

15 Years of Parental Burnout Research: Systematic Review and Agenda

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Abstract

Parental burnout (PB), an exhaustion disorder related to parenting, is receiving increasing attention. This paper aims to take stock of the findings accumulated about PB over the last 15 years. We review and organize the literature around four questions: (1) What is parental burnout? (2) which factors are associated with an increased risk of PB? (3) What are the consequences of PB? (4) What are the current treatment options? In order to answer these questions, the paper includes a correlational meta-analysis ($k = 49$, $N_{\text{total}} = 35,170$) of all empirical studies published on PB up to July 2021. In the last part of the paper, we provide a roadmap for future research by pinpointing particularly promising paths and methodological improvements needed to draw stronger conclusions.

Keywords: Meta-analysis, Parent, Exhaustion, Stress, Cause, Consequence

15 Years of Parental Burnout Research: Systematic Review and Agenda

Although the notion of parental burnout (PB) dates from the eighties, systematic research (i.e., research in which one study follows and builds upon another) on the topic only started in 2007, and it took another ten years for the field to really expand. The past decade has produced a nearly twentyfold increase in published studies on parental burnout, and the number of countries involved in PB research has grown similarly. The interest in PB has not been confined to the scientific community, though: over the last 5 years, PB has been mentioned increasingly frequently in the popular press and on social networks.

The present paper aims to provide scientists and practitioners with an overview of research conducted on PB over the past 15 years and addresses several questions: what parental burnout is (and is not), which factors are associated with an increased risk of PB (and which are surprisingly not), what the consequences of PB are (for the parent and the children), what the current treatment options are (and how efficient they are) and finally, given the current state of knowledge, what the most urgent research directions are.

Properly answering the above questions implies performing a systematic review of the literature and meta-analyzing all published effect sizes, which we have therefore done. The detailed procedure used to find and select papers, retrieve and encode data, remove duplicates, assess risk of bias, compute effect sizes and forest plots, and evaluate publication bias, is described in the Supplemental Online Material (SOM) available with raw data on OSF https://osf.io/f3aq7/?view_only=21d26d4376ee490bbbfff3eef54477e7.

What Parental Burnout Is (and Is Not)

Parental burnout is an exhaustion syndrome resulting from excessive chronic stress in the parenting role (Lindhal-Norberg, 2007; Mikolajczak et al., 2021). According to the current state of the literature, it manifests itself through four core symptoms (Aunola et al., 2020; Roskam, Aguiar, et al., 2021; Suárez et al., 2022) that occur in stages (Roskam & Mikolajczak,

2021). The first is intense exhaustion in the parenting role. This exhaustion can be physical, emotional, or both. Exhausted parents typically say “*When I get up in the morning, I am already exhausted by the thought of what to do for or with the children*”. The second symptom is characterized by emotional distancing from one’s children: “*I’m on autopilot, in robot mode, I’m no longer connected to my children...*”. The third symptom is the loss of parenting fulfilment, the feeling of being fed up with the parenting role: “*I love my children, I really do. But when I’m with them, I am fed up with parenting, I want to be something other than a mother (father)*”. All these thoughts and feelings strongly contrast with how the parent felt before about parenting: they are neither the parent they used to be, nor the parent they wanted to be. This contrast brings about feelings of shame and guilt and increases the parent’s distress (Roskam, Philippot, et al., 2021). While exhaustion seems to be the first stage, symptoms of PB reinforce one another and soon form a dense network of interrelated symptoms (Kalkan et al., 2022).

As shown in Table 1, PB correlates moderately with job burnout ($r_{\text{aggregated}} = .35$) and relatively highly with depression ($r_{\text{aggregated}} = .55$) and anxiety ($r_{\text{aggregated}} = .53$). Just like job burnout, PB is characterized by intense exhaustion. It differs from it in that exhaustion is rooted –and manifests itself– primarily in the professional sphere in the case of job burnout, and in the parental sphere in PB (Wang et al., 2022). Like depression, PB is characterized by a loss of pleasure. It differs from depression, however, in that the loss of pleasure is contextualized to parenthood in the case of PB and affects all spheres of life in the case of depression (Rottenberg et al., 2005). Finally, like in generalized anxiety disorder (GAD), PB is characterized by stress that is experienced as excessive. It differs, however, in that the stress is related to parenthood in the case of PB, whereas it affects all spheres of life in the case of GAD. These conceptual distinctions between disorders are not only theoretical, they are corroborated empirically (Sánchez-Rodríguez et al., 2019). For instance, when items of parental burnout, job burnout and depression measures are entered together in factor analysis, they form factorially distinct

disorders (Mikolajczak et al., 2020). More importantly, PB also has a number of specific consequences for parents and children that are not well explained by job burnout or depression (e.g., Mikolajczak et al., 2020; Szczygieł et al., 2020).

As with other disorders, the prevalence of PB greatly varies across countries and cultures (Roskam, Aguiar, et al., 2021), and Western parents are by far the most vulnerable. The factors explaining these disparities await more investigation, but it has already been shown that the level of individualism* is involved (Lin & Szczygieł, 2022; Roskam, Aguiar, et al., 2021). Individualism can be measured via questionnaires with items such as “I do my own thing, regardless of what others think” or “I will sacrifice myself for the benefit of the group I am in” (reverse coded). Individual scores of large samples can then be averaged to create country scores, and countries can then be ranked on a relative collectivism-individualism continuum from 0 to 100 (Hofstede, 2001; see also <https://www.hofstede-insights.com/product/compare-countries/>). Both individual and country scores for individualism are associated with greater prevalence of PB, and the explanatory mechanisms are currently being investigated. Another explanatory factor in cultural differences in the prevalence of PB appears to be the increasing pressure on parents (Meeussen & Van Laar, 2018), and in particular the pressure to practice “positive parenting”, which is especially prevalent in Western countries (Lin et al., 2021). Many factors certainly come into play, and studies that shed light on them are eagerly awaited (Super & Harkness, 2020).

Etiological Factors of Parental Burnout

In theory, PB is supposed to occur when the factors that increase parenting stress are chronically more numerous or serious than the factors that alleviate it (Mikolajczak & Roskam, 2018). Although this “(Im)balance between risks and resources” theory of PB has received preliminary empirical support, it is fair to say that it lacks investigation. However, as Table 1 shows, the field has made significant progress in investigating the relative weight of

various risk and protective factors of PB. Looking at the number of studies devoted to this issue and the number of correlates investigated (> 25 variables that could theoretically qualify as potential antecedents), it seems that discovering the factors associated with a higher or lower risk of PB has been the major goal of the last decade. The results of this undertaking are detailed in Supplemental Figures 1-52 and summarized in Table 1. Caution should be exercised in interpreting the results, because most studies so far are cross-sectional (i.e., all measures are taken at a single time), precluding conclusions in terms of causality. In some cases, causation direction is more certain because PB can hardly influence the correlate in question (e.g., the age of one's child). In other cases, causation is harder to establish and is most probably bidirectional. Bearing the limitations of cross-sectional studies in mind, Table 1 nevertheless allows us to make numerous observations.

One very salient finding is that the effect size of the associated factors greatly varies and, in several cases, defies stereotypes. One might think that the number of children would be a strong risk factor for PB, but Table 1 shows that it only weakly predicts it ($r_{\text{aggregated}} = .08$). The same is true for blended family ($r_{\text{aggregated}} = -.02$), for single parenthood ($r_{\text{aggregated}} = .04$), for the age of the youngest child ($r_{\text{aggregated}} = -.01$) or for the age of the oldest child ($r_{\text{aggregated}} = -.01$), which all poorly predict PB. Although surprising at first, these results are in fact encouraging, because these factors are not modifiable. The factors most related to PB are all factors upon which psychologists can act: family disorganization* ($r_{\text{aggregated}} = .49$), low emotional intelligence ($r_{\text{aggregated}} = -.45$), low social support ($r_{\text{aggregated}} = -.38$), perceived socially prescribed perfectionism* ($r_{\text{aggregated}} = .38$), perfectionist parenting concerns* ($r_{\text{aggregated}} = .37$), coparenting disagreement* ($r_{\text{aggregated}} = .26$) and work-family conflict ($r_{\text{aggregated}} = .23$). Thus, if future studies confirm that these factors are causal antecedents of PB, the findings summarized in Table 1 open up different avenues of treatment.

Interestingly, the full meta-analytic table with raw data (which can be downloaded from: https://osf.io/f3aq7/?view_only=21d26d4376ee490bbbfff3eef54477e7) also shows that the *sign* of a given factor (i.e., a positive sign indicating that it is a risk factor for PB, a negative sign indicating that it is a protective factor) can vary across countries. For instance, single parenthood is a vulnerability factor in Iran, a neutral factor in Belgium, and a slightly protective factor in France. A “null” aggregated effect size may thus “mask” cultural variability. This is important to bear in mind, especially when the Q test is low, as is the case for single parenthood (Table 1). A low Q test (indicating heterogeneity in effect sizes) may indicate cultural variations even when the effect size is relatively large. This is the case for emotional competence*, which is protective in all countries, but even more so in Belgium than in Poland.

Although Table 1 puts much emphasis on individual factors in the etiology of PB, the foregoing results suggest that cross-cultural research in PB is of the utmost importance. Research into cross-cultural factors can actually be bridged with research on individual factors, because the two are likely to be related in a number of cases. For instance, the results on the cultural impact of individualism* on PB may be related to the findings on the impact of perfectionism* on PB. Indeed, as suggested by Curran and Hill (2019), the neoliberal governance in Western countries from the 1980s onward has increased competitive individualism and people have responded by trying to perfect themselves. These authors accordingly observed an increase in *general* perfectionism in recent generations, but individualism may have also increased *parenting* perfectionism. In a world where success is defined at the individual (versus group) level and where social ties are loosening (with parents exerting their parenting responsibilities in an increasingly solitary manner), parents may feel particularly responsible for their children’s future/success. This may lead them to set high standards for themselves and to fear making mistakes. This is especially true as states are becoming increasingly involved in defining parenting standards and controlling parents (Daly,

2007). Aiming for the best is not without risk, however, as the current meta-analysis shows that several dimensions of parenting perfectionism increase the risk of PB and, as the next section shows, PB has serious consequences.

Consequences of Parental Burnout

How worrying is PB? The findings summarized in Table 1 show that there is much less research on the supposed consequences of PB than on its supposed antecedents. However, the design of studies makes it possible to confirm the status of “consequence” to a number of them and in particular escape and suicidal ideations, guilt, parental neglect and parental violence, which have not only been studied in cross-sectional designs but also in longitudinal and cross-lagged designs (Chen et al., 2021; Mikolajczak et al., 2019; Roskam, Philippot, et al., 2021) and/or experimental designs (Brianda, Roskam, Gross, et al., 2020). The findings show that PB has both severe and extended consequences for the family system.

First, PB severely undermines both the mental and physical health of the parent. As shown in Table 1, it strongly increases feelings of guilt ($r_{\text{aggregated}} = .44$) as well as escape and suicidal ideations ($r_{\text{aggregated}} = .53$), and this relation is causal: when parents are treated for PB, escape and suicidal ideations decrease proportionally to the decrease in PB symptoms (Brianda, Roskam, Gross, et al., 2020). It is also cross-sectionally associated with low psychological well-being ($r_{\text{aggregated}} = -.29$), low parental self-esteem ($r_{\text{aggregated}} = -.48$), and low life satisfaction ($r_{\text{aggregated}} = -.35$). Although researchers tend to see the latter correlates as consequences rather than antecedents of PB, the relationship could be circular.

Although this is not mentioned in Table 1 because there is only one study and thus not enough effect sizes to meta-analyze, PB also seems to strongly increase cortisol (i.e., stress hormone) levels beyond the threshold above which this becomes deleterious to physical health (Brianda, Roskam, & Mikolajczak, 2020), and this could very well explain the effect of PB on somatic complaints (Sarrionandia-Pena, 2019). The fact that cortisol levels of burnout parents

are even higher than those of patients with severe chronic pain (Van Uum et al., 2008) is a clear indication of the level of stress and distress of these parents, and it is therefore not surprising that PB has such a strong effect on suicidal ideations (even higher than that of depression actually, see Mikolajczak et al., 2020).

Particularly interestingly, and perhaps more unexpectedly, the very high levels of cortisol presented by burnout parents also shed new light on some of the consequences of PB observed in children (Chen et al., 2021). As Table 1 shows, PB has a strong effect on parental violence ($r_{\text{aggregated}} = .49$). Given the core symptoms of PB, this result is hardly surprising, but it makes even more sense when we know that cortisol promotes anger (Martorell & Bugental, 2006). Besides violence, PB also has a very strong effect on child neglect ($r_{\text{aggregated}} = .49$); this seems to be largely explained by the core PB symptom of emotional distancing (Blanchard et al., 2021).

Treatment of Parental Burnout

Despite the dramatic consequences of PB, the literature is extremely scarce on treatments. There is no study of pharmacological treatments. The only published study of psychological treatments offers some grounds for optimism: eight weeks of group therapy reduces symptoms of PB, neglect and violence by 30% and brings back cortisol levels to normal (Brianda, Roskam, Gross, et al., 2020). This optimism must be tempered by the missed opportunity for prevention. There is no study on the prevention of PB, which is a shame given that it is only in the second phase of PB, i.e. emotional distancing, that its most deleterious consequences peak (Hansotte et al., 2021). Identifying exhausted parents and taking action before they have burnt out could prevent the worst. A promising tool for early detection of PB has recently been developed to that end (the Brief Parental Burnout scale; Aunola et al., 2021).

Research Agenda

How can we move the field forward? The findings reviewed in the former sections and depicted in Figure 1 not only highlight gaps in the literature but also clearly point to methodological improvements needed to draw stronger conclusions.

Under-Investigated Issues

While the correlates of PB on parents have been thoroughly researched (49 studies, $N_{\text{total}} > 35,000$ parents from 42 different countries), the consequences of PB measured directly on children are under-studied (see Chen et al., 2021 for a rare exception: this study surveyed both mothers and their adolescents and showed that mothers' level of PB increased their adolescents' ill-being and aggressive behavior over time). Research is needed on the immediate consequences of PB for children and on its long-term impact on child development. Research on PB prevention is also crucially needed.

Mediators and Moderators¹

This review also revealed a dearth of research on pathways accounting for the observed relationships: Among the 49 studies, only three included mediators. And only three included a moderator. The study of mediators and moderators is key to enriching clinical practice and prevention. For instance, studies are urgently needed on the variables that moderate the relationship between PB and parental neglect or violence.

Methodological Improvements

This review also highlights four important methodological issues. The first one concerns the design of studies. Most of the studies in the field (90%) are cross-sectional, which prevents

¹ A mediator is a variable that *explains* the relationship between two variables. For instance, parental burnout increases somatic problems because it increases cortisol levels (cortisol being the mediator here). A moderator is a variable that *modifies* (increases or decreases) the relationship between two variables. For instance, parental burnout increases suicidal ideations, but does so even more in fathers than in mothers (gender being the moderator here).

the formal establishment of cause–effect relations. The second recurring methodological issue is the over-representation of women in the samples (mean gender balance: 74% women), which may pose a threat to the generalizability of the findings to fathers. The third concerns the under-representation of qualitative² studies in the field (less than 5%), which are crucial for generating new insights into PB’s less salient causes and consequences. The last issue concerns the under-representation of studies including multiple informants or objective or biological measures (only one study with biological indicators). These are all promising avenues to strengthen PB research for the benefit of parents and their children.

² Unlike quantitative studies, which aim to generalize results to larger populations and use predefined tasks and questionnaires filled out by large samples (usually between 100 and 5000), qualitative studies aim to obtain in-depth information about the phenomenon being studied and use interviews with open-ended questions or other experience-related data in smaller samples (usually between 5 and 20).

Table 1*Meta-Analytic Estimation of the Magnitude of the Relationship (Effect-Size) between Parental Burnout and Each of its Correlates*

| Correlates | <i>K</i> _{studies} | <i>K</i> _{countries} | <i>N</i> | Effect Size | 95% CI | | <i>Q</i> |
|---|-----------------------------|-------------------------------|----------|-------------|--------|-------|-----------|
| Age (parent) | 14 | 14 | 10,131 | -.025 | -.065 | .016 | 47.57*** |
| Age (child) | 4 | 3 | 1,872 | .043 | -.007 | .093 | 2.85 |
| Age of the oldest child | 5 | 8 | 3,981 | -.014 | -.120 | .091 | 26.52*** |
| Age of the youngest child | 5 | 8 | 4,166 | -.014 | -.150 | .122 | 62.02*** |
| Agreeableness* (parent) | 4 | 4 | 3,074 | -.268 | -.380 | -.157 | 31.29*** |
| Anxiety (parent) | 7 | 2 | 3,115 | .530 | .438 | .623 | 60.39*** |
| Balance between risks and resources | 2 | 1 | 1,065 | -.455 | -.719 | -.191 | 11.55*** |
| Blended family | 2 | 2 | 3,448 | -.020 | -.053 | .013 | 0.34 |
| Conscientiousness* (parent) | 3 | 3 | 2,433 | -.097 | -.219 | .026 | 14.51*** |
| Coparenting disagreement* | 2 | 2 | 2,401 | .258 | .190 | .327 | 3.13 |
| Depression | 15 | 8 | 12,178 | .552 | .487 | .617 | 416.45*** |
| Educational level | 13 | 15 | 9,966 | -.015 | -.065 | .035 | 61.73*** |
| Emotional competence* (interpersonal) | 2 | 2 | 1,219 | -.176 | -.334 | -.018 | 7.44** |
| Emotional competence* (intrapersonal) | 3 | 2 | 1,566 | -.347 | -.391 | -.304 | 1.28 |
| Emotional intelligence (trait) | 2 | 2 | 2,061 | -.445 | -.480 | -.411 | 0.38 |
| Escape and suicidal ideations | 2 | 2 | 3,430 | .535 | .512 | .559 | 0.48 |
| Extraversion* (parent) | 2 | 2 | 2,061 | -.184 | -.340 | -.027 | 8.19** |
| Family disorganization* | 3 | 2 | 4,124 | .485 | .440 | .529 | 6.78* |
| Gender of child | 2 | 1 | 1,431 | -.064 | -.116 | -.012 | 0.12 |
| Gender of parent (male = 1, female = 2) | 3 | 3 | 3,890 | .073 | .027 | .119 | 3.85 |
| Guilt | 2 | 1 | 473 | .440 | .367 | .513 | 0.95 |
| Hours spent with children | 8 | 11 | 6,593 | .085 | .001 | .169 | 49.14*** |
| Job burnout | 7 | 4 | 7,490 | .353 | .314 | .392 | 19.43** |
| Neighborhood | 4 | 7 | 2,288 | -.030 | -.092 | .031 | 6.76 |
| Neuroticism* (parent) | 6 | 4 | 5,475 | .395 | .348 | .442 | 21.90*** |
| Number of children | 13 | 14 | 10,294 | .081 | .040 | .123 | 45.92*** |
| Number of men taking care of children | 4 | 8 | 2,488 | .000 | -.039 | .039 | 1.01 |
| Number of women taking care of children | 4 | 8 | 2,488 | .021 | -.027 | .068 | 5.24 |

| | | | | | | | |
|--------------------------------------|---|---|-------|-------|-------|-------|-----------|
| Openness* (parent) | 2 | 2 | 2,061 | -.055 | -.098 | -.012 | 0.25 |
| Parental neglect | 6 | 4 | 4,346 | .498 | .438 | .557 | 26.31*** |
| Parental violence | 7 | 4 | 4,450 | .491 | .436 | .546 | 29.16*** |
| Perfectionism concerns* (parenting) | 4 | 3 | 3,424 | .368 | .293 | .443 | 13.11** |
| Perfectionism striving* (parenting) | 4 | 3 | 3,424 | .227 | .196 | .259 | 1.10 |
| Perfectionism* (job) | 2 | 1 | 2,700 | .196 | .049 | .343 | 16.25*** |
| Perfectionism concerns* (job) | 2 | 1 | 2,700 | .346 | .278 | .415 | 4.19* |
| Perfectionism striving* (job) | 2 | 1 | 2,700 | .035 | -.151 | .222 | 24.49*** |
| Perfectionism* (self-oriented) | 2 | 2 | 3,225 | .290 | .172 | .408 | 13.92*** |
| Perfectionism *(socially prescribed) | 2 | 1 | 2,204 | .380 | .344 | .415 | 0.00 |
| Perfectionism* | 3 | 3 | 2,955 | .328 | .296 | .360 | 0.84 |
| Psychological well-being | 2 | 1 | 661 | -.294 | -.364 | -.224 | 0.29 |
| Resilience | 3 | 3 | 1,842 | -.447 | -.565 | -.328 | 9.03* |
| Self-esteem (parent) | 3 | 1 | 5,617 | -.475 | -.543 | .406 | 36.15*** |
| Satisfaction (job) | 2 | 2 | 1,811 | -.210 | -.308 | -.112 | 4.95* |
| Satisfaction (life) | 3 | 4 | 1,696 | -.352 | -.437 | -.267 | 8.30* |
| Satisfaction (marital) | 4 | 4 | 3,437 | -.365 | -.418 | -.312 | 8.42* |
| Satisfaction (parental) | 2 | 2 | 1,270 | -.428 | -.653 | -.202 | 21.65*** |
| Single parenthood | 2 | 2 | 3,448 | .035 | -.034 | .104 | 4.24* |
| Sleep problems | 4 | 3 | 5,786 | .325 | .221 | .430 | 62.48*** |
| Social support | 2 | 3 | 897 | -.376 | -.454 | -.299 | 1.76 |
| Stress (global) | 4 | 4 | 802 | .533 | .358 | .708 | 21.90*** |
| Stress (parenting) | 7 | 3 | 5,825 | .503 | .415 | .592 | 153.49*** |
| Work-family conflict | 2 | 3 | 796 | .226 | .160 | .293 | 0.13 |

