

Association of Parenting With Suicidal Ideation and Attempts in Children and Youth: Protocol for A Systematic Review and Meta-Analysis of Observational Studies.

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Abstract

Background: Suicide is a leading cause of death in children and youth, with suicidal thoughts and suicide attempt (referred to as non-fatal suicidal behaviors; NFSB) being among its strongest predictors.

Parenting, including positive parenting (e.g. warmth, responsiveness), negative parenting (e.g. control, hostility) and parent-child relationship (e.g. trust, communication), may be associated with differences in NFSB in children and youth. But the overall strength of these associations remains unclear. To date, no comprehensive systematic review has considered together the wide range of parenting factors studied in relation to NFSB, and no meta-analysis of existing findings has been conducted. The present study will critically appraise and synthesize the existing evidence from observational studies that examine the relationships between parenting factors and i) suicidal ideation and ii) suicide attempt in people aged less than 25.

Methods: Our systematic review and meta-analysis will include cross-sectional and longitudinal studies, published as articles and dissertations, and identified in APA PsycInfo, Medline, CINAHL, Embase, Scopus and the Cochrane Library databases. Two reviewers will select articles after title and abstract screening and full-text assessment of relevant citations. They will extract relevant information using double data entry and will appraise studies' quality. Any disagreements will be discussed with a third reviewer. In addition to a narrative summary of results, when at least three studies are available, meta-analyses will be conducted using three-level random effect models that will derive pooled estimates from dependent effect sizes (obtained from the same sample or study). In case of significant heterogeneity, moderation analyses will be performed considering study design, age, gender, ethnicity of participants, type of informant(s), countries and their income economy indicators. If possible, separate analyses will be conducted according to study setting. Certainty of evidence will be assessed using the GRADE approach.

Discussion: Our findings will identify parenting factors associated with NFSB and better estimate the strength of associations in children and youth. The results will inform further intervention and prevention strategies designed for young people experiencing NFSB and their families by highlighting parenting factors that are important to target and in identifying high-risk population subgroups.

Systematic review registration: PROSPERO CRD42020165345

Background

Suicide is the second leading cause of death for young people between the ages of 10 and 24 with over 140,000 young people taking their own life each year worldwide [1]. Of concern is the large increase in rates of suicide death and suicide-related behaviors observed among children and youth in the last decade [2]. Notably, the Center for Disease Control and Prevention (CDC) reported that rates of death by suicide increased 56% among US Americans aged 10 to 24 years between 2007 and 2017 [3].

Suicidal ideation, which refers to thinking about, considering, or planning suicide, and suicide attempt, defined as a non-fatal, self-directed behavior, with an intent to die, are among the strongest predictors of

future suicide risk [4, 5]. Although suicidal ideation is not considered as a behavior strictly speaking, for easier reading, we will henceforth collectively refer to both suicidal ideation and suicide attempt as “non-fatal suicidal behavior” (NFSB), in line with previous authors [6, 7]. Rates of onset of NFSB increase sharply from late childhood to peak during late adolescence and early adulthood [8, 9], and intervention for young people experiencing these phenomena is therefore widely recognized as being an important part of suicide prevention strategies.

Existing interventions for children and youth show promising results in reducing the frequency of NFSB and self-harm (the latter referring to any self-injurious behavior with or without the underlying intent to die, including suicide attempts). But their effectiveness may be limited in part because their designs remain largely based on available evidence in adults [10, 11]. To ensure strategies are as effective as possible, it is essential to adapt interventions to specific needs of children and youth by identifying specific risk and protective factors for NFSB. In particular, theoretical assumptions, along with a growing body of literature, suggest that parenting is a crucial factor to be considered [12–14].

Parenting factors may influence the risk of NFSB in a negative or in a positive way. From a theoretical standpoint, the stress-diathesis model of suicide provides a useful framework to understand the putative role of parenting in the development of NFSB, in combination with other biological, cognitive, psychological, social and environmental factors [15]. According to this model, suicidal behavior results from the interaction of an individual vulnerability (e.g. genetic or psychological), or *diathesis*, along with exposure to proximal stressor(s), such as psychiatric disorders and stressful life events.

