychosis
Two studies did not support a relationship between caregiver antipathy and psychosis. Fisher et al. (2011) found no association between global psychosis symptoms and paternal antipathy severity in an FEP sample. Maternal antipathy was not reported. Additionally, Akün, Durak Batigün, Devrimci, and Baskak (2018) found no correlations between maternal or paternal hostility/rejection and total positive symptoms in adults with schizophrenia. However, there were methodological limitations to both studies; they received weak-moderate quality ratings as they used cross-sectional designs and employed simple univariate tests to assess relationships between caregiver antipathy and psychosis. Both studies received strong ratings for the psychosis data collection quality factor; however, Akün et al. (2018) did not describe the psychometric properties of their adapted measure and Fisher et al. (2011) used the CECA-Q in an FEP sample which included a small number of adolescents aged 16 years, which may limit the conclusions than can be drawn in relation to our review question.

Studies showing an association between caregiver antipathy and psychosis
Twelve studies reported significant associations of caregiver antipathy with psychosis. Results are structured according to clinical and non-clinical samples.

Non-clinical samples
All three studies using non-clinical samples found significant relationships between caregiver antipathy and psychosis symptom severity. Sheinbaum et al. (2015) found small positive correlations between parental antipathy severity with total positive symptoms, schizotypy, and paranoia severity. They also found that angry-dismissive attachment style mediated associations between antipathy and positive symptoms, whilst enmeshed attachment mediated associations between antipathy and paranoia/schizotypy severity. Baker and Hoerger (2012) found moderate, positive correlations between total parental rejection and persecutory ideation and aberrant experiences severity. Similarly, Edell and Kaslow (1991) found moderate, positive associations between maternal and paternal criticism severity with perceptual aberration severity.

The three studies all received weak-quality ratings. Each recruited moderate to large (n = 79–286) self-selecting samples of undergraduate students and thus received weak ratings for sample bias. All three studies used cross-sectional designs that did not include a control group, and only one employed multivariate tests but did not specify whether they had controlled for demographic confounders. The quality of data collection tools was variable; for example, Edell and Kaslow (1991) did not use validated measures of schizotypy or caregiver antipathy which limits the conclusions that can be drawn from this study.

Clinical samples

Diagnosis
Five studies found a significant association between caregiver antipathy and psychosis when adults with schizophrenia-spectrum diagnoses were compared to non-clinical groups.
Both Skagerlind, Perris, and Eisemann (1996) and Akün (2017) found a small effect of maternal and paternal rejection on schizophrenia diagnosis; however, the latter study found no relationship when the schizophrenia group was compared to a social anxiety disorder group. Aydin et al. (2019) found a large effect of parental rejection severity on schizophrenia diagnosis although there were no correlations between parental rejection and psychosis symptom severity in the clinical group. Of note, a moderate correlation was identified between parental rejection severity and attachment anxiety in the clinical group; however, attachment style did not predict diagnosis in the multivariate analysis. Fisher et al. (2010) found a small association between maternal antipathy severity and FEP diagnosis; however, this was not sustained when physical and sexual abuse were included in the multivariate analyses. No significant association was found between paternal antipathy severity and FEP diagnosis. Lastly, Chatziioannidis et al. (2019) reported large associations between maternal antipathy and total childhood trauma with schizophrenia diagnosis. In a mediation analysis, anxious/avoidant attachment mediated the relationship between total childhood trauma and schizophrenia diagnosis; however, potential mediators between maternal antipathy and schizophrenia were not reported.

These five studies ranged from moderate to strong methodological quality. All used case–control designs and recruited representative clinical samples of adults with schizophrenia-spectrum diagnosis. However, two of the studies did not identify whether diagnosis had been confirmed using a standardized tool and four recruited from only one source (i.e. either inpatient or outpatient), so generally received moderate quality ratings for the selection bias and study design quality factors. All used valid measures of psychosis symptoms and all but one used a valid caregiver antipathy measure, so received strong ratings for both data collection quality factors. The majority received strong ratings for the statistical analysis and confounders quality components as they employed multivariate tests and controlled for over 80% of relevant confounders. Only one study (Skagerlind et al., 1996) did not specify whether they controlled for between-group differences in the analysis so received a weak rating for this quality factor.