Note. *A short definition of the term appears in the glossary. $K_{studies}$ = number of studies; $K_{countries}$ = number of countries; N = number of subjects; Effect Size = indication of the magnitude of the correlation between the correlation and PB. Effect size are interpreted as follows: $r < 0.099$ are considered trivial or null; $0.10 \leq r \leq 0.24$ are considered small, $0.25 \leq r \leq 0.37$ are considered moderate; $r > 0.37$ are considered large effects. The sign of the effect indicates the direction of the correlation: positive sign indicate that higher levels of the correlate were associated with higher levels of parental burnout, a negative sign indicates that higher levels of the correlate were associated with lower levels of parental burnout; 95% CI = lower and upper limits of 95% confidence interval; Q = test for homogeneity of effect sizes (high Q test = higher homogeneity in effect sizes).

* $p < .05$. ** $p < .01$. *** $p < .001$.

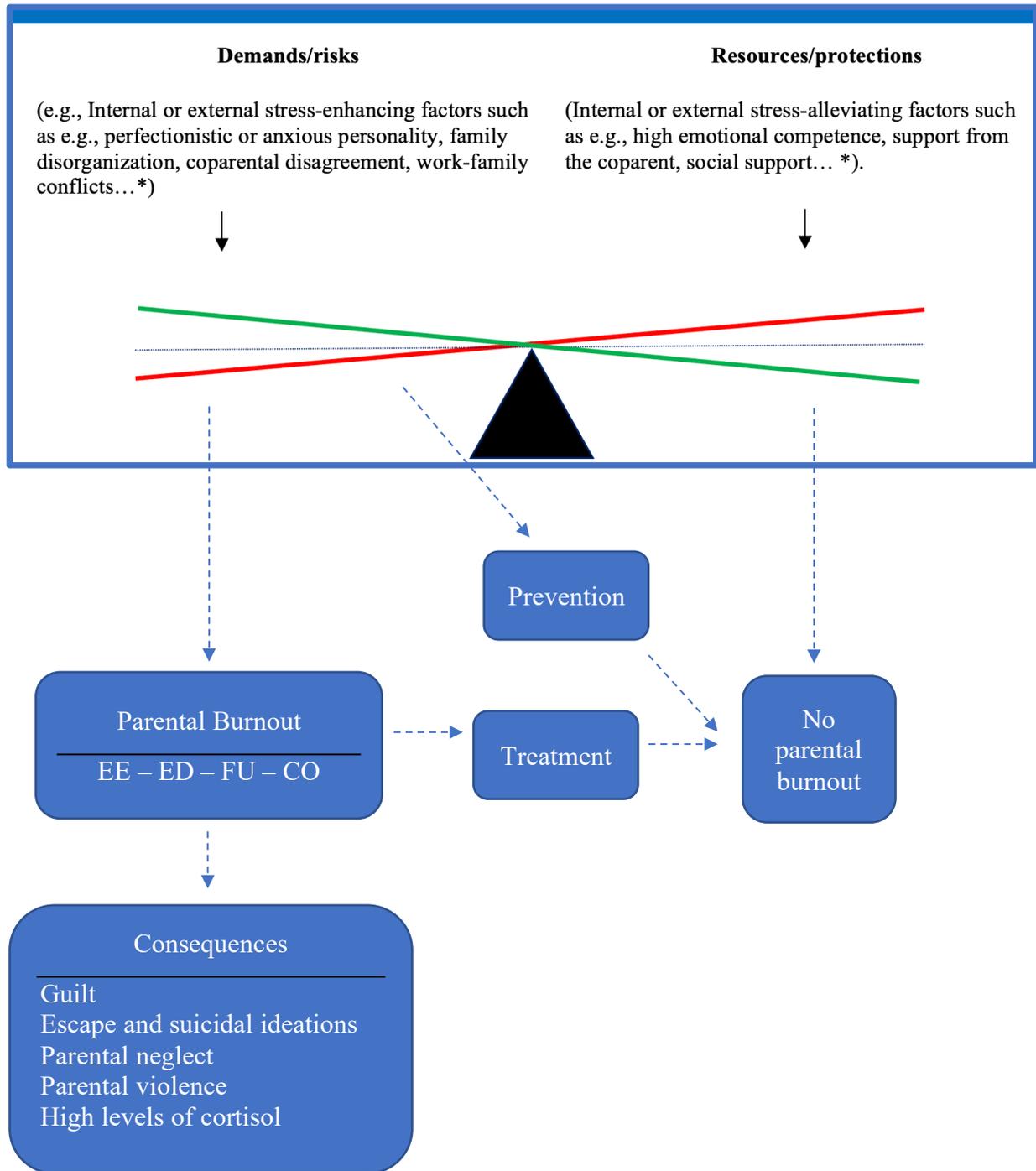


Figure 1. Etiology, process and consequences of parental burnout.

*See Table 1 for details about other factors and their respective weight on the scale. It is likely that in most cases the absence of a risk can be considered a protection and the absence of a resource can be considered as a risk. EE = Emotional exhaustion in the parenting role, ED = Emotional distancing from one's children, FU = Feelings of being fed up with parenting, CO = contrast with the parent one used to be.

Glossary

Agreeableness is a personality trait characterizing people who are courteous, benevolent, empathic, and caring.

Conscientiousness is a personality trait that characterizes people who do things in an organized, neat, systematic and thoughtful manner.

Coparenting disagreement is defined as a disagreement or conflict between the coparents about child-rearing practices and/or values.

Emotional competence is the ability to identify, understand, express, regulate and use one's own emotions (intrapersonal facet) or others' emotions (interpersonal facet) in an adaptive manner.

Extraversion is a personality trait characterizing people who enjoy sensations and social contacts, and who actively seek opportunities to meet new people (as opposed to Introversion, characterized by enjoyment of solitary activities).

Family disorganization is defined as a lack of routines and order in the family.

Individualism describes a preference for a loosely knit social framework in which individuals care primarily for themselves and their immediate families (as opposed to Collectivism, which describes a preference for a tightly knit framework in society in which individuals are integrated into strong, cohesive in-groups).

Openness is a personality trait characterizing people who are open-minded and who like fresh ideas and novel experiences.

Perfectionism is a personality trait that characterizes people who set extremely high standards for themselves and strive to be flawless. It manifests itself in different ways: Perfectionist strivings capture the tendency to strive for excessively high standards; perfectionist concerns capture the tendency to worry about failing or making mistakes. Perfectionism can be self-oriented (the person sets high standards for him/herself), other-oriented (the person sets high standards for others), or socially prescribed (the person feels that those around him/her set high standards for him/her).

Recommended Reading

Brianda, M.E., Roskam, I., Gross, J.J., Franssen, A., Kapala, F., Gérard, F., Mikolajczak, M. (2020). Treating Parental Burnout: Impact of Two Treatment Modalities on Burnout Symptoms, Emotions, Hair Cortisol, and Parental Neglect and Violence. *Psychotherapy and Psychosomatics*, 20, 330-332.

A must-read for clinicians: The supplementary material of this article contains the description of an effective group treatment for parental burnout.

Deater-Deckard, K. (2008). Parenting stress. In *Parenting Stress*. Yale University Press. A reference book on the roots, nature and consequences of parenting stress.

Dupont, S., Mikolajczak, M. & Roskam, I. (2022). The Cult of the Child: A Critical Examination of its Consequences on Parents, Teachers and Children. Article in press at *Social Sciences*.

An essential read for understanding how cultural changes in recent decades have increased the pressure on parents.

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Supplementary Online Material

15 years of Parental Burnout Research: Systematic Review and Agenda

Mikolajczak, M., Aunola, K., Sorkkila, M., & Roskam, I.

Supplementary Method

Broad Literature Search

We employed several methods to locate possible eligible studies. First, we conducted a database search using the terms “parental burnout”, “parent burnout”, “mother burnout” to retrieve all relevant articles published until July 2021.

First of all, a general search in PsycINFO, Scopus and PubMed was conducted in order to have an overview of the literature. Then, the search was narrowed down to the risk factors, antecedents, correlates, and consequences of parental burnout. The keywords included the latter words as well as all the external variables that had already been found to correlate with parental burnout (henceforth named “correlates”). This search was done in PsycINFO, Medline, Google Scholar and Research Gate. Second, we searched the reference lists of the relevant papers in this field to complete the systematic bibliographic search.

Because this broad literature search revealed that most studies were correlational, and at this stage of literature search it was difficult to formally distinguish antecedents of parental burnout from consequences, we decided to present all aggregated effect-sizes in one table with the variables ranked in alphabetical order rather than separating variables into antecedents and consequences.

Inclusion Criteria

We included a study if it reported first-hand data (cross-sectional, longitudinal or experimental) about the relationship between parental burnout and any correlate. Thus, theoretical articles, review articles, and commentaries were not included.

More specifically, a study was included in the meta-analysis if it met the following criteria:

1. the study was empirical
2. the study was published in a journal article with peer-review
3. the study was published in English

After reviewing the articles, 49 individual studies met all inclusion criteria and were included in the meta-analysis. These studies are presented in the Excel table available on OSF https://osf.io/f3aq7/?view_only=21d26d4376ee490bbbff3eef54477e7. References of all papers are in the Supplementary References at the end of this document. As explained below, duplicates were excluded before the computation of aggregated effect sizes.

When a study did not provide enough data to calculate effect sizes, we contacted the authors and they provided the needed information.

Exclusion Criteria

In addition to excluding studies that did not meet the inclusion criteria cited above, a few table rows were excluded from the original meta-analytic table when they were found to duplicate a finding already included from the same study on the same participants. For instance, the correlation between parental burnout and parental neglect reported in the bivariate correlation table in Blanchard et al. (2021) was excluded from the final meta-analysis table because the network analyses reported by Blanchard et al. were conducted on the same sample as hierarchical regressions conducted by Mikolajczak, Avalosse, Brianda & Roskam (2018). The two papers did not address the same research questions but they both reported the bivariate correlations between the study variables. As these were conducted on the same subjects, they constitute duplicates and only the first (i.e., oldest) publication was kept. Multiple papers from the same teams were carefully scrutinized to avoid including duplicates in the meta-analytic

table. The whole process from the first meta-analytic Table to the last Table posted on OSF can be requested by email to the first author.

Coding of the Studies

The following information was retrieved and encoded for each study (see Supplemental Table 2):

1. Authors
2. Study Identification Number (ID)
3. Time ID
4. Instrument used to measure parental burnout
5. External variable (“correlate”) name
6. Instrument used to measure correlate
7. Main country of the respondents
8. Sample type (e.g. community parents or specific category of parents)
9. Sample size
10. Gender Balance (% mothers)
11. Study Design (cross-sectional, longitudinal, cross-lagged, experimental)
12. Measure of the correlate (self-report, informant-reported, biological)
13. Correlation between parental burnout and correlate (r)
14. Presence of a mediation model in the paper
15. If yes, name of the mediator
16. Presence of a moderator in the paper
17. If yes, name of the moderator

Meta-Analytic Statistics

All analyses were conducted using Stata, version 17. A random-effect model (REML) was used in order to take into account that the true effect may vary from study to study.

Individual effect size calculations. Because most studies reported correlations, effect sizes in individual studies are presented in the form of Pearson's r . Individual effect sizes can be found in Supplemental Table 1. They are also presented with their confidence intervals in the Forests Plots that have been computed for each external variable (see Figures 1 to 52 in the Supplemental Online Material).

Aggregated effect size calculations.

When a study provided more than one effect size for the same external variable (e.g., two different subscales of the same measure), we aggregated these effect sizes into a single effect in order to take the dependency between measures into account. When papers reported effects for mothers and fathers separately, we also aggregated these effects into a single effect-size. After doing this, we aggregated the relevant effect sizes to obtain the aggregate effect size of parental burnout with the different variables. As shown in the Forest Plots and as suggested by Lipsey and Wilson (2001), more weight was given to the effect sizes coming from studies with larger samples. The last step consisted of calculating the confidence intervals around these aggregated effect sizes by taking into account both the effect size and the standard error. The aggregated effects (see Table 1) are expressed in Pearson's r .

Interpretation of aggregated effect sizes.

The Test of theta (θ) is given below each Forest Plot, and it indicates whether the z test statistic associated to a p -value is statistically significant at the $\alpha = 0.05$ level. A significant θ test ($p < .05$) indicates that the average effect-size is statistically different from zero.

Aggregated effect sizes have been interpreted using Cohen's d benchmarks for social sciences (1988) converted into " r ". Accordingly, effect sizes " r " smaller than .10 are considered trivial, those between .10 and .24 are considered small, those between .25 and .36 are considered medium and those equal or greater than .37 are considered large.

Homogeneity test. Heterogeneity in meta-analysis refers to the variation in effect-sizes between studies. As it does not make sense to combine "apples and oranges", a certain level of homogeneity is needed to ensure that studies included in the meta-analysis are "combinable". In the current meta-analysis, the Q homogeneity statistic was used (Cochran,

1954) as it is well adapted to correlational meta-analyses (Maeda & Harwell, 2016). Complementary measures of heterogeneity (T^2 , I^2 and H^2 statistics) are also provided along with the forest plot of effect-sizes for each correlate in Supplemental Online Material.

Publication bias. Considering that studies reporting significant effect sizes are more likely to be published than studies with non-significant results, and that published studies are more likely to figure in a meta-analysis, any publication bias in the literature would be reflected in the meta-analysis: individual effect sizes would be distributed asymmetrically around the mean effect size and the aggregated effect size would be overestimated (Borenstein et al., 2009). Funnel plots are presented for each correlate and show the distribution of effect sizes around their mean.

Risk of bias. To assess the quality of the studies included in the current paper and to accurately interpret the aggregated effect-sizes, a risk-of-bias assessment was performed for each individual study. There are many tools to assess the risk of bias in individual studies, but most of them concern intervention or cohort studies. The Joanna Briggs Institute (JBI; Moola, 2017) offers a tool to assess the quality and risk of bias in cross-sectional studies: The JBI Critical Appraisal Checklist for Analytical Cross-Sectional Studies. Based on this instrument, six aspects were evaluated for each study included in this meta-analysis: study design, sample characteristics, measurement of parental burnout, measurement of correlate, statistics, possible confounding variables (e.g., social desirability). An assessment of the risk (unclear, low, moderate, high) for each criterion for each individual study was carried out. This assessment revealed that most studies shared the same bias on study design (>90% were cross-sectional), more than 50% of the studies shared the same bias on sample characteristics (>70% mothers), most studies shared the same bias on measurement of correlate (>95% self-reported) and most studies shared the same bias on the absence of control for social desirability (>95%). No study singled out and no study was therefore excluded based on the

risk of bias analysis. However, this risk of bias analysis served as the basis for writing the “Methodological Improvements” section in the last part of the manuscript (“Agenda”).

Supplementary Table

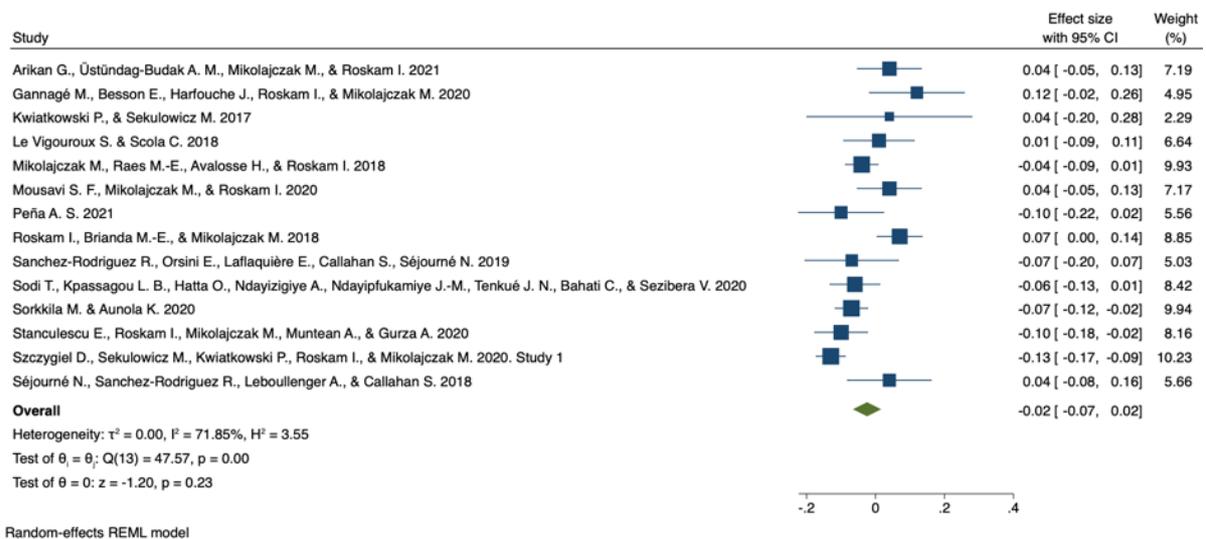
The full meta-analytic table including all information coded for every study is available on

OSF: https://osf.io/f3aq7/?view_only=21d26d4376ee490bbbfff3eef54477e7.