Parenting is involved in both *diathesis* and stress components of this model. First, early childrearing environment exerts a formative influence on children’s vulnerability to stress (*diathesis*). For example, early supportive parenting and mutual parent-child interactions promote the formation of secure attachment and contribute to the regulation of negative emotions in children, which in turn have been reported as protective factors against NFSB [16, 17]. Second, parenting factors contribute to stress, especially when the child is growing up. On one hand, some negative parenting factors, such as harsh punishment or abuse [18], act as proximal stressors, which can precipitate the development of NFSB in combination with a preexisting *diathesis*. On the other hand, positive parenting might also moderate or counteract the effect of other stress factors on NFSB in vulnerable people. For instance, in a cohort study of 550 US adolescent females, high levels of parental support were found to be protective against suicidal ideation following exposure to a stressful life event [19].

This theoretical account also suggests that risk of NFSB in children and youth might be prevented or reduced by adapting parenting information and support to caregivers’ and their children’s needs. Such support should aim at reducing parenting factors highly associated with risk of NFSB, while enhancing those recognized as having a beneficial effect. Most interventions for NFSB already involve a parent component, but to date, there is still insufficient evidence with regard to the effects of specific parenting programs or which parenting components to target as a priority. A better estimate of the association of various parenting factors with NFSB is therefore warranted to help inform and refine interventions.

The relationship between parenting and NFSB has been examined in numerous studies using myriad parenting factors. In the parenting literature, these factors are commonly categorized as: i) parenting practices, which refer to specific behaviors that parents use in raising a child; and ii) aspects of the parent-child relationship, which capture the broader emotional climate (e.g. closeness, communication or attachment) created by the reciprocal interactions existing between the child and the parent [20, 21].

Parenting practices are further grouped into the two broad categories of *positive* and *negative parenting*, based on the consistency of the associations of parenting practices with, respectively, positive and negative outcomes in children and adolescents [22]. *Positive parenting* commonly refers to positive control and warmth (e.g. monitoring, supervision, consistent discipline, involvement, support), whereas *negative parenting* is characterized by high levels of negative control, and hostility (e.g. overprotection, rejection, harsh parenting, coercion). It appears useful to mention that these categories do not assume any *a-priori* association between the pertaining parenting factors and NFSB.

Some specific parenting practices have also been combined to derive *parenting styles* and *parental bonding styles*, which also fall into the categories of *positive* and *negative parenting*.

Parenting styles were first introduced by Baumrind in the mid-60 s [23], and later delineated by Maccoby & Martin, in 1983 [24, 25]. They are categorized as authoritative, authoritarian, permissive and rejecting/neglecting based on the intersection of two dimensions: *warmth* or *responsiveness*, which indicates the level of care, acceptance, and sensitivity of a parent to the child's emotional and developmental needs; and *control* or *demandingness*, which refers to the degree of parental supervision, disciplinary effort and maturity demands from the child (Fig. 1).

Parental bonding styles were developed by Parker et al. considering the two dimensions of *care* and *overprotection*, the latter being considered as negative control [26]. They are categorized as neglectful, affectionless control, affectionate constraint and optimal parental bonding style (Fig. 1).

In accordance with the definition of *positive* and *negative parenting* mentioned above, the authoritative parenting style and optimal bonding style, characterized by high levels of warmth, care, positive control and low levels of negative control, are considered *positive parenting* [27], while other parenting styles and parenting bonding styles can be considered as *negative parenting*.

To date, three literature reviews and one dissertation have synthesized evidence regarding the relationship between parenting and NFSB in adolescence, focusing on parenting styles and parental bonding styles [28–31]. They have demonstrated good evidence of a protective role of parental warmth and care, and a detrimental association of parental neglect, authoritarian parenting and affectionless-control parental bonding style with NFSB [28–31]. Interestingly, the review of Goschin et al. identified that affectionless-control was the parental bonding style most strongly associated with suicidal behavior in adolescents, with a more consistent association found for mothers than for fathers [28]. The specific associations of permissive parenting and of affectionate-constraint parental bonding style with NFSB remain however still unclear [29].

Unfortunately, findings from these literature reviews are limited in reflecting the extended evidence existing on the relationship between parenting and NFSB.