**Psychosis symptoms**

**Positive symptoms**

Two studies found a significant association between caregiver antipathy and positive symptom severity in schizophrenia using the PANSS. McCreadie, Williamson, Athawes, Connolly, and Tilak-Singh (1994) found moderate correlations between maternal and paternal rejection severity and total positive symptoms. Similarly, Chatziioannidis et al. (2019) found moderate positive correlations between maternal antipathy and total positive symptoms, although maternal antipathy was not correlated with negative or cognitive symptoms. Paternal antipathy was not correlated with any psychosis symptom domain.

**Negative symptoms**

Only one study reported associations between caregiver antipathy and negative symptoms in schizophrenia. Akün and Batıgün (2019) found large significant associations between maternal and paternal rejection and negative symptom severity which were moderated by psychological maladjustment. Specifically, this interaction was only statistically significant females (not males) with severe psychological maladjustment.
according to published cut-off scores on a personality measure (Rohner, 2005). Of note, there were no correlations between parental rejection (from the mother or father) and negative symptoms.

**Hallucinations**
Two studies reported associations between caregiver antipathy and hallucinations in schizophrenia. Chatziioannidis et al. (2019) found a moderate positive correlation between maternal antipathy severity and hallucinations on the PANSS. In addition, amongst the childhood trauma types (including sexual abuse, physical abuse, and neglect) maternal antipathy had the strongest association with hallucination severity. No significant associations were reported for paternal antipathy. On the other hand, Carvalho, Motta, Pinto-Gouveia, and Peixoto (2015) found no significant correlations between maternal or paternal antipathy and total auditory hallucinations in paranoid schizophrenia. However, moderate positive correlations were found between maternal antipathy and the voice source item of the BAVQ, corresponding to higher belief conviction relating to voices being external in origin. The study also found moderate positive correlations between paternal antipathy and voice malevolence and omnipotence severity. In the multivariate models, paternal antipathy was the strongest predictor of voice malevolence severity.

**Delusions**
One study reported relationships of caregiver antipathy with paranoia severity in adults with a diagnosis of paranoid schizophrenia. Carvalho, da Motta, Pinto-Gouveia, and Peixoto (2016) found in multivariate analyses that paternal antipathy was a specific predictor of paranoia severity, frequency and conviction, and maternal antipathy predicted paranoia distress.

Measures of psychosis symptoms within and between individual studies showed high heterogeneity, due to differences in recruitment strategies and clinical diagnoses. Studies that reported a measure of global positive/negative symptoms all had weak-moderate quality ratings as they tended to use cross-sectional or case–control designs, employed simple bivariate tests, and had modest sample sizes ($n = 50–124$) which may have yielded larger effect sizes compared to studies with large samples. All used psychometrically robust tools to assess psychosis symptoms so received strong ratings for this quality factor; however, assessment of caregiver antipathy was more variable. For example, Akün and Batgünün (2019) did not describe the psychometric properties of their antipathy measure, making it harder to draw conclusions about the relationship between caregiver antipathy with negative psychosis symptoms.

Studies that reported a measure of specific symptoms (i.e. hallucinations or delusions) also received weak-moderate quality ratings and had variable sample sizes ($n = 48–187$). All recruited samples of adults with schizophrenia but two did not specify their recruitment method so received weak-moderate ratings for selection bias. All were given strong ratings for the data collection quality components in that they used reliable measures to assess psychosis symptoms and caregiver antipathy. Two studies (Carvalho et al., 2015; Chatziioannidis et al., 2019) used a single item to assess the hallucinations construct which likely led to low content validity and reliability. All but one of the studies employed multivariate tests; however, none specified that they had controlled for between-group differences in the analysis, so received weak ratings for this quality factor.
Discussion
To our knowledge, this is the first systematic review to investigate associations between caregiver antipathy and psychosis. We identified fourteen studies that tested this relationship, of which the majority found significant relationships between retrospective measures of caregiver antipathy, criticism, or rejection in childhood and psychosis symptoms or diagnosis in adulthood. Overall, four studies found an association corresponding to a small effect size, six studies found a medium effect and two studies found a large effect. Generally, the studies were of weak to moderate quality and all used cross-sectional or case–control designs which showed associations rather than causal relationships. Thus, whilst the current evidence indicates a relationship between caregiver antipathy and psychosis, causal interpretations cannot be made. The findings from this review support more methodologically robust research to investigate whether parental antipathy does have a causal role in psychosis.