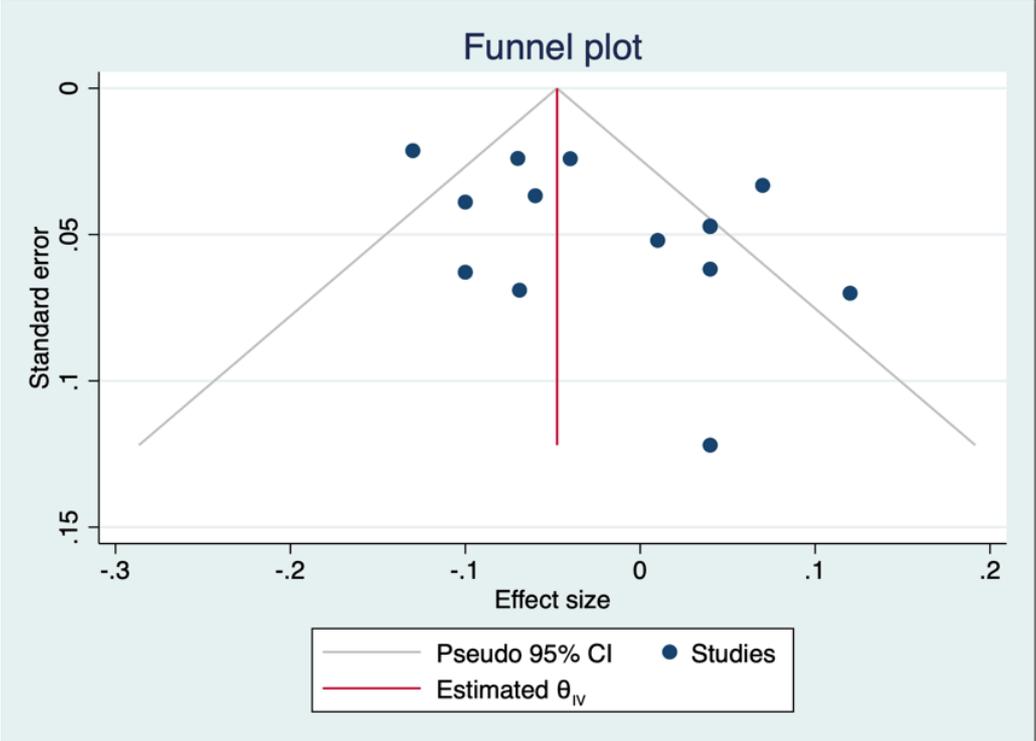
Supplementary Figures

Figure 1

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between the Age of the Parent and Parental Burnout



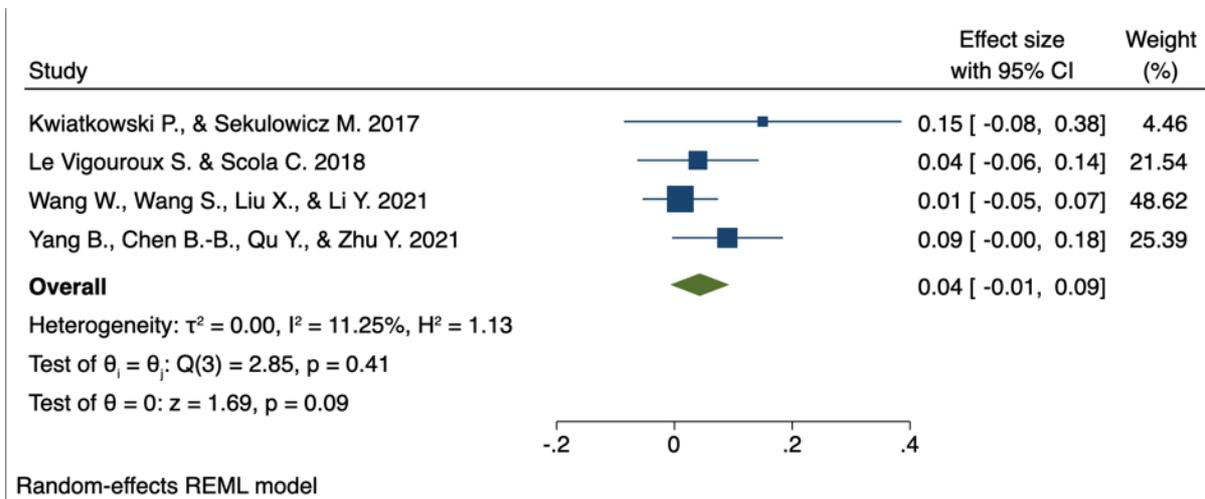
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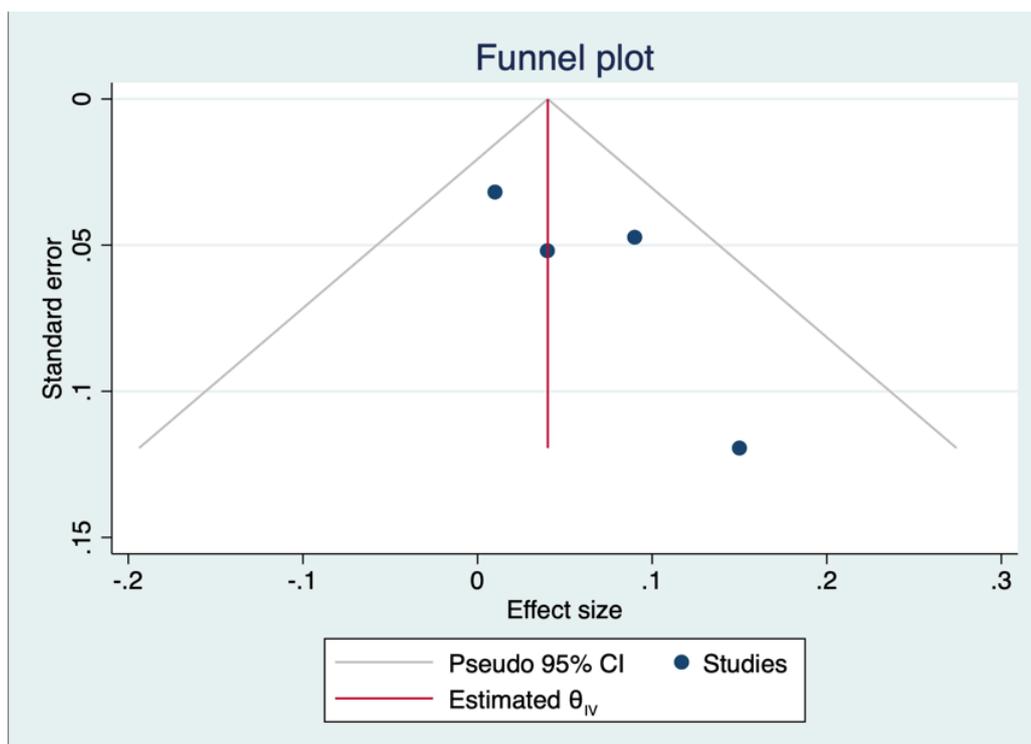
(b)

Figure 2

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between the Age of the Child and Parental Burnout



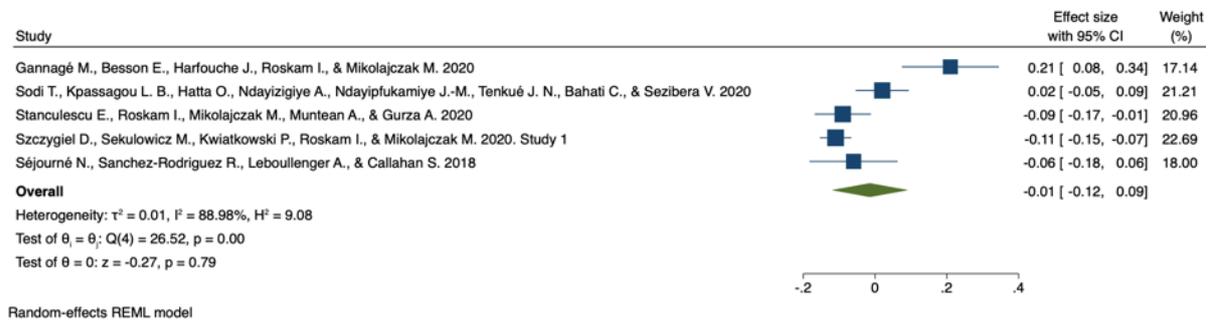
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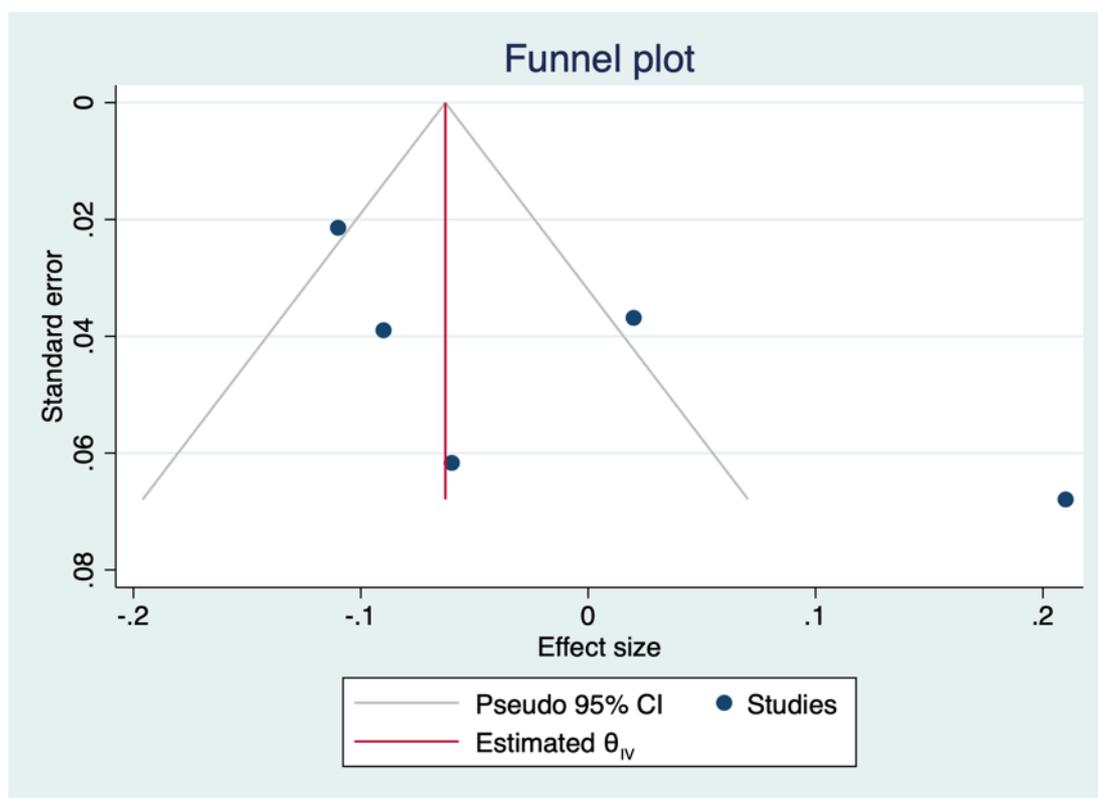
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Figure 3

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between the Age of the Eldest Child and Parental Burnout



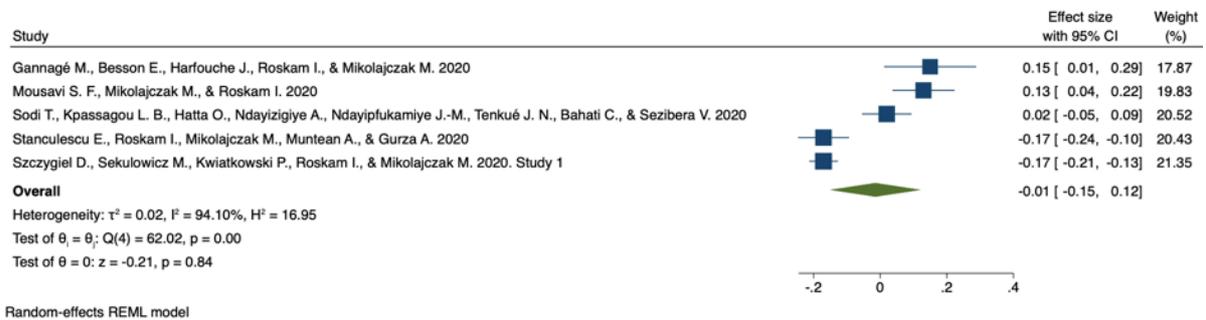
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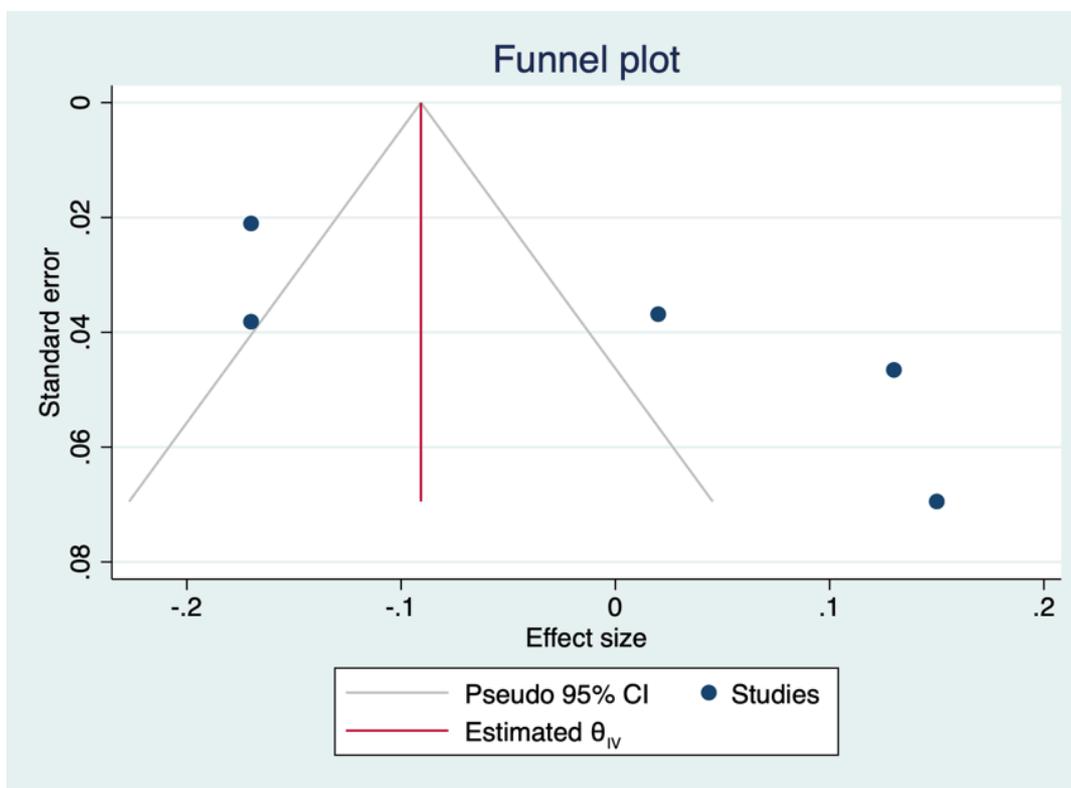
(b)

Figure 4

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between the Age of the Youngest Child of the Parent and Parental Burnout



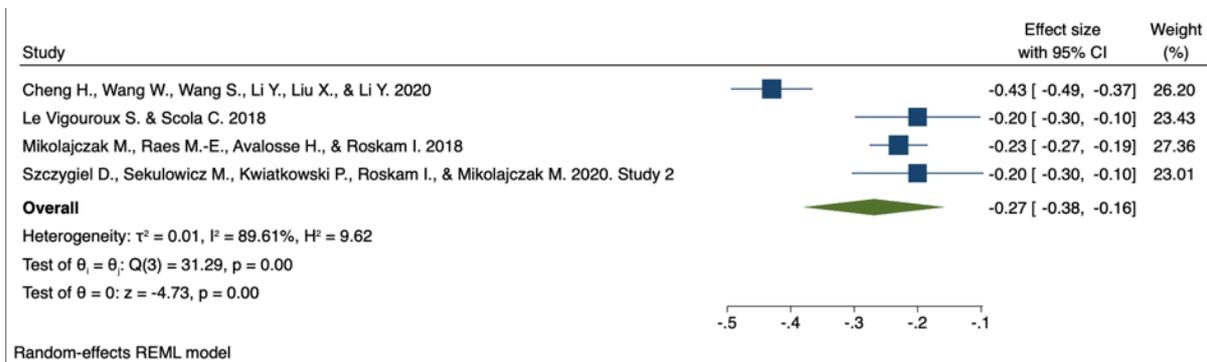
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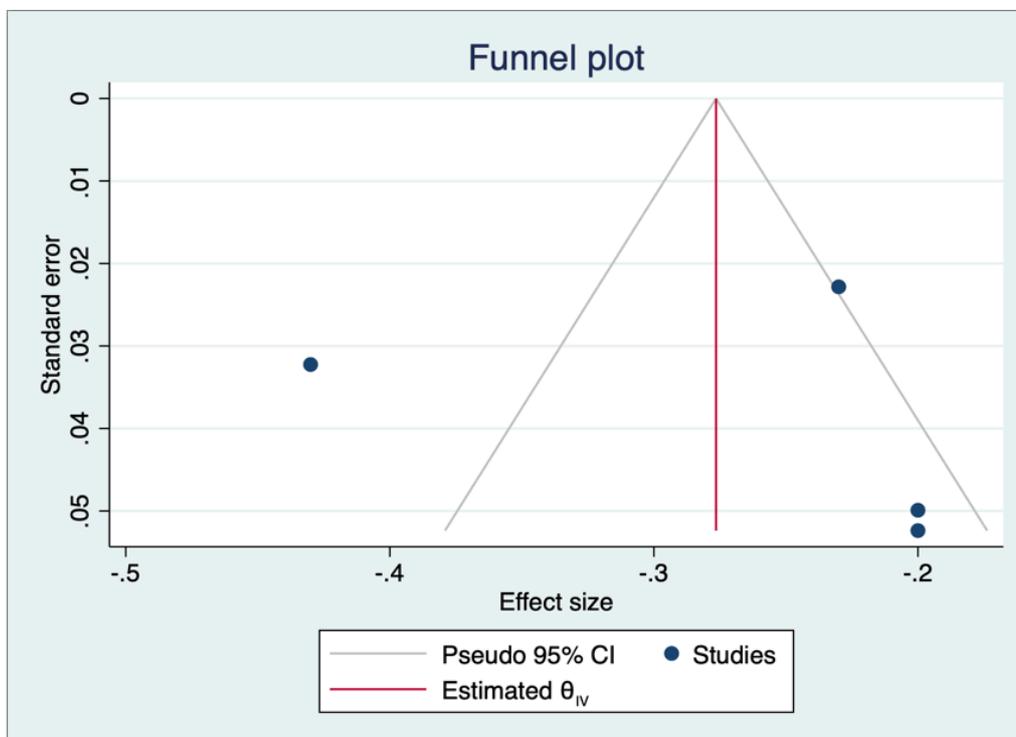
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Figure 5