First, because they only considered a small number of parenting factors related to parenting styles and parental bonding styles and did not synthesize findings focusing on specific positive parenting practices, such as parental support or monitoring of children's activities [32, 33], or to some negative parenting practices, such as physical and emotional abuse [37] or role reversal [32] for example. Moreover, parent-child conflicts, low attachment, emotional unavailability of parents, poor communication and low connectedness, have been reported to be associated with suicidal ideation [34–36] and suicide attempts [34, 37, 38], but to our knowledge, evidence on these aspects of the parent-child relationship in relation to NFSB has never been systematically reviewed.

Second, conclusions made by existing reviews only rely on studies conducted in adolescents, which may not be generalizable to children or to emerging adults. Indeed, the associations of some parenting factors with child and youth outcomes have been shown to vary according to different developmental stages. Regarding depression for example, autonomy granting and monitoring emerged as a relevant factor to consider in adolescence but not as much in childhood [39, 40].

Finally, to date, no meta-analysis has been conducted on the relationship of parenting and NFSB [31].

Such an approach is necessary to combine results from multiple studies into pooled estimates and will allow better characterization of the heterogeneity existing between results from different studies and to identify some important moderators of the associations between parenting factors and NFSB. High heterogeneity between studies could be explained by the differences in participant's characteristics. Associations between parenting and NFSB were reported to differ according to age [41], child and parent assigned sex [42, 43] and ethnicity [44]. In addition, methodological heterogeneity could explain differences in results across studies. The study design might influence the strength of the observed associations, especially since parenting is likely to influence NFSB and NFSB can also have an impact on parenting [45]. As results from cross-sectional studies do not allow these bidirectional associations to be disentangled, we will investigate their results separately from those obtained in longitudinal studies, while distinguishing longitudinal studies that examine the effects of parenting on NFSB from those studying the consequences of NFSB on subsequent parenting. Some differences in previous findings could also result from the methods used for assessment of parenting and NFSB (e.g. using questionnaire or observation data), and whether the informant is the child or the parent [28, 29]. Finally, parenting takes place in a broader cultural and socio-political context, which differs widely according to countries. Countries and their economy indicators, such as gross national income per capita and income inequality measures (Gini index), as defined by the World Bank, have also been shown to influence the risk of suicide behaviors in children and youth, and their potential role as moderators of the association between parenting and NFSB deserves further attention [46, 47].

We intend to address these gaps in conducting a systematic review and meta-analysis that address the relationships of parenting with NFSB considering an extensive range of parenting factors together. Our

meta-analysis will be the first conducted on the topic and will allow an estimate of the overall strength of the associations (when possible) and an exploration of statistical heterogeneity between studies.

Objectives

Our study will synthesize observational evidence regarding the relationships between parenting and suicidal ideation and attempts in children and youth. We will answer the following research question: “In children and youth, is parenting associated with suicidal ideation and suicide attempt based on observational quantitative evidence?”

Methods/design

We will undertake a systematic review of existing observational evidence and will perform meta-analyses where sufficient data are available. The study has been pre-registered with AsPredicted (No. 39505) and registered to the International Prospective Register of Systematic Reviews (PROSPERO CRD42020165345). This protocol follows the Preferred Reporting Items for Systematic Review and Meta-Analyses for Protocols (PRISMA-P) 2015 guidelines (see Additional file 1)[48].

Eligibility criteria

The inclusion/exclusion criteria have been defined according to the Population of interest, Exposure, Comparator, and Outcome (PECO) statements as described below:

Our population of interest will be children and youth aged less than 25 years old. We will include studies carried out in clinical and community samples of individuals aged less than 25 years or whose mean age is under 25 and exclude those that do not specify participants’ mean age or age range.

The term “parent” will refer to the biological or adoptive parent(s), guardian(s) or caregiver(s).

In accordance with the rationale described earlier and with previous meta-analyses examining relationship of parenting on child outcomes, parenting factors will be classified according to the three broad categories of positive parenting, negative parenting and parent-child relationship [49–51].

Studies will be eligible for inclusion if they assess parenting before the age of 18, or at a mean age lower than 18. We set this age limit knowing that, in most countries and states, reaching 18 years corresponds to legal emancipation of children and is marked by more autonomy, life decisions and often changes in living arrangement that have a main impact on how parents and children perceive the role of parenting and the parent-child relationship [52].