In relation to specific psychosis outcomes, our review found associations between caregiver antipathy and schizophrenia-spectrum diagnoses. These results tended to come from moderate-strong quality studies using case–control designs and yielded small effect sizes when adults with a diagnosis of schizophrenia were compared to non-clinical groups. Only one study (Akün, 2017) used another clinical sample as a comparison group and found no differences between people with schizophrenia and those with social anxiety disorder on levels of caregiver rejection. This could be interpreted in line with the view that caregiver emotional abuse is likely to have a global impact on adverse mental health outcomes (Dias et al., 2015; Vachon et al., 2015); however, further investigation is needed to test these claims. Future longitudinal studies should build on the reasonably consistent, case–control association found between recollections of caregiver antipathy and schizophrenia-spectrum diagnoses, including comparison with other clinical groups, to investigate whether the findings are replicated with methodologically robust designs.

We also found associations between caregiver antipathy and certain types of psychosis symptoms. These findings generally came from weak-moderate quality studies using cross-sectional designs and tended to yield medium effect sizes. Most studies reported a measure of global symptoms (i.e. total positive, negative or general) though three reported specific symptoms. For example, two studies found associations of caregiver antipathy with hallucination severity (Carvalho et al., 2015) and voice appraisals (Chatziioannidis et al., 2019) in people with a schizophrenia diagnosis. Whilst interpretation of the findings is speculative due to key methodological issues across the studies, including small sample sizes and cross-sectional designs, the results suggest that caregiver antipathy may be linked to both the occurrence and phenomenology of voices. This potentially maps onto cognitive models of voice hearing, which propose that the thematic content of, and relationship to, voices tends to mirror broad patterns of social relating (Hayward, Berry, & Ashton, 2011) and feed into other cognitive and affectual processes implicated in voice formation (Alderson-Day & Fernyhough, 2016). Further longitudinal research that can account for the potential co-occurrence of trauma types is needed to examine specific links between caregiver antipathy and different hallucination constructs, such as voice severity and voice appraisals, as well as hypothesized maintenance processes such as those outlined in cognitive attachment models (Berry, Varese, & Bucci, 2017).

The review also shows some evidence of associations between caregiver antipathy and paranoid/persecutory ideas in non-clinical samples, and paranoia severity in adults with schizophrenia. This lends tentative support to existing accounts that propose a
relationship between CEA and paranoia (Ashcroft et al., 2012; Bentall et al., 2014). There was also some evidence that insecure attachment-mediated relationships between caregiver antipathy and paranoia, which suggests a potential role of caregiver antipathy in the formation of insecure attachment-related beliefs in paranoia (Berry et al., 2017; Hardy, 2017). This builds on the literature by focusing specifically on the impact of caregiver CEA. These results are tentative given that the findings came from a small number of weaker quality cross-sectional studies. Further investigation using longitudinal studies will be the most robust way of determining a causal relationship between caregiver antipathy and paranoia, as well as exploring the potential maintenance processes implicated in cognitive and attachment models of psychosis (e.g. Barker, Gumley, Schwannauer, & Lawrie, 2015; Berry, Bucci, & Danquah, 2020; Garety, Bebbington, Fowler, Freeman, & Kuipers, 2007; Garety, Kuipers, Fowler, Freeman, & Bebbington, 2001).

Limitations of the included studies should be considered. As discussed, the early findings come mostly from studies that used cross-sectional designs, so firm conclusions cannot be drawn about whether there is a causal relationship between caregiver antipathy and psychosis. Additionally, potential demographic confounders were not included in many analyses. For example, just two studies reported the ethnicity of their samples (Fisher et al., 2010, 2011). These data would have enhanced the interpretation of results in consideration of cross-cultural expressions of care. For example, criticism from parents may be more tolerated in some cultures, leading to use of emotional discipline strategies (e.g. elicitation of shame or guilt) that may be viewed as emotionally abusive in other cultures (Stoltenborgh et al., 2012). This is likely to impact self-reported exposure to CEA, and therefore, demographic differences will be important to consider in future studies of CEA and psychosis.

A further limitation is that, as most studies did not control for other childhood trauma types, or identify patterns of co-occurrence, it is difficult to establish the relative contribution of caregiver antipathy on psychosis diagnosis or symptoms. It is therefore not possible to conclude whether the strength of effects found in the review are over and above those that might have been found for other types of caregiver abuse. This is important given that CEA is likely to feature heavily in other forms of victimization, (Debowska, Willmott, Boduszek, & Jones, 2017; Turner et al., 2020). Further investigation using rigorous multivariate methodology is needed in order to draw firmer conclusions about the predictive utility of caregiver antipathy on psychosis.