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Agreeableness of the Parent and Parental Burnout



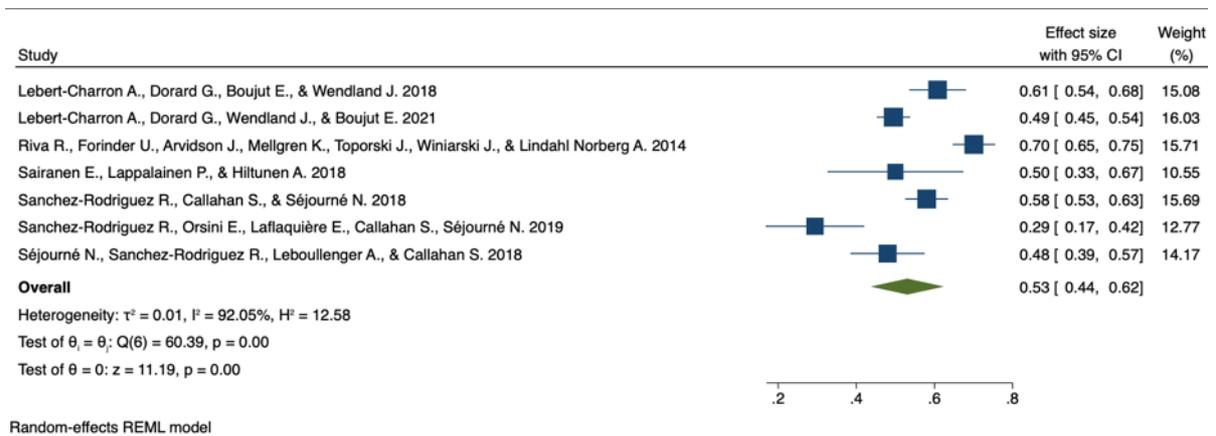
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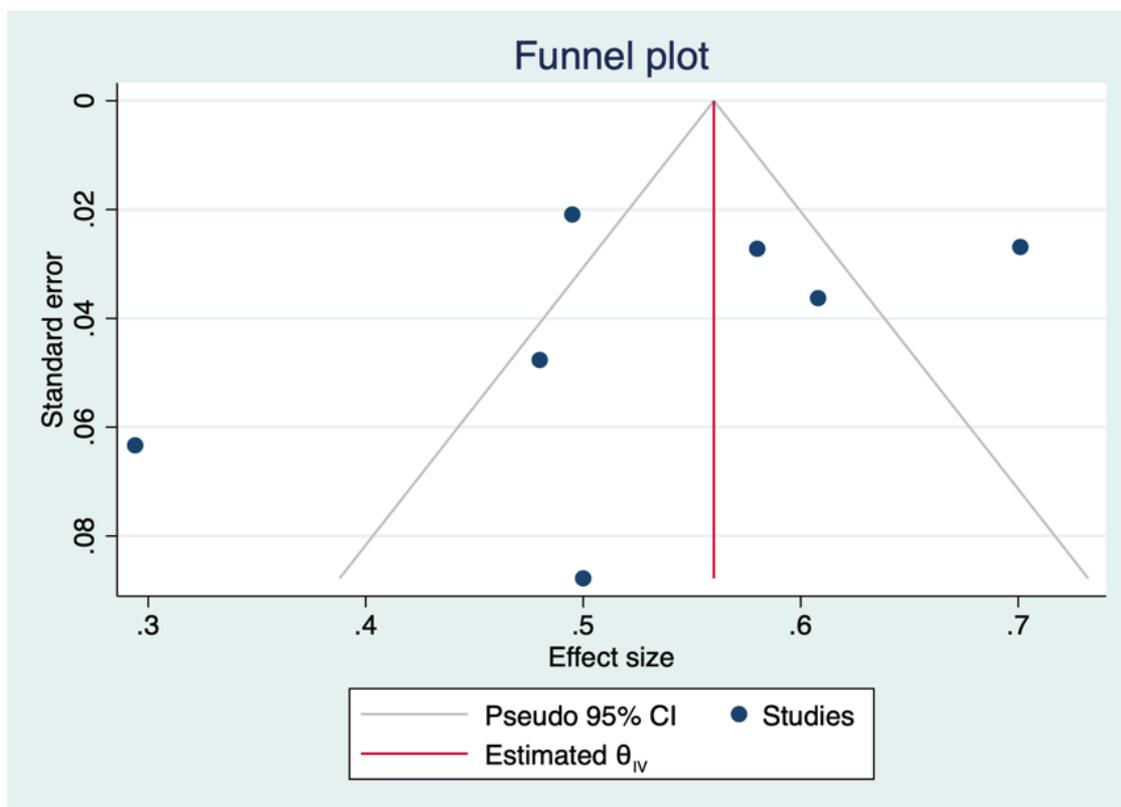
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Figure 6

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Anxiety of the Parent and Parental Burnout



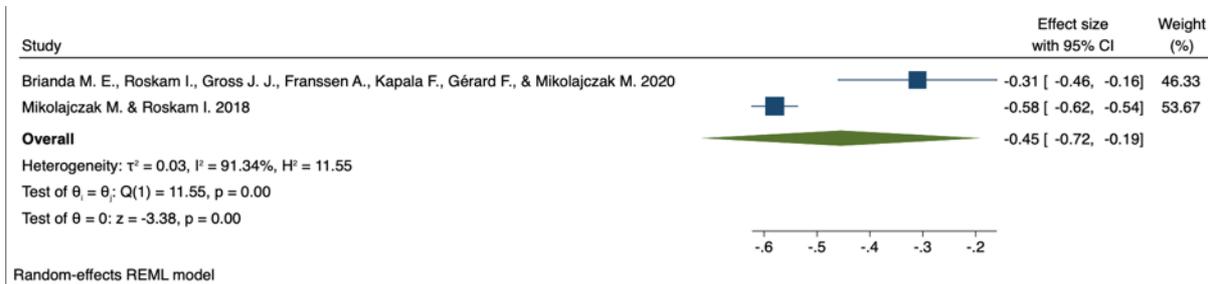
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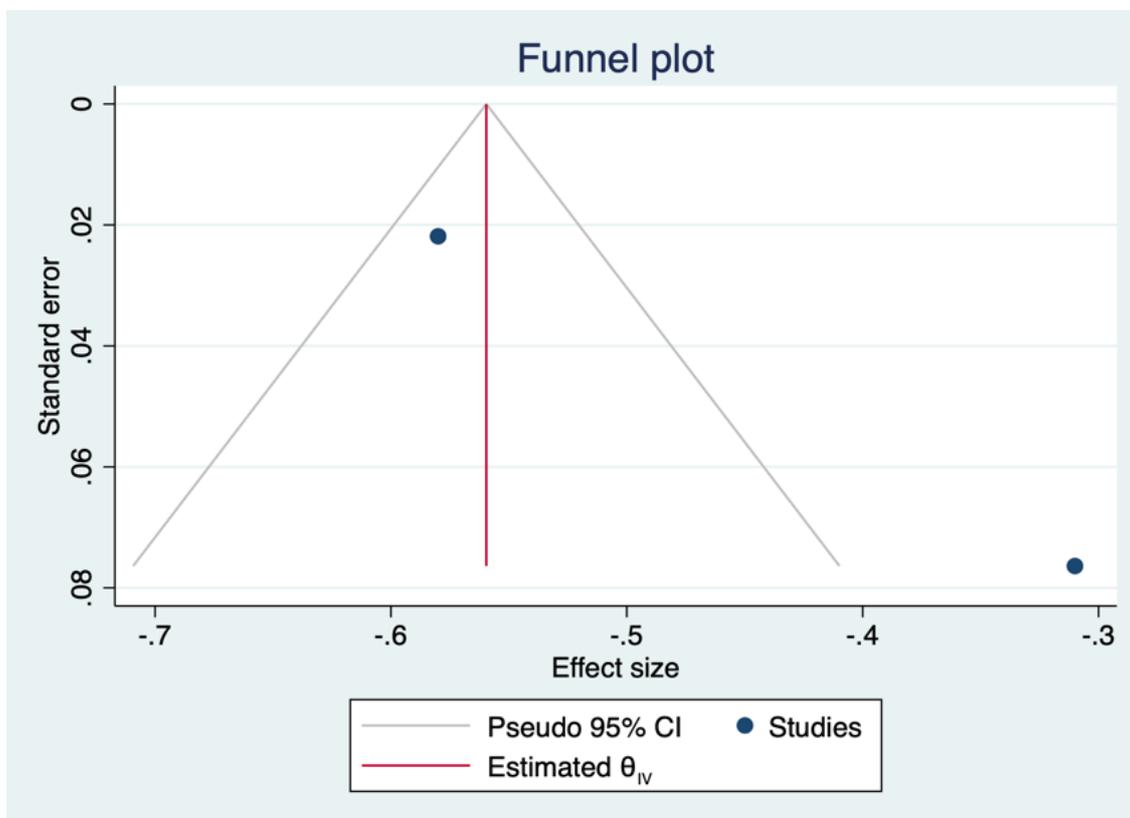
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Figure 7

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between the Balance between Risks and Resources and Parental Burnout



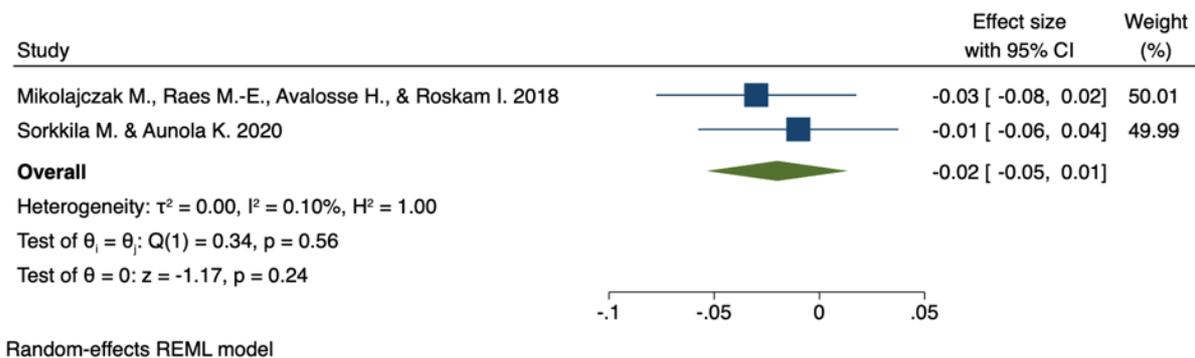
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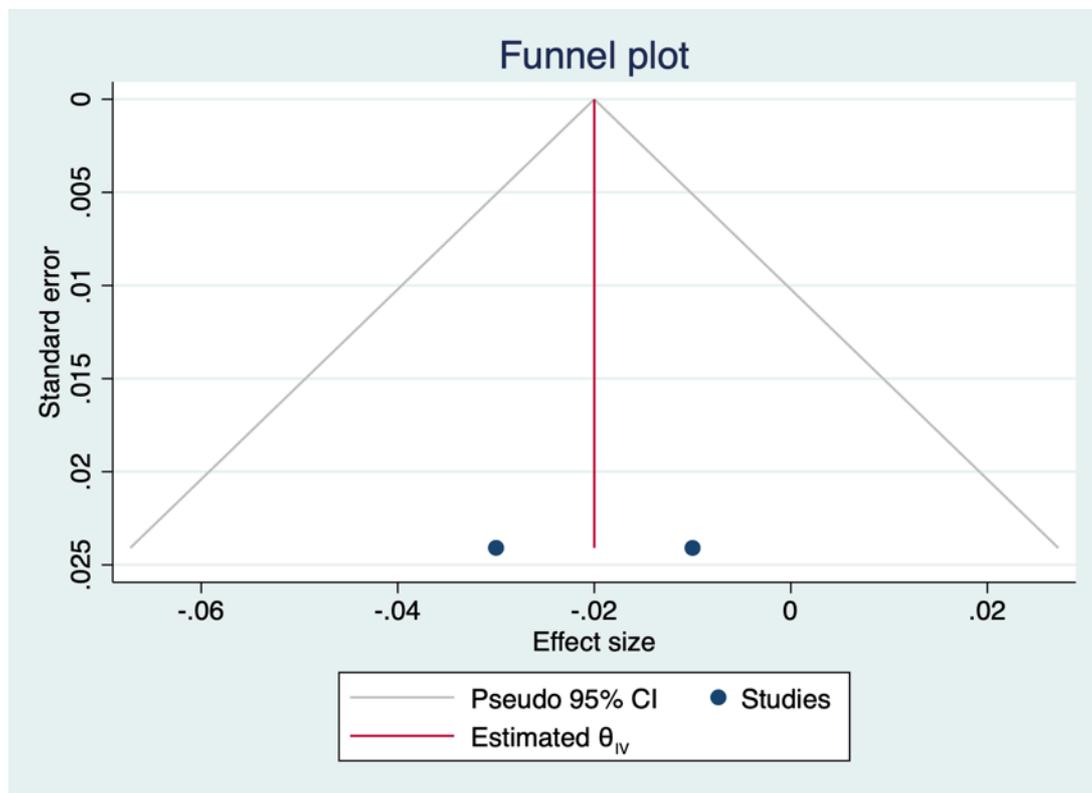
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Figure 8

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Blended Family and Parental Burnout



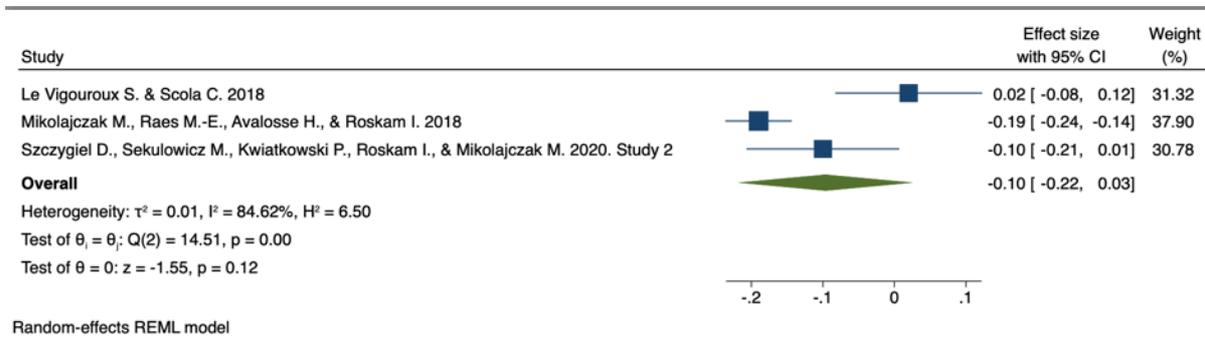
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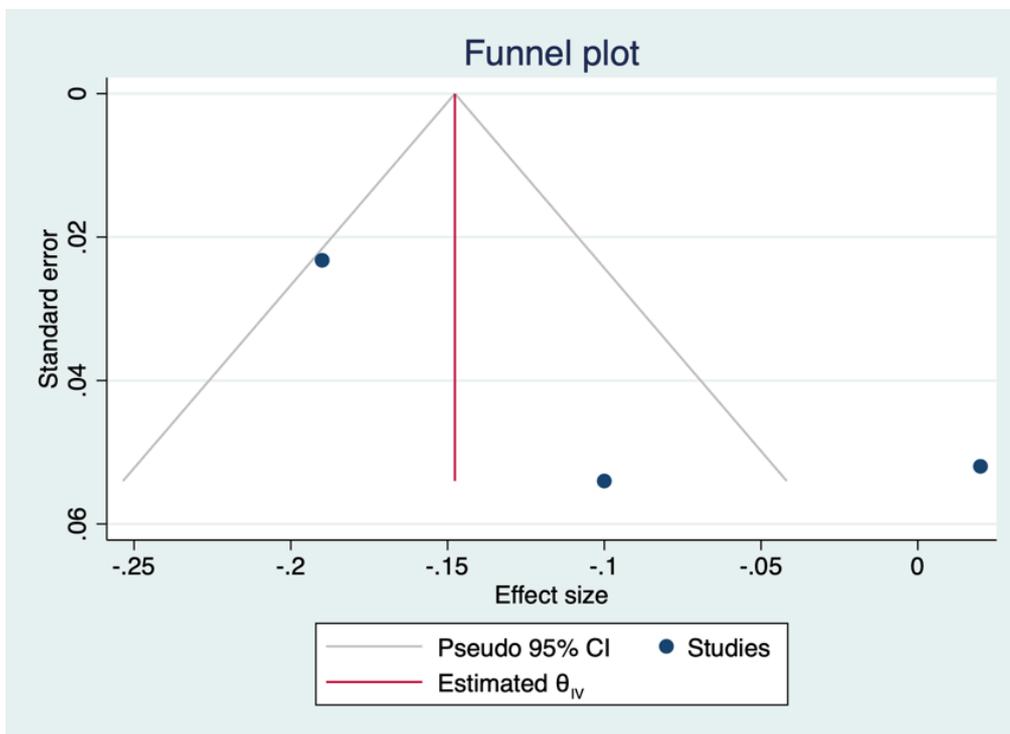
(b)

Figure 9

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Conscientiousness of the Parent and Parental Burnout