In this review, we will focus on the following two outcomes as defined by the CDC: i) suicidal ideation, which refers to thinking about, considering, or planning suicide, and ii) suicide attempt, which refers to a non-fatal, self-directed, potentially injurious behavior with intent to die as a result of the behavior [5].

We will not consider data relating to non-suicidal self-injury (NSSI) and non-suicidal self-harm in the present study. Although they are highly comorbid with suicidal behaviours in children and adolescents,

these are phenomenologically different [53] and could be influenced by distinct protective and risk factors [54].

Some studies have examined the relationship of parenting with self-injury and self-harm, which refer to any self-injurious behaviour, including suicide attempt but also NSSI and non-suicidal self-harm.

In order to identify all relevant data pertaining to suicide attempt, our search strategy is meant to capture these studies by including relevant keywords such as “*self-injury*”, “*self-harm*” or “*self-mutilation*”. However, reviewers will carefully assess the definition of each outcome considered (including in sub-analyses), and will only retain those reporting data on suicide attempt. The studies that examine self-harm as a single entity will be excluded, assuming that they do include non-suicidal behaviours.

Only observational studies with retrospective, cross-sectional or longitudinal designs will be eligible for inclusion. Case-control studies will be excluded because they are more prone to recall and selection bias [55]. To examine the bidirectional association of parenting and NFSB, we will include longitudinal studies that examine either the effect of parenting on subsequent suicidal behavior or the effect of suicidal behavior on subsequent parenting factors. The findings of case reports, case series, therapy/treatment based intervention studies, discussion articles, exclusively qualitative studies, reviews or meta-analyses will be excluded. However, the reference lists of literature reviews and meta-analyses will be reviewed to capture possible additional relevant citations.

Studies published (or “in-process”) in a peer-reviewed journal as well as dissertations will be included. The inclusion of dissertations will allow us to consider results published outside of traditional commercial publishing and thus to reduce the risk of publication bias [56]. However, we will not include conference posters and presentations for two reasons. First, they may not contain adequate information about the study design, methods, biases and results, limiting critical appraisal of corresponding studies. Second, the association of parenting and NFSB has already been examined in a large number of studies published as articles and dissertations and, in that case, the inclusion of conference abstracts in meta-analyses has been shown to result in only small differences in the effect estimates [57].

Our research team includes members who are proficient in English and in French, making us able to review research works published in these two languages.

Search strategy

A primary search strategy was developed in APA PsycInfo by a health sciences librarian and, after review and validation by co-authors, the final search strategy was run in APA PsycInfo on November 6th, 2019 (Additional file 2). On the same day, it was translated and applied in Medline, CINAHL, Embase, Scopus and the Cochrane Library databases and was also run in Medline Epub Ahead of Print, In-Process & Other Non-Indexed Citations, to capture the most recent literature. Database-specific subject headings and keywords in natural language were used to capture “parenting dimensions” and “suicidality” concepts, and combined using Boolean logic and operators including proximity searching. These results were then

limited to articles where “child” and “adolescent” terms and their synonyms appear in selected fields, and to observational study types. No year limits or language limits were applied.

Data screening

Two independent reviewers will follow a two-step selection process using Covidence® Software, according to the eligibility criteria described previously. A first decision will be made based on titles and abstracts. Then, the selected articles will be considered for full-text assessment to determine if they definitely qualify for inclusion. Any disagreement will be discussed by the two reviewers and any remaining discrepancy will be resolved by a third reviewer.

Data extraction

Data will be extracted separately by the two reviewers using a standardized data extraction form and a coding process implemented in the Research Electronic Data Capture System (REDCap®). The following information will be systematically extracted from the included studies:

- General study characteristics: first author, year of publication, journal and type of publication (peer-reviewed article or dissertation);
- Study setting: country where the study was performed, setting in which it took place (mental health care setting, other clinical care setting, or population-based);
- Study design: type of study (e.g. cross-sectional, longitudinal), time period for data collection;
- Sample characteristics: sample size, age of participants (range and/or mean \pm standard deviation) or corresponding school grades, gender distribution and main ethnicity (defined as the ethnicity shared by more than 60% of participants, otherwise ethnicity will be defined as “balanced”);
- Measurement of parenting: type of parenting, measurement time frame, type of informant (child, parent, other), relationship of caregiver with the child (biological parents only or not), method for assessment (questionnaire, interview or observation);
- Assessment of NFSB: type of outcome (suicidal ideation or attempts), assessment time frame, informant (child, parent, other), method for assessment (questionnaire, interview, observation);
- Effect estimates: Non adjusted and/or adjusted effects estimates (along with their standard deviation or 95% confidence intervals) relating to the association of each parenting factor with one or both of our outcomes will be extracted and converted it to odds-ratios (OR) for dichotomous outcomes, and standardized mean differences (Cohen’s d) for continuous outcomes, using conventional conversions.

Any disagreements between the two extraction processes will be resolved by consensus discussion with a third reviewer. In case of unclear or incomplete data, original authors will be contacted.

Risk of bias

The two reviewers will independently assess the methodological quality of studies using the Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies developed by US National Heart, Lung and Blood Institute (NHLBI) [58]. This validated tool includes 14 items for evaluating potential bias induced by study methods or implementation, including patient selection, attrition, confounding, sample size justification and arguments for causation. Reviewers will select "yes," "no," or "cannot determine" in response to each item. Some questions of the tool have been slightly adapted to better capture strengths and weaknesses of existing studies in the scope of our topic. Reviewers will also rate the overall study quality as "good", "fair" or "poor" based on their rating for each item and their own critical appraisal of the risk of bias, as recommended by the guidance document developed by the NHLBI methodology team. If reviewers rate the overall quality of the study as poor, they will state the reasons for decision. In case of disagreements, consensus will be sought through discussion between raters and, if necessary, with the third reviewer.

Data synthesis

Evidence regarding the association of parenting factors with our two outcomes (suicidal ideation and suicide attempt) will be reported according to the Preferred Reporting Items for Systematic review and Meta-Analysis (PRISMA) criteria [48] and satisfy the Meta-analysis Of Observational Studies in Epidemiology (MOOSE) Checklist for Meta-analyses of Observational Studies [59].

Meta-analyses will be performed using a random effect model when a minimum of three studies with usable data is available. We will calculate effect sizes as odds ratios (OR) or standardized mean difference (Cohen's *d*), with standard errors, and convert information reported in a different metric (i.e., mean-difference or correlation) using conventional conversions.

A narrative summary of the evidence will be provided by outcome, including results from studies that would not be possible to consider in meta-analysis. Results will be presented using forest plots and in a "Summary of Findings table". The Grading of Recommendations Assessment, Development, and Evaluation (GRADE) approach will be used to rate the certainty of the evidence [60].

Studies often report on multiple effect sizes obtained from the same sample or in the same epidemiological study, for instance when examining the associations of different parenting factors with NFSB or when considering the measures reported by different informants (mother/father or youth). In that case we can assume that the corresponding effects sizes are dependent [60], and it is inappropriate to perform a standard meta-analysis because the assumption of conditional independence of effect sizes is violated [61]. A strategy could be to consider only one effect size per study and to perform separate meta-analyses for each type of exposure [62]. However, this implies that some associations are more valid or of greater priority and results in a loss of information. Moreover, it becomes impossible to examine moderation effects between several exposures of interest (in our case, between parenting factors). The use of three-level models has thus been recommended to model dependent effects sizes without losing available information, especially in studies examining the role of different parenting

factors that could influence each other [51]. Our three-level meta-analyses will allow us to consider: 1) the effect size level; 2) the sample level; 3) the study level.

Heterogeneity will be assessed by visual inspection of forest plots, Cochran's Q and Higgins' test (I^2). The I^2 values, corresponding to the observed heterogeneity that would not be expected by chance, will be classified as low (< 30%), moderate (30%–50%), and severe (> 50%) [63].

In case of significant heterogeneity, moderator analyses will be conducted considering study sample characteristics (age and sex of participants, main ethnicity), countries' economy indicators: gross national income per capita and income inequalities measures (Gini index), and methodological aspects including study design, informants and informant consistency (considering whether parenting and suicidal behaviors are reported by the same informant or not).

Publication bias will be evaluated through visual inspection of funnel plots and by using Egger's test. The "trim and fill" method will be applied to correct for publication bias [64].