Limitations of our review should also be acknowledged. First, the strength of association between the variables of interest was estimated based on the data available for effect sizes to be computed. This may have introduced error into the results, and estimates of effect sizes across studies may not be directly comparable. Additionally, our inclusion criteria for assessment of caregiver antipathy were based on one definition by Bifulco et al. (1994). The CECA, which is the only validated measure to capture this abuse construct, was used in under half the studies. The remaining studies used tools to assess caregiver rejection or criticism, most of which were not psychometrically validated. This compromises the validity and limits generalizability of the findings.

Finally, the review only included retrospective assessments of caregiver antipathy. This may have introduced bias, given research suggesting that retrospective and prospective trauma assessments may identify overlapping but distinct groups (Baldwin et al., 2019). For example, people may appraise past events more or less positively in retrospect, may forget experiences of antipathy, or may not wish to disclose childhood victimization. Whilst more methodologically challenging, research should seek to employ prospective assessment of parental antipathy, or a combination of the two approaches, to
better inform understanding of whether caregiver CEA is causally associated with psychosis.

In terms of suggestions for future research, this review indicated some degree of overlap between childhood caregiver antipathy and neglect constructs. It is therefore important for emotional abuse and neglect to be assessed separately to account for the possible shared variance between them. Future studies would also benefit from looking at whether there are differential effects of CEA inside and outside the home. This could be achieved by separating assessment of caregiver attitudes and behaviours from experiences of peer bullying, which may help to draw more nuanced conclusions about the impact of CEA both within and outside of the core caregiving relationship. Lastly, our review highlights a need for more longitudinal research to clarify possible bidirectional associations between caregiver antipathy and transition to psychosis, as well as relationships with trauma symptoms. This should include more rigorous and valid assessment of caregiver antipathy, post-traumatic stress reactions and psychosis to identify possible differential relationships and underlying psychological mechanisms (Hardy, 2017; Hardy, van de Giessen, & van den Berg, 2020).

Regarding implications for clinical practice, the evidence of links between caregiver antipathy and psychosis suggests that clinicians working with people with psychosis should consider the nature and impact of caregiver antipathy on symptoms, their content and distress maintenance. Clinicians could also consider the impact of adverse caregiving experiences on therapeutic relationships, patterns of help-seeking and engagement with services (Bucci et al., 2015). Good practice would be to use individual, formulation-based approaches, considering possible cross-cultural influences, and focusing on the delivery of psychological therapies and social support within models of trauma-informed care. Such approaches may focus on helping an individual to cope with or resolve the impact of adverse childhood caregiving experiences, which may facilitate sustainable improvements in positive symptoms and rates of re-victimization that people with psychosis often report (van den Berg et al., 2016).

Conflicts of interest
All authors declare no conflict of interest.

Data availability statement
Data sharing is not applicable to this article as no new data were created or analysed in this study.

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### Table A1. List of key search terms for each database