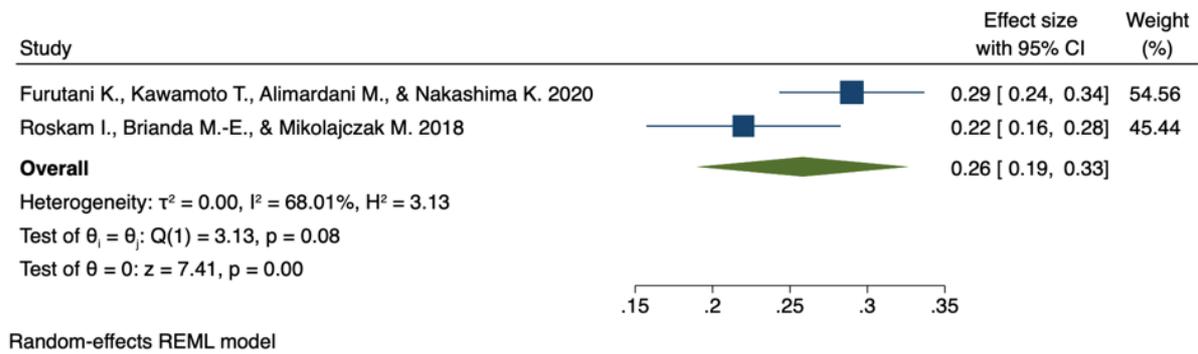
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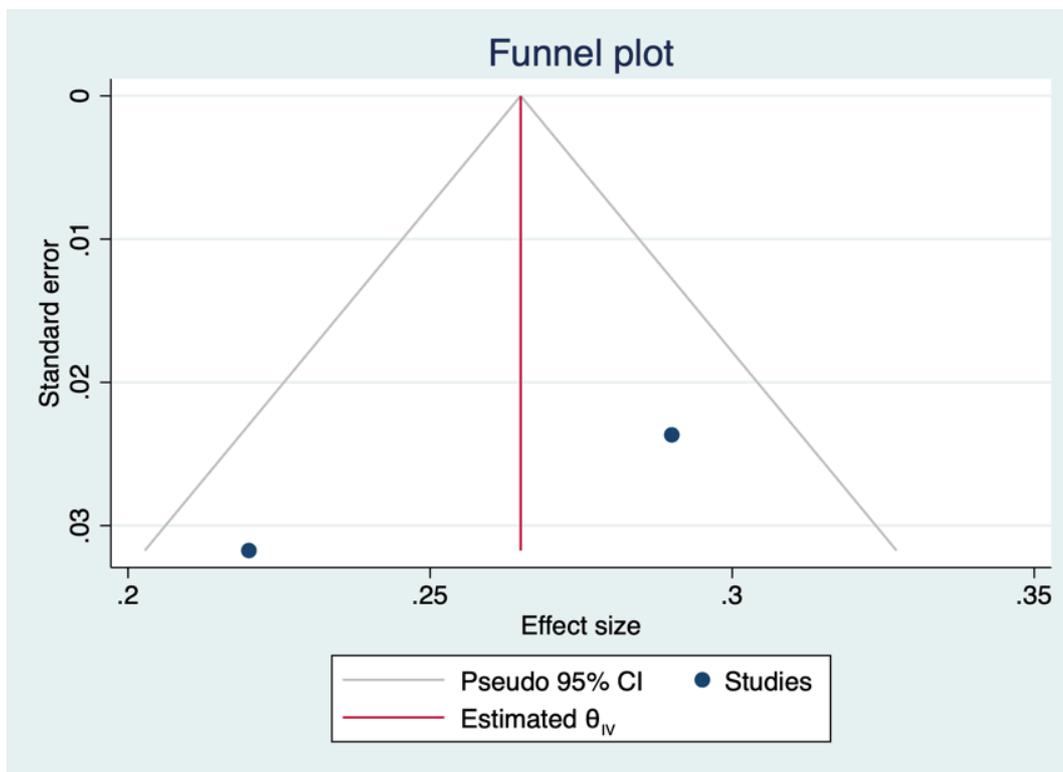
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Figure 10

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Coparenting Disagreement of the Parent and Parental Burnout



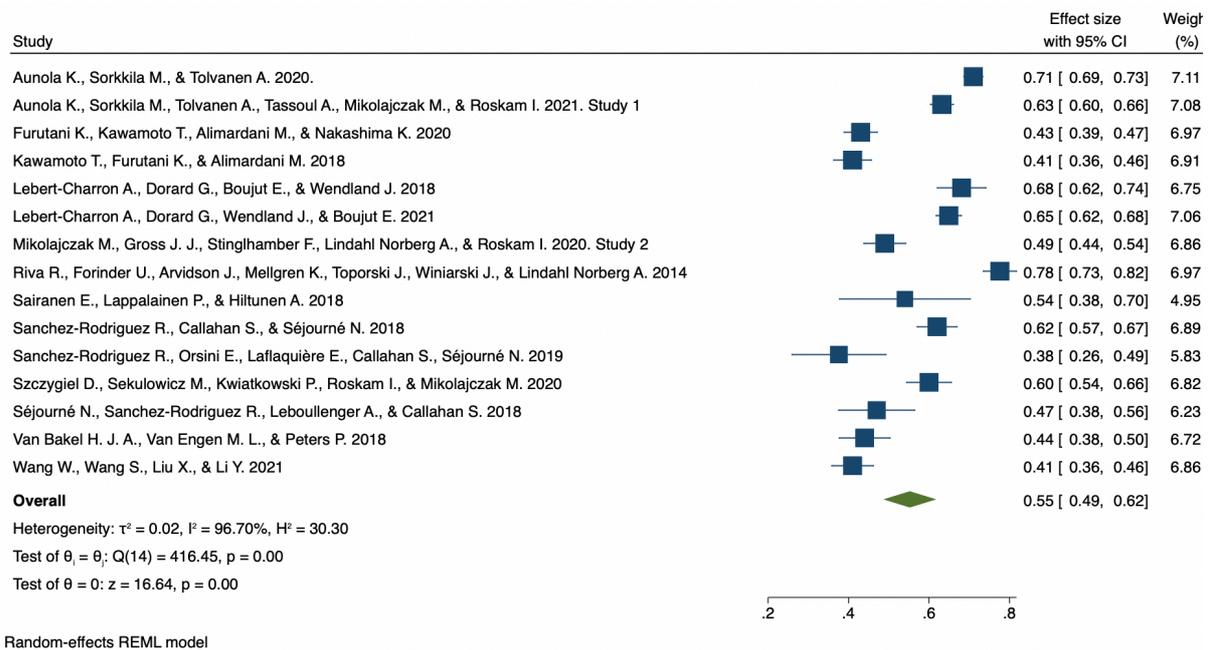
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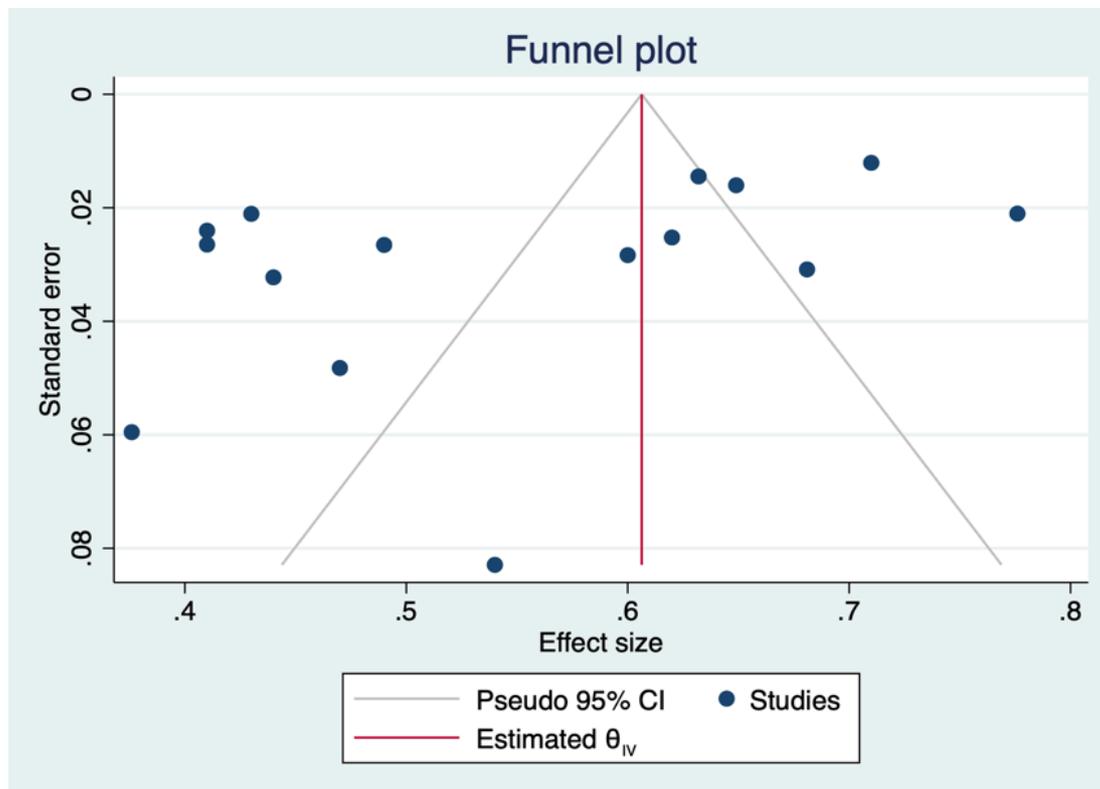
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Figure 11

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Depression and Parental Burnout



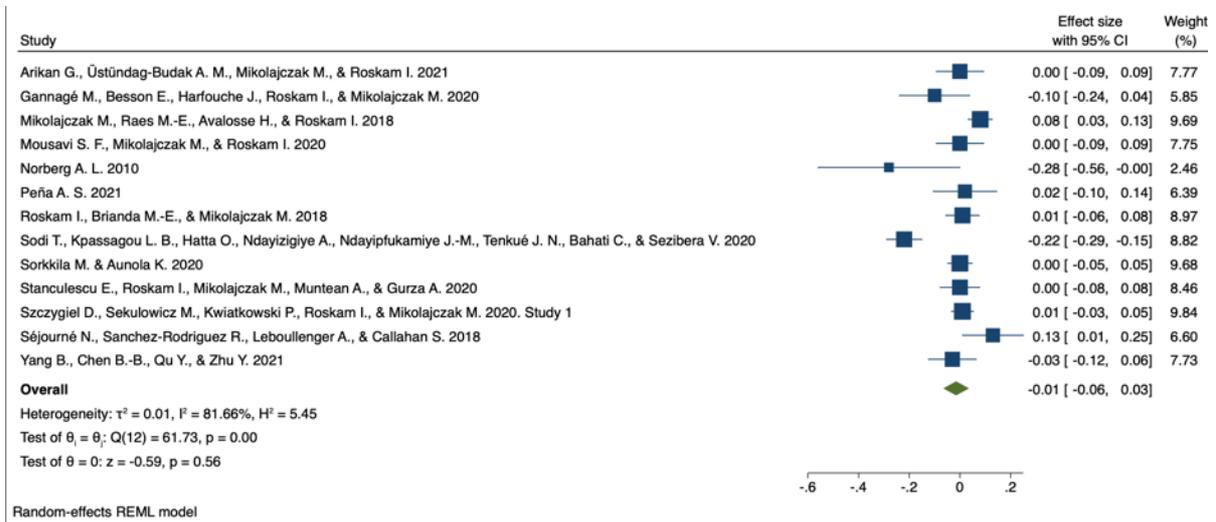
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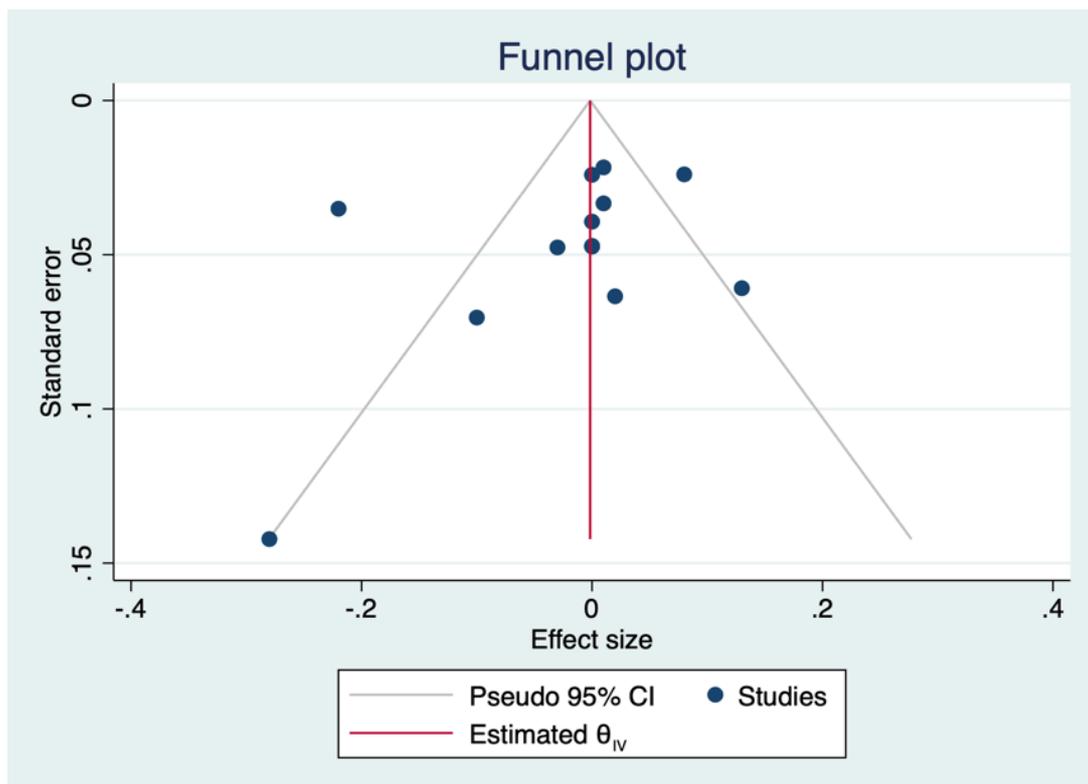
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Figure 12

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between the Educational Level of the Parent and Parental Burnout



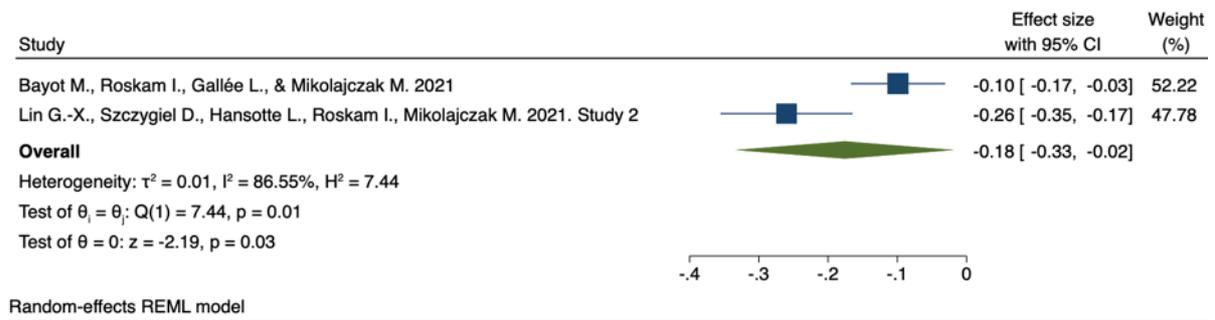
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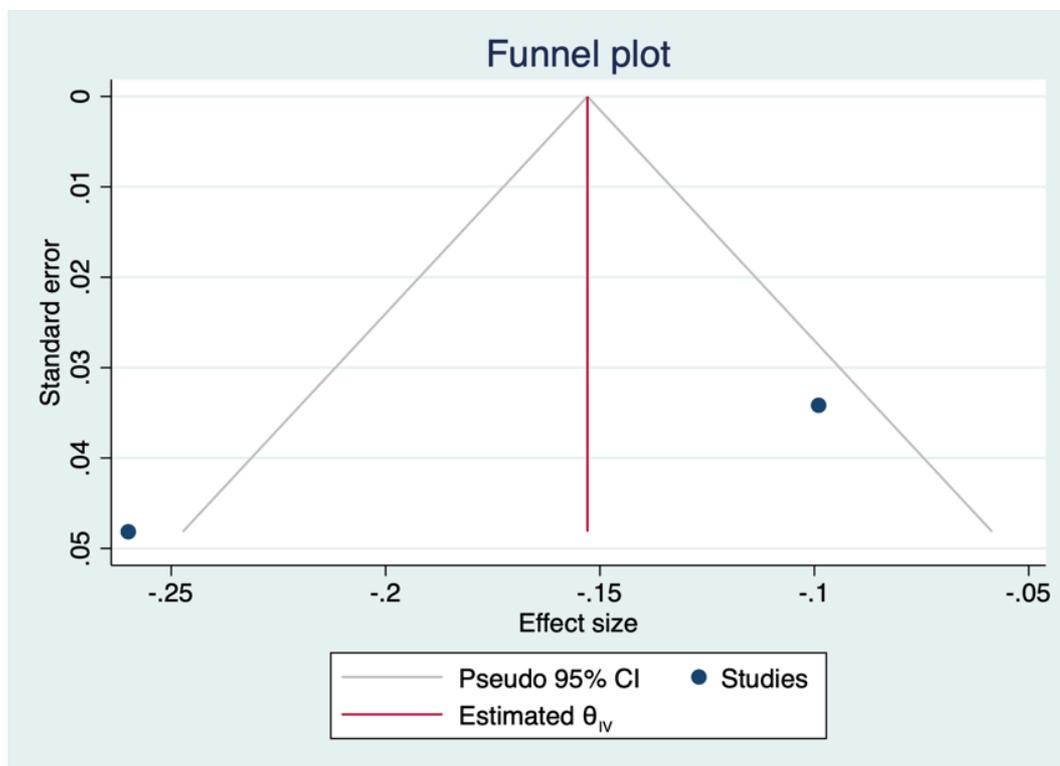
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Figure 13

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Interpersonal Emotional Competencies and Parental Burnout



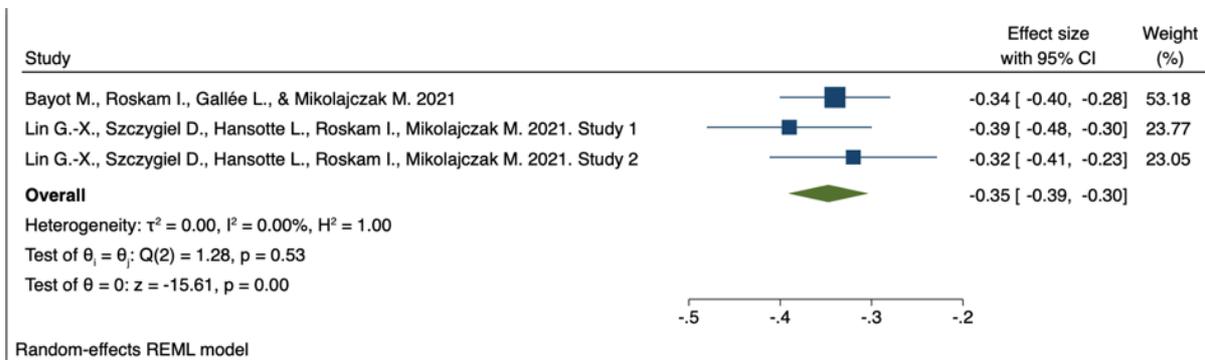
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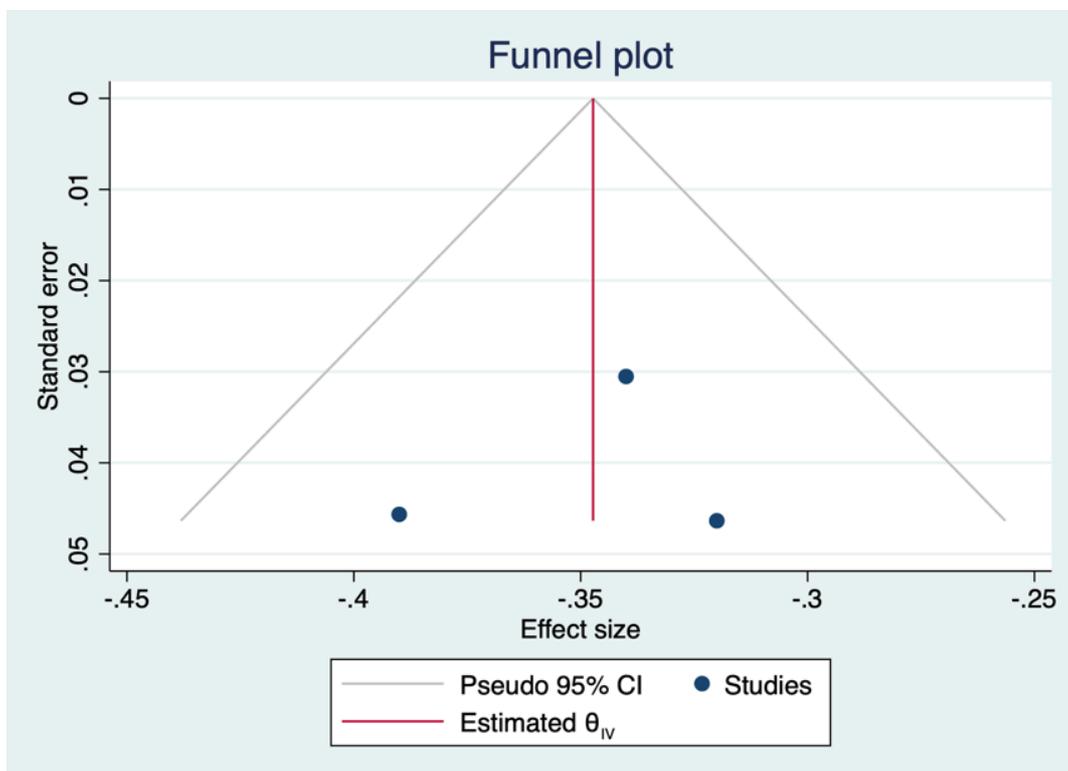
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Figure 14