Subgroup and sensitivity analyses

If possible, sub-group analyses will be conducted according to different study settings (mental health care setting, other clinical setting or population-based).

To examine whether the inclusion of studies with the highest risk of bias might affect our results, and in accordance with The Cochrane Handbook, sensitivity analyses will be performed by restricting the primary analysis to studies at low risk of bias, after exclusion of those whose quality was rated as "poor" on the Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies. We will identify effect-size outliers, defined as effect sizes falling more than 2.2 standard deviations away from the pooled result, as well as small sample size outliers ($n < 100$) [65]. These outliers will be considered in a leave-one-out sensitivity analysis, which consists in performing separate meta-analyses on each subset of the studies obtained by iteratively leaving out one outlier [66].

Analyses will be performed using Comprehensive Meta-Analysis and R.

Discussion

Despite the diversity in parenting approaches, a growing body of literature suggests that some parenting practices and the nature of the parent-child relationship could influence the risk of NFSB in children and youth. Interventions and policies that promote parenting factors that are the most beneficial while reducing those having the most deleterious effects – may thus contribute to lowering the risk of NFSB in children and youth.

To do this, a deep understanding of the specific parenting factors associated with NFSB is required including providing an estimation of the strength of the corresponding associations and examining whether and how they vary in different populations or according to studies' methodologies. Our

systematic review will synthesize the findings of observational studies considering the association of various parenting factors (including positive or negative parenting factors, as well as aspects of the parent-child relationship) with suicidal ideation and suicide attempts in children and youth. We will conduct the first meta-analysis on the relationship of parenting with NFSB, enabling us to present the associations as pooled estimates and to examine heterogeneity between studies.

NSSI and non-suicidal self-harm may represent points along the continuum of self-harm and are associated with the risk of future NFSB. While we recognize the importance of better addressing the relationship between parenting and these behaviours in order to prevent self-harm in children and youth, we excluded NSSI and non-suicidal self-harm from the scope of the present review. That means that we will also exclude some studies that have used broad definitions like “self-harm” or “self-injury” without distinguishing suicidal from non-suicidal behaviours. If that results in a loss of information, it is also justified by the fact that NSSI and non-suicidal self-harm are distinct from suicidal attempt in term of clinical presentation, motivations and etiology [53, 54]. Moreover, given suicidal ideation and suicide attempts are strongly predictive of suicide death, focusing on these two outcomes could provide the most effective opportunities to prevent suicide in children and youth.

Our findings could be of great interest for health professionals working with children and youth with NFSB and their families. They should inform and enhance interventions efforts, by highlighting parenting factors that might be important targets for intervention or that could be useful to understand as mechanisms of actions of interventions in this high-risk population. While parent components are part of most interventions for NFSB, understanding which component is worth targeting in priority will help to refine these strategies while ensuring they are cost effective and efficient.

From a preventive point of view, our results could also emphasize the need of supporting parenting at a population level. They might have implications for policy makers and public health specialists regarding the development of universal prevention programs able to promote beneficial parenting skills (through early parenting training or public health messaging, for example). Furthermore, they might help to tailor selective prevention programs according to specific needs of population subgroups and according to specific countries’ contexts.

Our study will also be able to pinpoint research gaps and future research priorities regarding the role of parenting factors in relation to suicidal ideation and suicide attempt with the hope of encouraging the development of promising studies in this critical research area.

In summarizing and communicating the evidence on the topic, our study will contribute to the translation of evidence-based knowledge required to guide clinical practice and the development of policies in the treatment and prevention of suicidal behaviors in children and youth.

List Of Abbreviations

CAMH Center for Addiction and Mental Health

CDC Center for Disease Control and Prevention

GRADE Grading of Recommendations Assessment, Development, and Evaluation

NFSB Non-fatal suicidal behavior

NSSI Non-suicidal self-injury

NHLBI National Heart, Lung and Blood Institute

MOOSE Meta-analysis Of Observational Studies in Epidemiology

OR Odd-Ratio

PECO Population of interest, Exposure, Comparator, Outcome

PRISMA Preferred Reporting Items for Systematic review and Meta-Analysis

PRISMA-P Preferred Reporting Items for Systematic review and Meta-Analysis Protocols