| Database | Key search terms |
|----------|-----------------|
| Ovid (Embase, Medline, PsychINFO) | ((Psychotic* OR Psychosis* OR Schizophren* OR Hallucination* OR Delusion*) AND (Parent* OR Caregiver OR Family OR Maternal OR Mother OR Paternal OR Father OR Child*) AND (Antipathy OR Hostil* OR Reject* OR Critic* OR Cold*)). ti/ab. |
| PubMed | (Psychotic* [Title/Abstract] OR Psychosis* [Title/Abstract] OR Schizophren* [Title/Abstract] OR Hallucination* [Title/Abstract] OR Delusion* [Title/Abstract]) AND (Parent* [Title/Abstract] OR Caregiver [Title/Abstract] OR Family [Title/Abstract] OR Maternal [Title/Abstract] OR Mother [Title/Abstract] OR Paternal [Title/Abstract] OR Father [Title/Abstract] OR Child* [Title/Abstract]) AND (Antipathy [Title/Abstract] OR Hostil* [Title/Abstract] OR Reject* [Title/Abstract] OR Critic* [Title/Abstract] OR Cold* [Title/Abstract]). |
| Scopus | TITLE-ABS (psychotic* OR psychosis* OR schizophren* OR hallucination* OR delusion* AND parent* OR caregiver OR family OR maternal OR mother OR paternal OR father OR child* AND antipathy OR hostil* OR reject* OR critic* OR cold) AND DOCTYPE (ar) AND PUBYEAR > 1979 |
| Score  | Sample/Selection bias                                      | Design                                                                 | Confounders                                                                                                                                         | Data collection psychosis                                                                 | Data collection – caregiver antipathy | Statistical analysis |
|--------|-----------------------------------------------------------|------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-------------------------------------|----------------------|
| Weak   | Self-referred (e.g. university sample, snowball sampling) | Any other method or did not state the method used.                     | Important differences found between groups and < 60% controlled for confounders                                                                    | Data collection tool has not been shown to be valid and both reliability and validity are not described | Data collection tool has not been shown to be valid and both reliability and validity are not described | Descriptive statistics only |
| Moderate| Referred from a source in a systematic manner (e.g. hospital or clinic) | Cohort analytic studies, case-control studies, cohort designs, interrupted time series.                                                                 | Significant differences found between groups and controlled for 60-79% of relevant confounders                                                    | Data collection tool has been shown to be valid and not reliable or reliability is not described | Data collection tool has been shown to be valid and not reliable or reliability is not described | Bivariate correlations; simple between-group/linear tests |
| Strong | Participants randomly selected from a comprehensive list of individuals in the target population demographics | Randomized Controlled Trial or Controlled Clinical Trial (CCT)          | No significant differences between groups or controlled for ≥ 80% of relevant confounders                                                           | Data collection tool has been shown to be valid and reliable (e.g. standardized diagnostic interview) | Data collection tool has been shown to be valid and reliable (e.g. validated questionnaire) | Multivariate tests also controlling for relevant demographics |
**Table A3.** EPHPP quality ratings for the included studies

| Study                      | Selection bias | Study design | Confounders | Data collection psychosis | Data collection antipathy | Statistical analysis | Overall quality rating |
|----------------------------|----------------|--------------|-------------|---------------------------|---------------------------|----------------------|------------------------|
| Akün (2017)                | MODERATE       | MODERATE     | STRONG      | STRONG                    | WEAK                      | MODERATE             | MODERATE              |
| Akün and Batıgın (2019)    | MODERATE       | WEAK         | STRONG      | STRONG                    | WEAK                      | STRONG               | WEAK                  |
| Akün et al. (2018)         | MODERATE       | WEAK         | STRONG      | STRONG                    | WEAK                      | MODERATE             | WEAK                  |
| Aydin et al. (2019)        | MODERATE       | MODERATE     | STRONG      | STRONG                    | STRONG                    | MODERATE             | STRONG                |
| Baker and Hoerger (2012)   | WEAK           | WEAK         | WEAK        | STRONG                    | STRONG                    | MODERATE             | WEAK                  |
| Carvalho et al. (2015)     | MODERATE       | WEAK         | WEAK        | STRONG                    | STRONG                    | MODERATE             | WEAK                  |
| Carvalho et al. (2016)     | MODERATE       | MODERATE     | STRONG      | STRONG                    | STRONG                    | MODERATE             | MODERATE              |
| Chatziioannidis et al. (2019) | MODERATE     | MODERATE     | STRONG      | STRONG                    | STRONG                    | MODERATE             | MODERATE              |
| Edell and Kaslow (1991)    | WEAK           | WEAK         | STRONG      | STRONG                    | WEAK                      | MODERATE             | WEAK                  |
| Fisher et al. (2010)       | STRONG         | MODERATE     | STRONG      | STRONG                    | STRONG                    | MODERATE             | STRONG                |
| Fisher et al. (2011)       | MODERATE       | WEAK         | STRONG      | STRONG                    | STRONG                    | MODERATE             | MODERATE              |
| McCreadie et al. (1994)    | MODERATE       | WEAK         | STRONG      | STRONG                    | WEAK                      | MODERATE             | MODERATE              |
| Sheinbaum et al. (2015)    | MODERATE       | WEAK         | STRONG      | STRONG                    | STRONG                    | MODERATE             | WEAK                  |
| Skagerlind et al. (1996)   | MODERATE       | MODERATE     | WEAK        | STRONG                    | STRONG                    | MODERATE             | MODERATE              |