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Intrapersonal Emotional Competencies and Parental Burnout



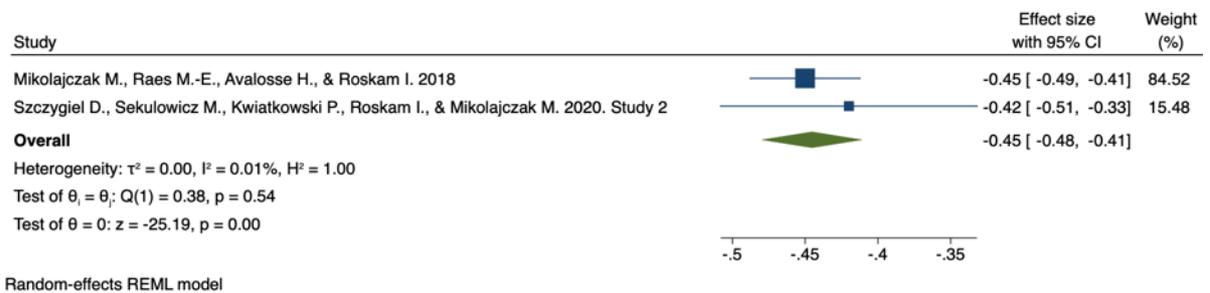
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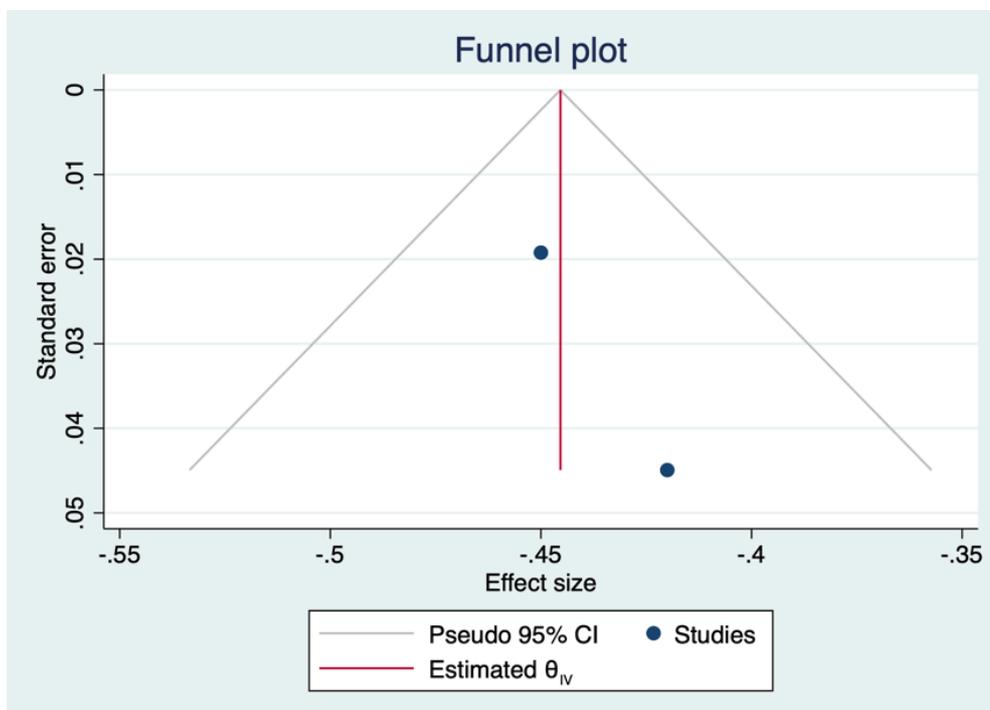
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Figure 15

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Emotional Intelligence (Trait) and Parental Burnout



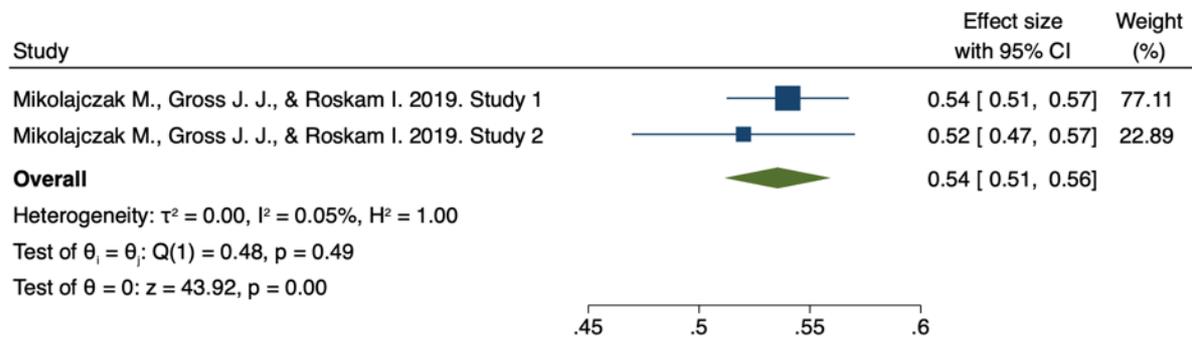
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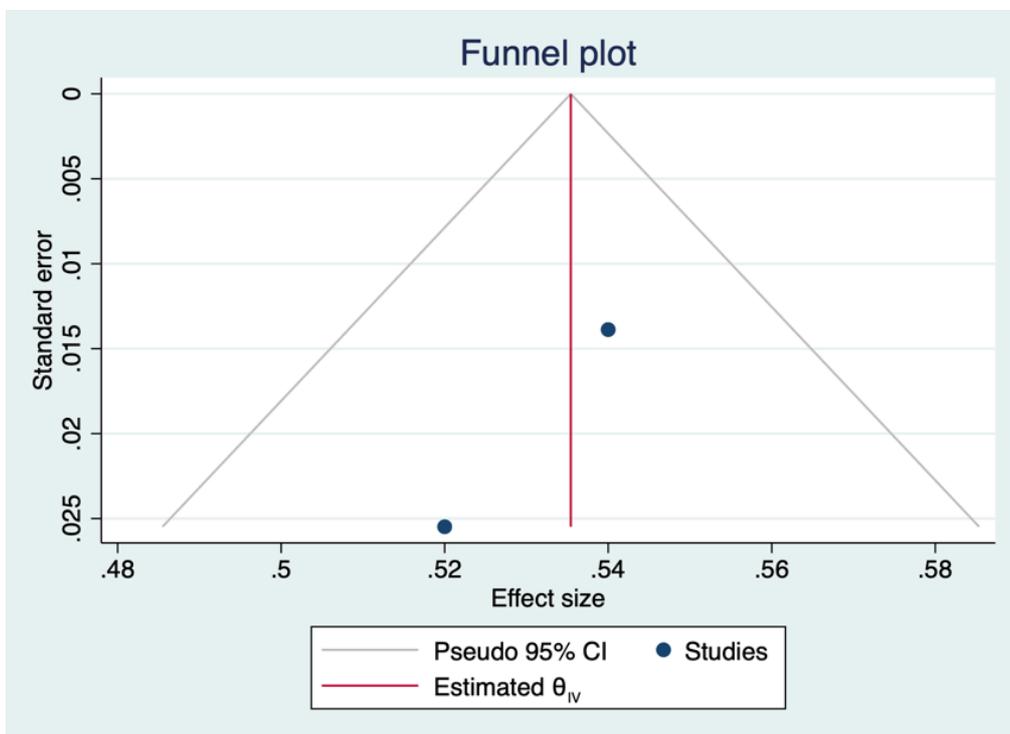
Figure 16

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Escape Ideations and Parental Burnout



Random-effects REML model

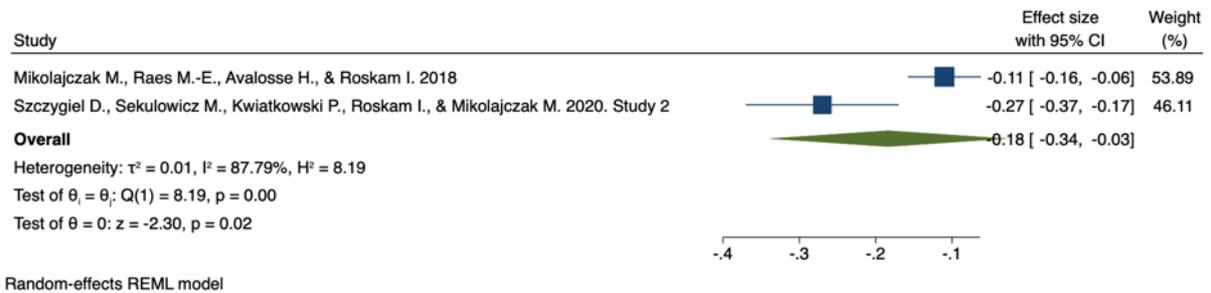
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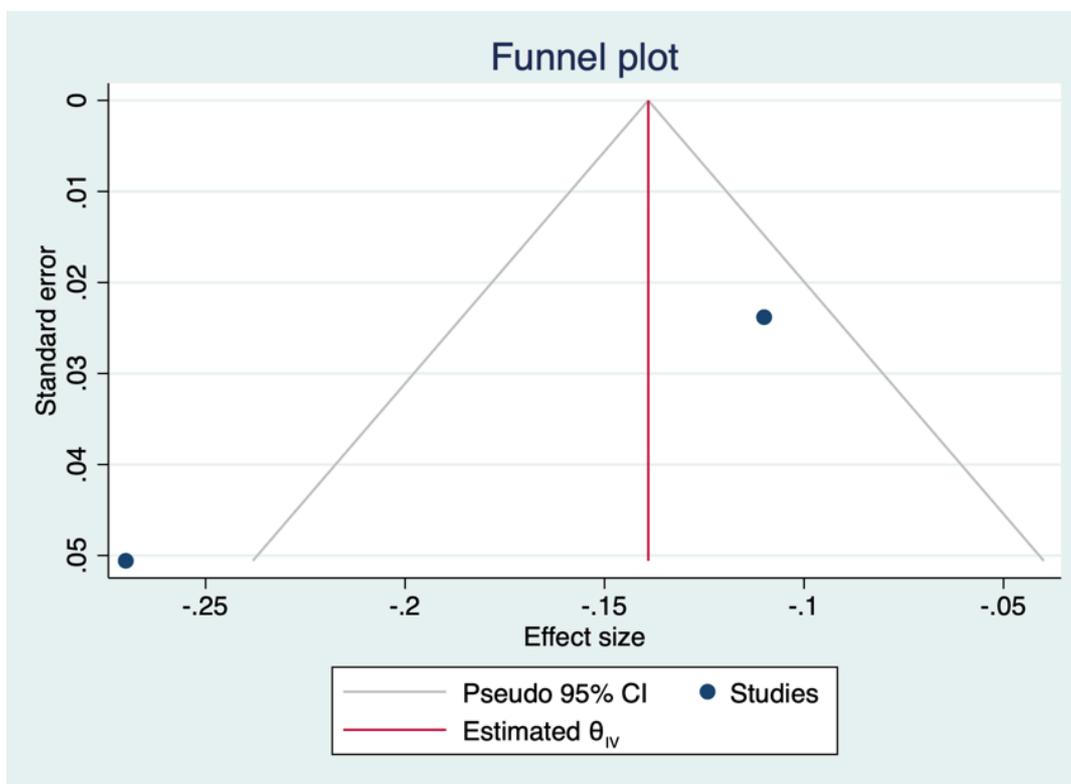
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Figure 17

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Extraversion of the Parent and Parental Burnout



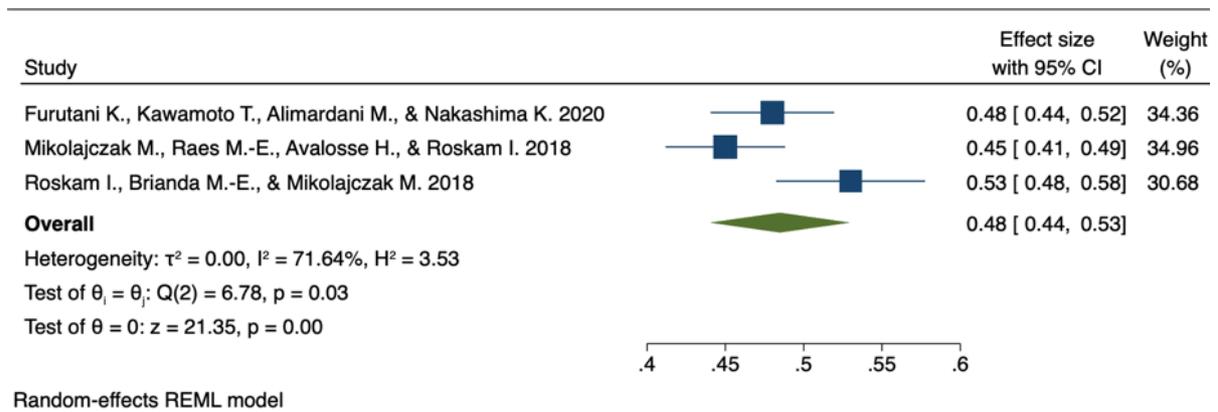
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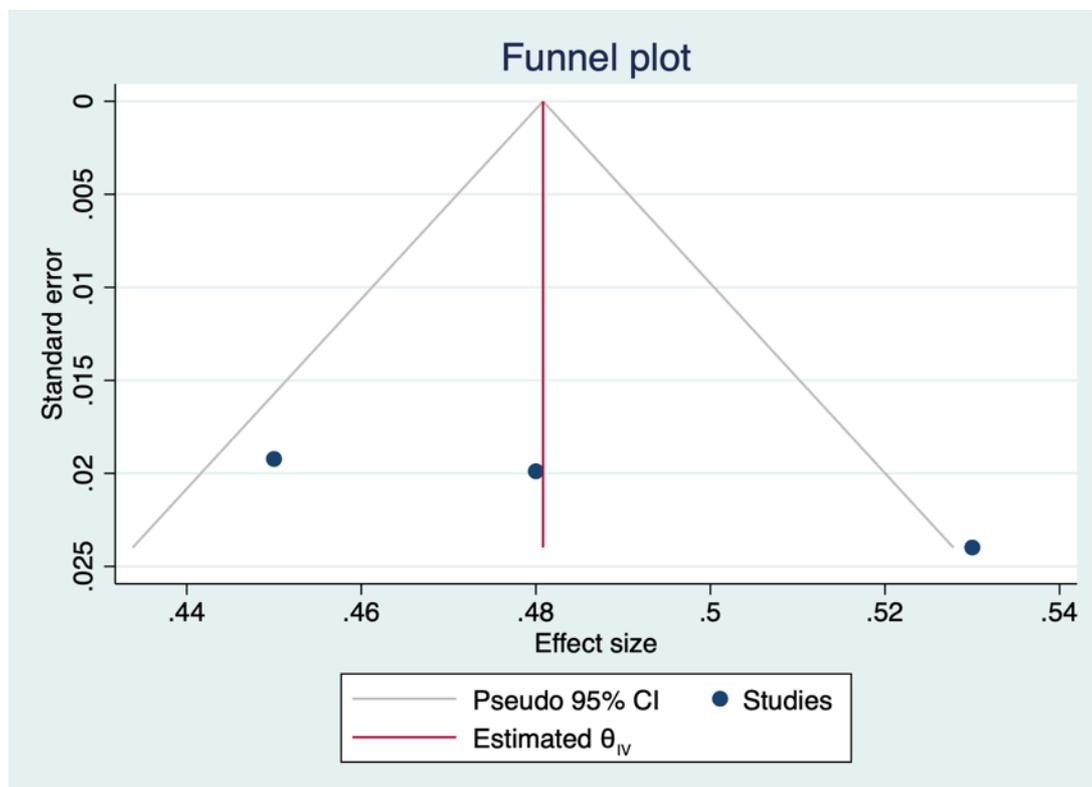
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Figure 18

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Family Disorganization and Parental Burnout