PROSPERO International prospective register of systematic reviews

REDCap Research Electronic Data Capture System

SMD Standardized mean difference

US United-States

Declarations

Ethics approval and consent to participate

Not applicable

Consent for publication

Not applicable

Availability of data and materials

Not applicable

Declarations of competing interests

FP, MA, XJ, TR, WW SH, KTC, PS "The authors declare that they have no competing interests"

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Author's contributions

FP is the guarantor of this protocol. FP and MA conceptualized the research project, its goals and hypotheses. TR developed the search strategy in collaboration with FP and MA, then translated it and ran the searches in all selected databases. WW contributed to establish the statistical methodology of analysis. FP wrote the manuscript with support of SH, KT and MA and inputs of all authors. All authors read and approved the final manuscript.

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Figures

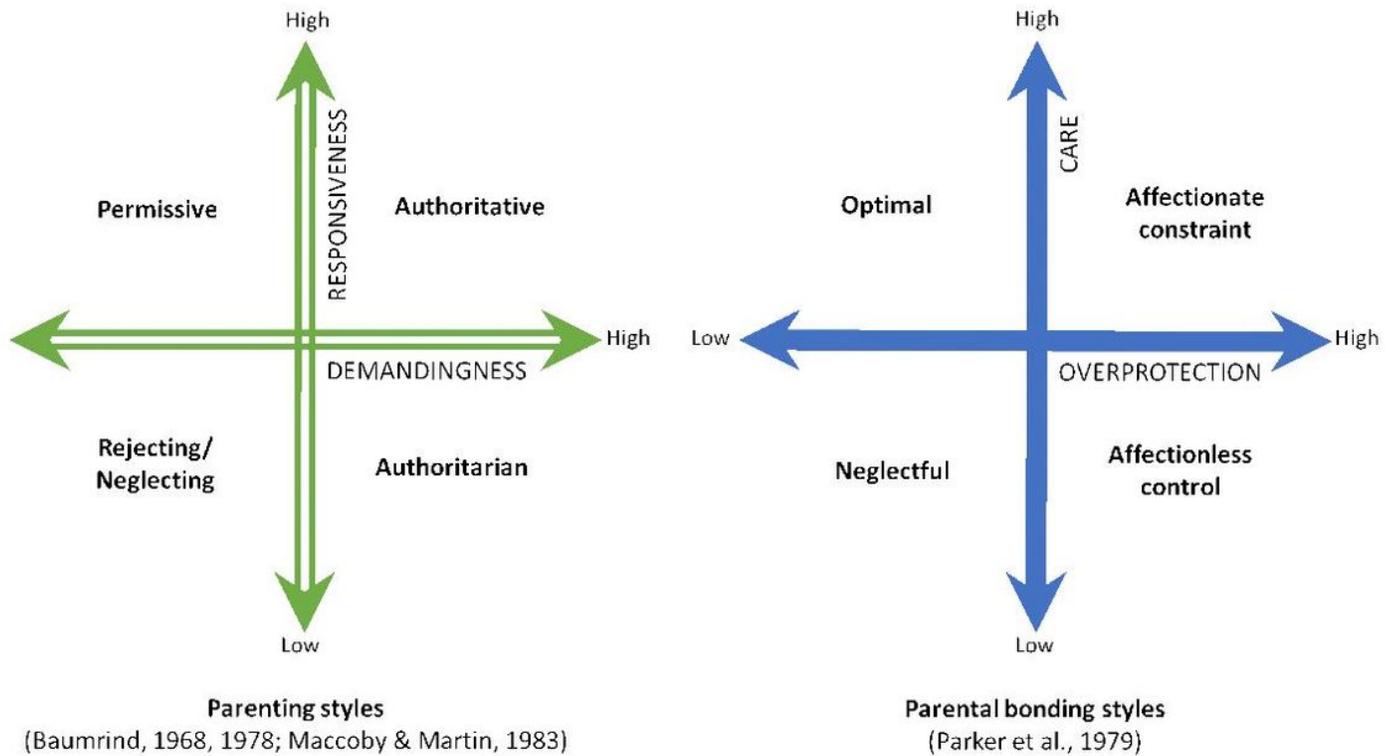


Figure 1

Typologies of parenting styles and parental bonding styles.

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