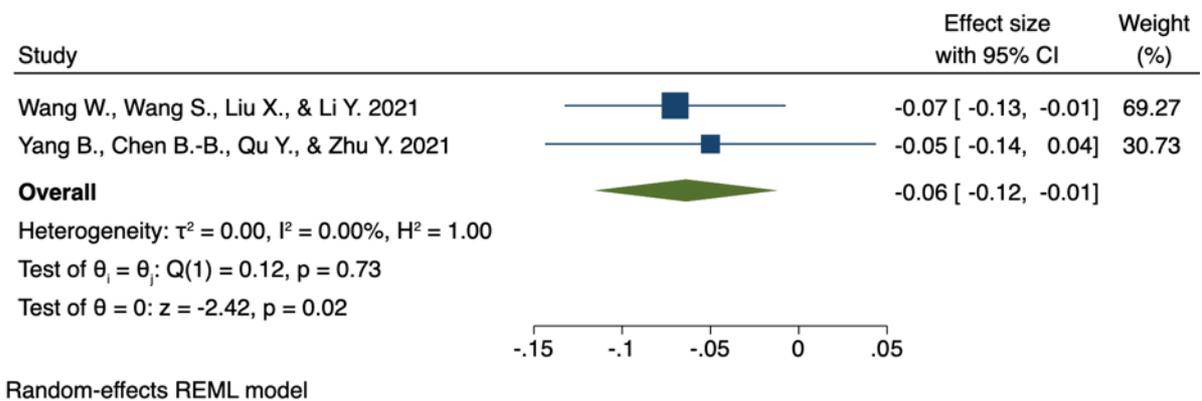
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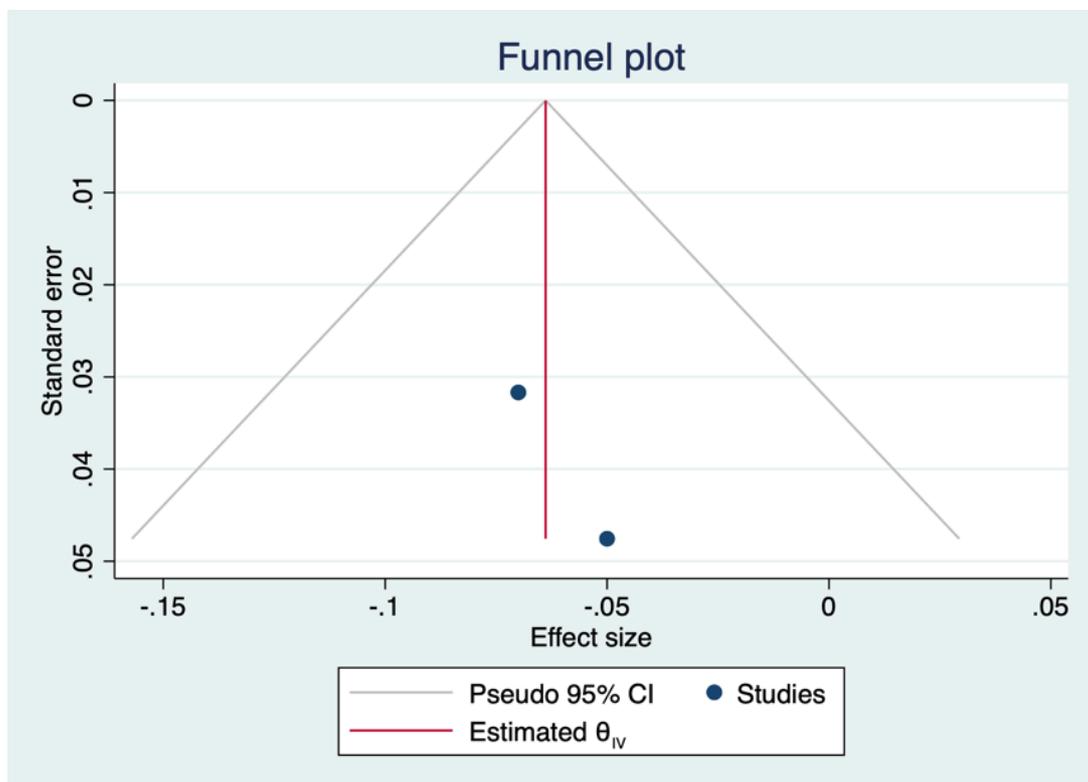
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Figure 19

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Gender of the Child and Parental Burnout



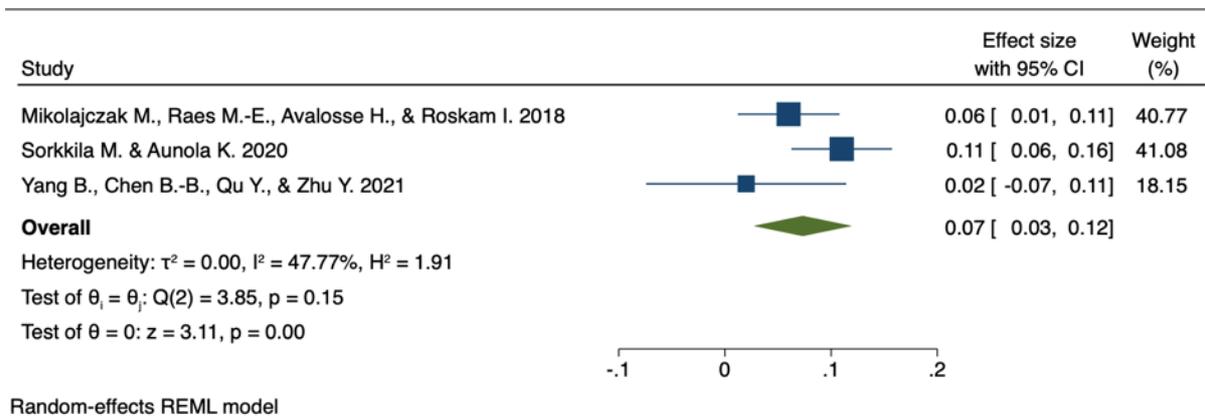
(a)



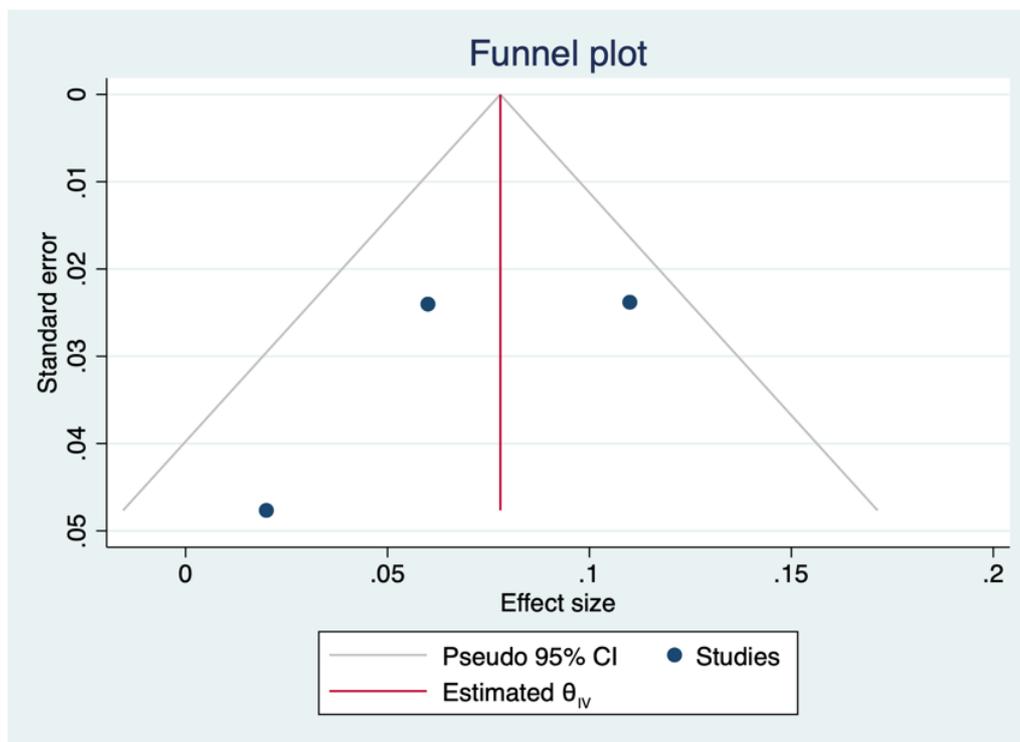
(b)

Figure 20

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Gender of the Parent and Parental Burnout



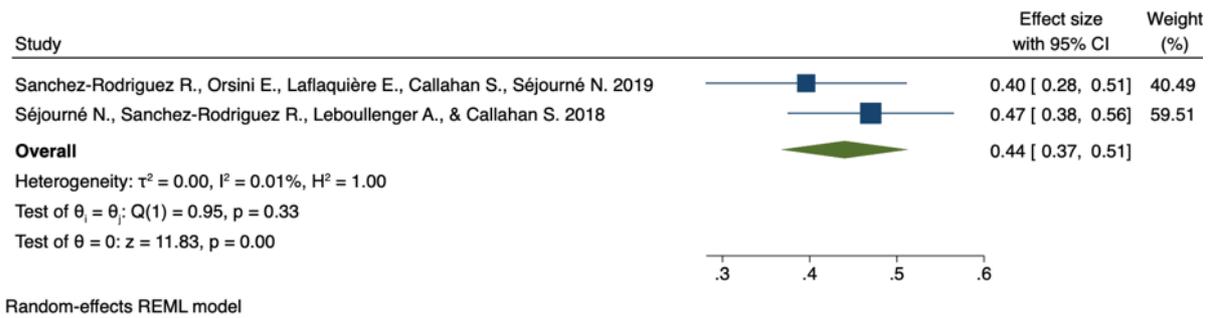
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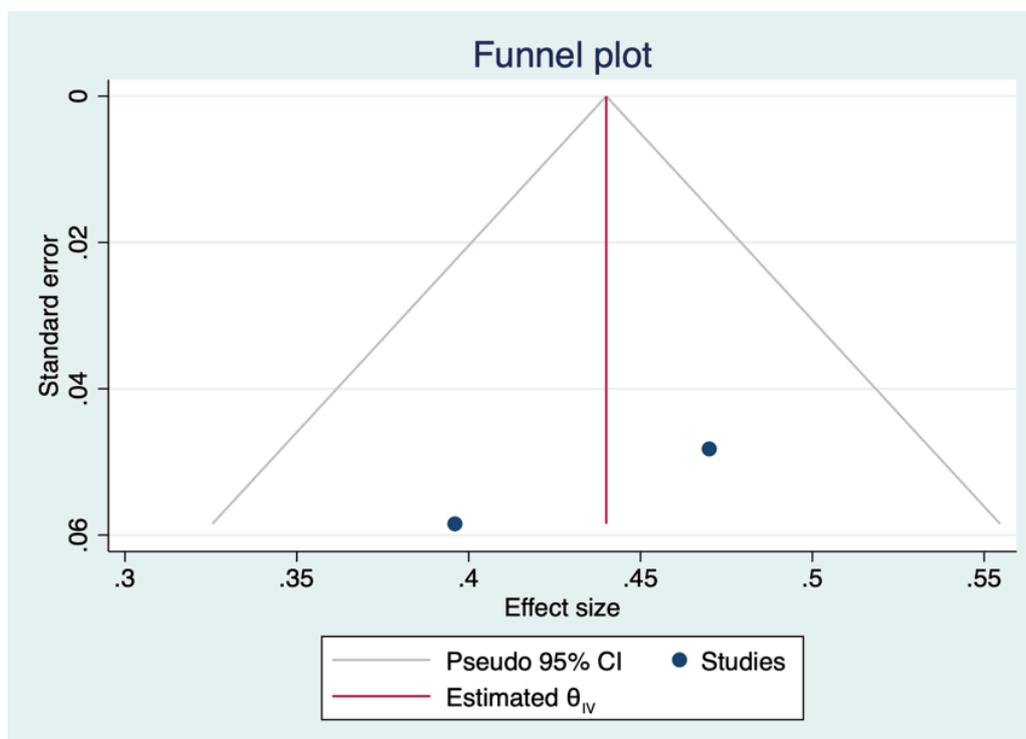
(b)

Figure 21

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Guilt and Parental Burnout



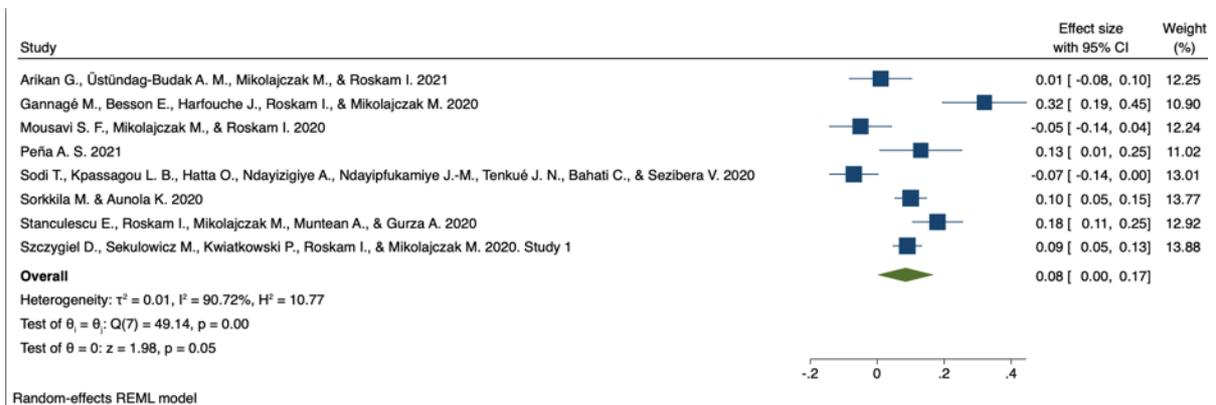
(a)



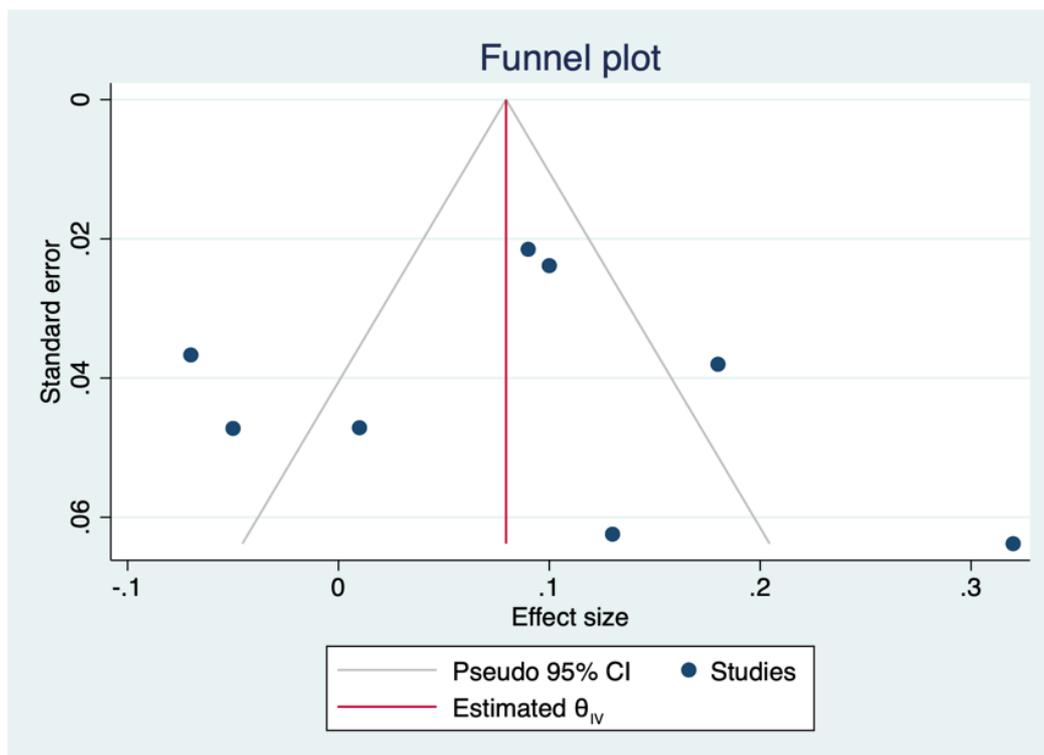
(b)

Figure 22

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Hours Spent with Children and Parental Burnout



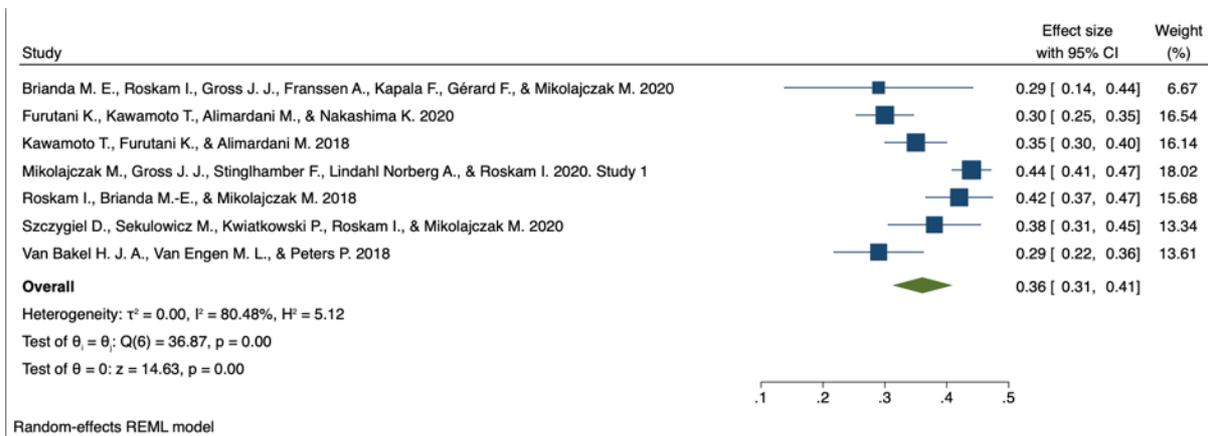
(a)



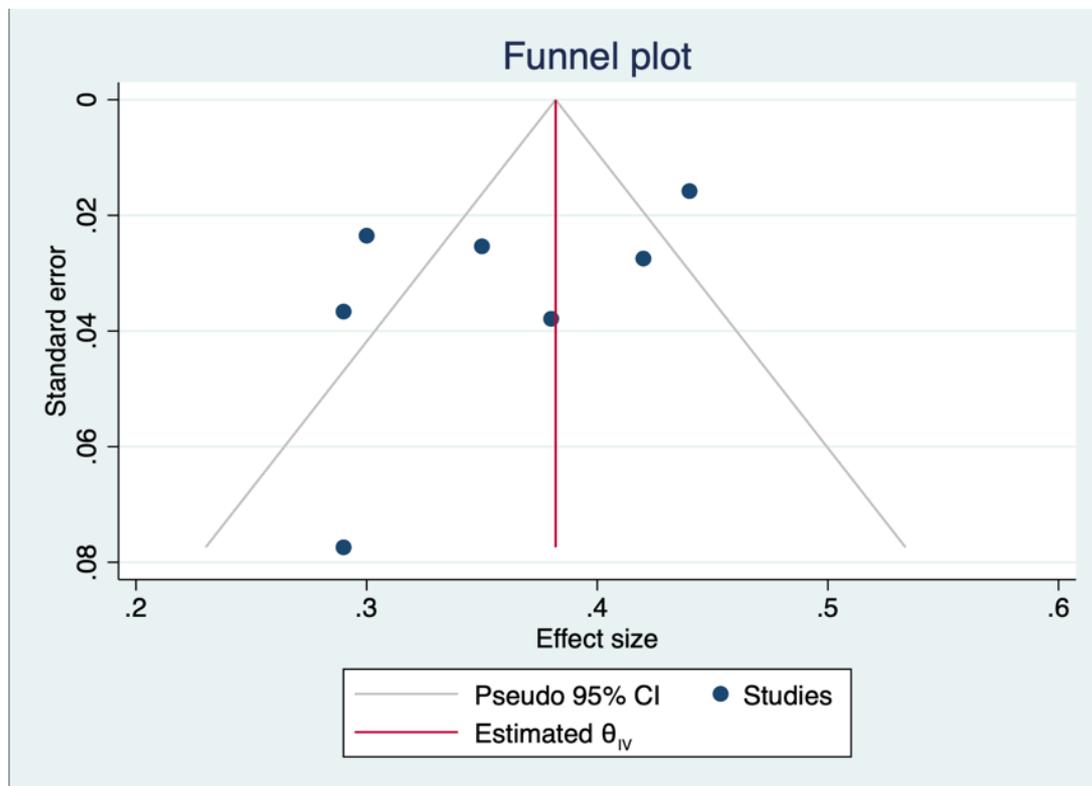
(b)

Figure 23

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Job Burnout and Parental Burnout



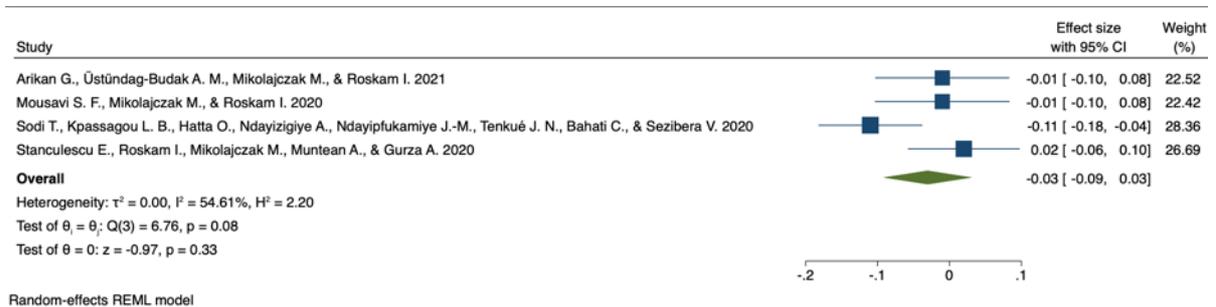
(a)



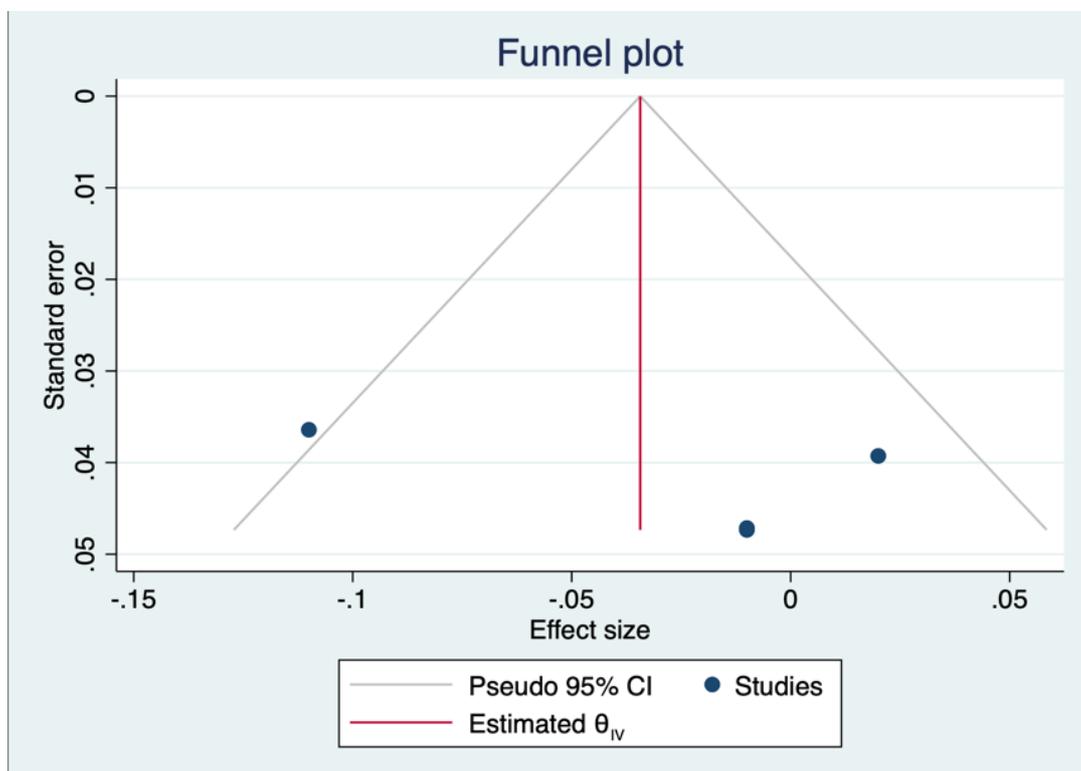
(b)

Figure 24

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Neighborhood and Parental Burnout



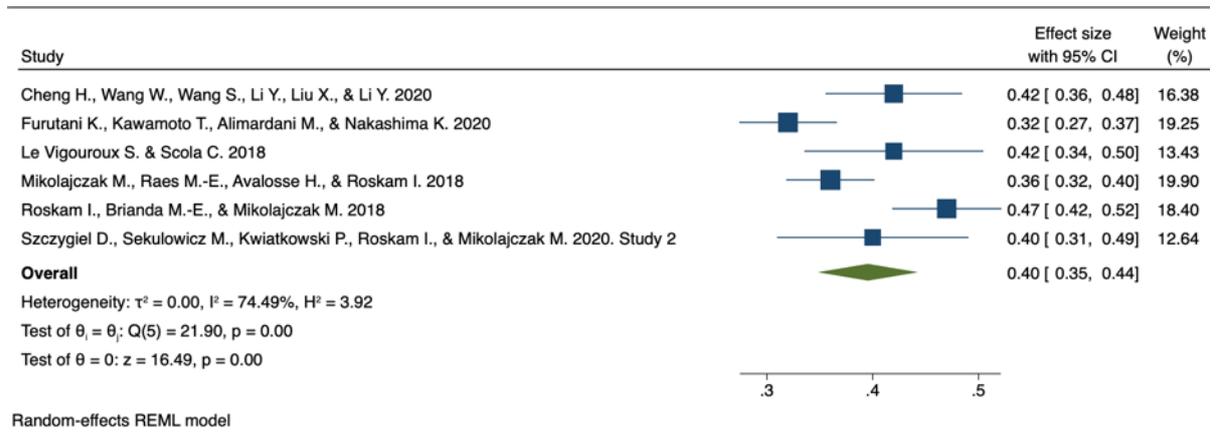
(a)



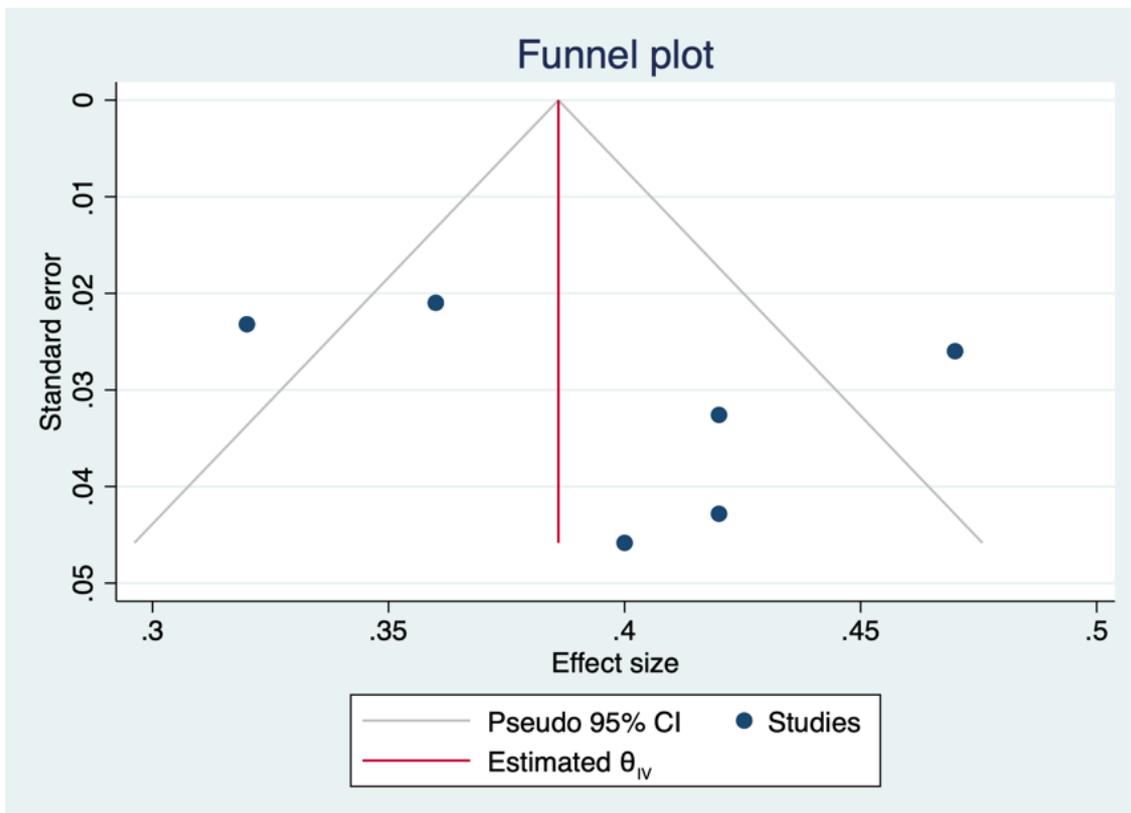
(b)

Figure 25

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Neuroticism of the Parent and Parental Burnout



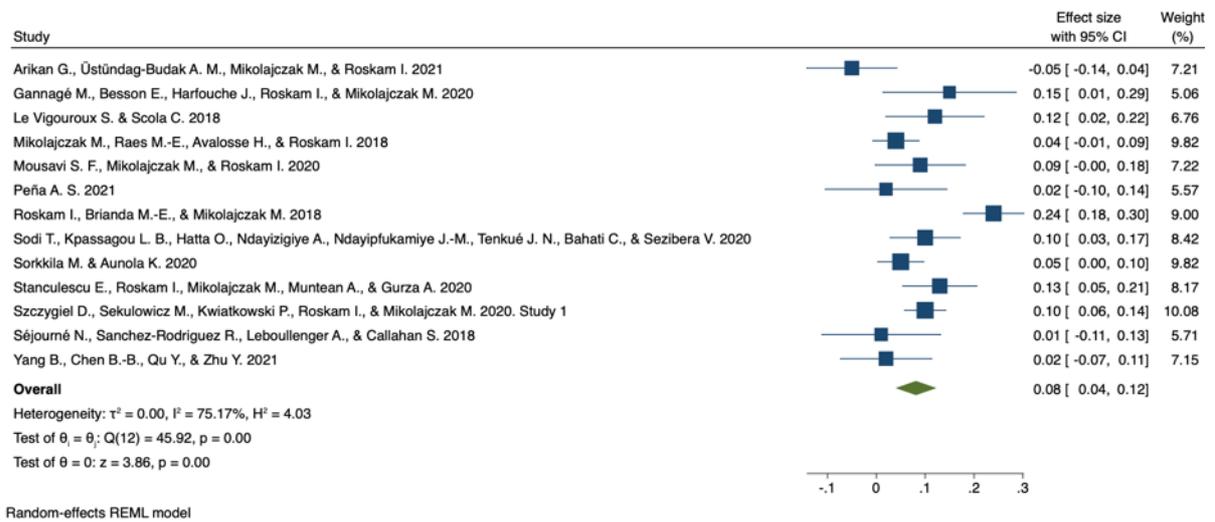
(a)



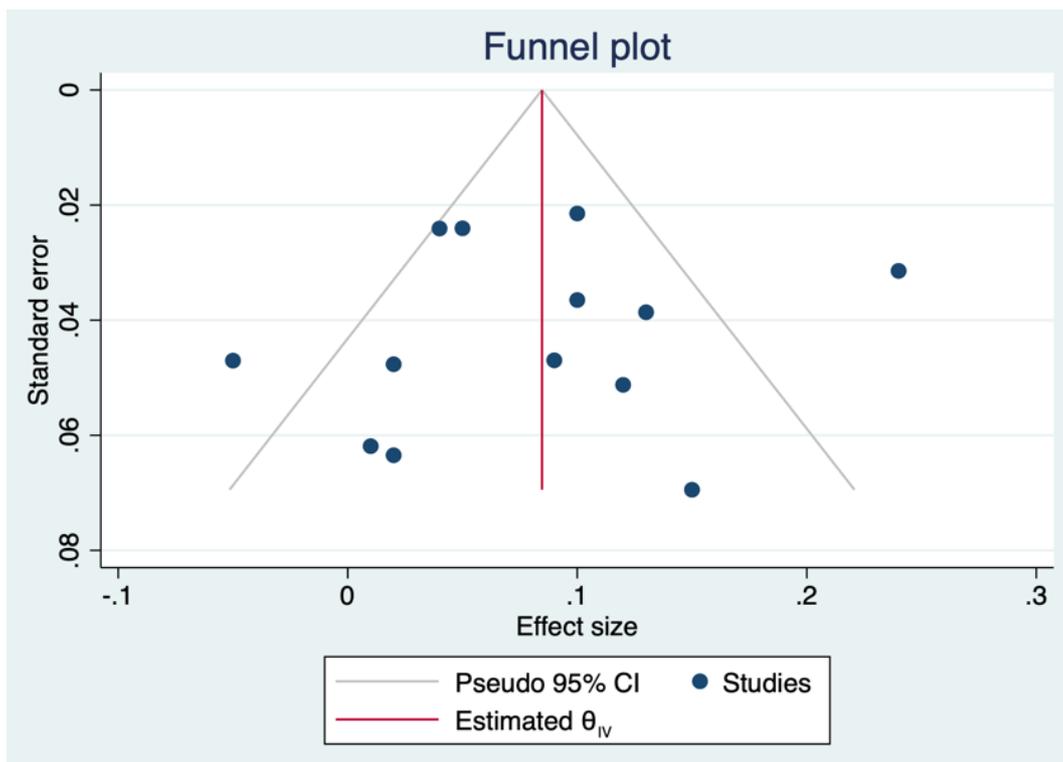
(b)

Figure 26

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between the Number of Children and Parental Burnout



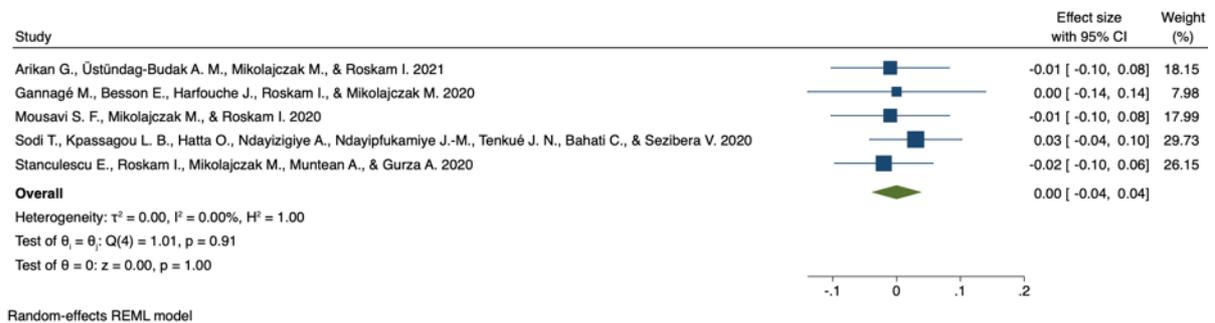
(a)



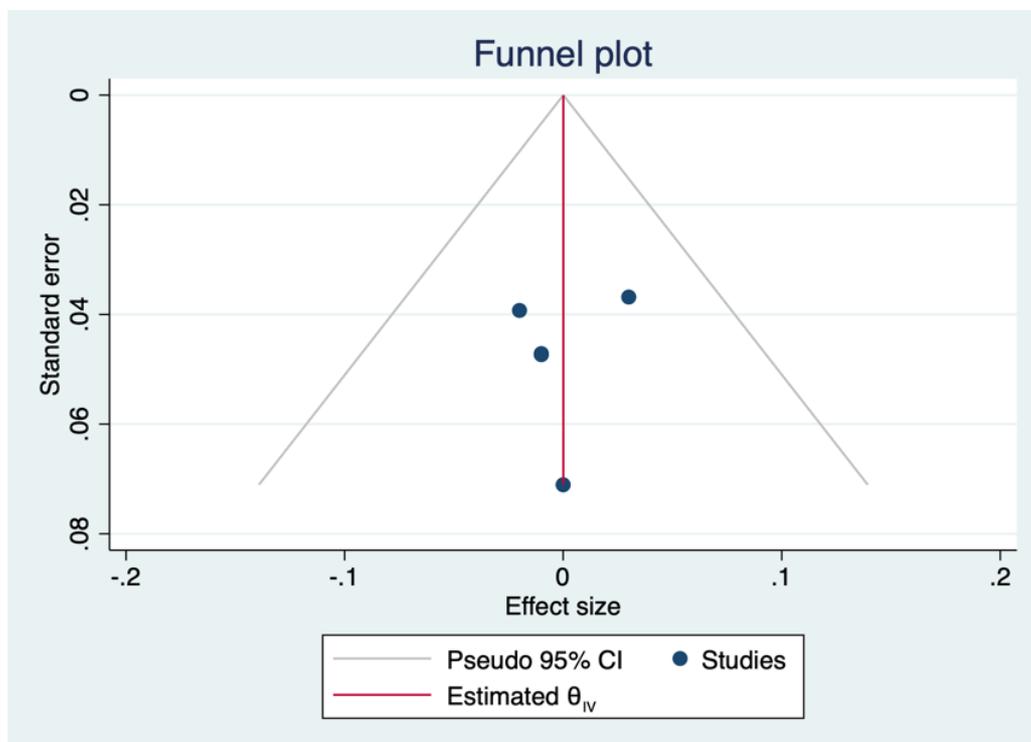
(b)

Figure 27

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between the Number of Men Taking Care of Children and Parental Burnout



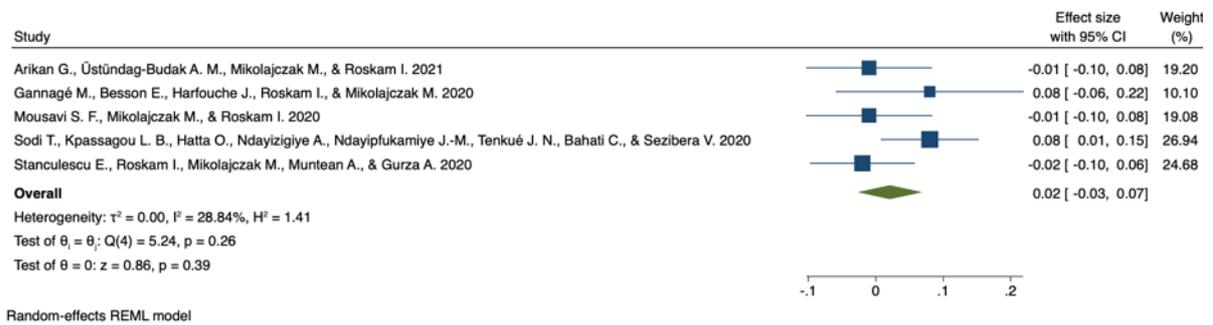
(a)



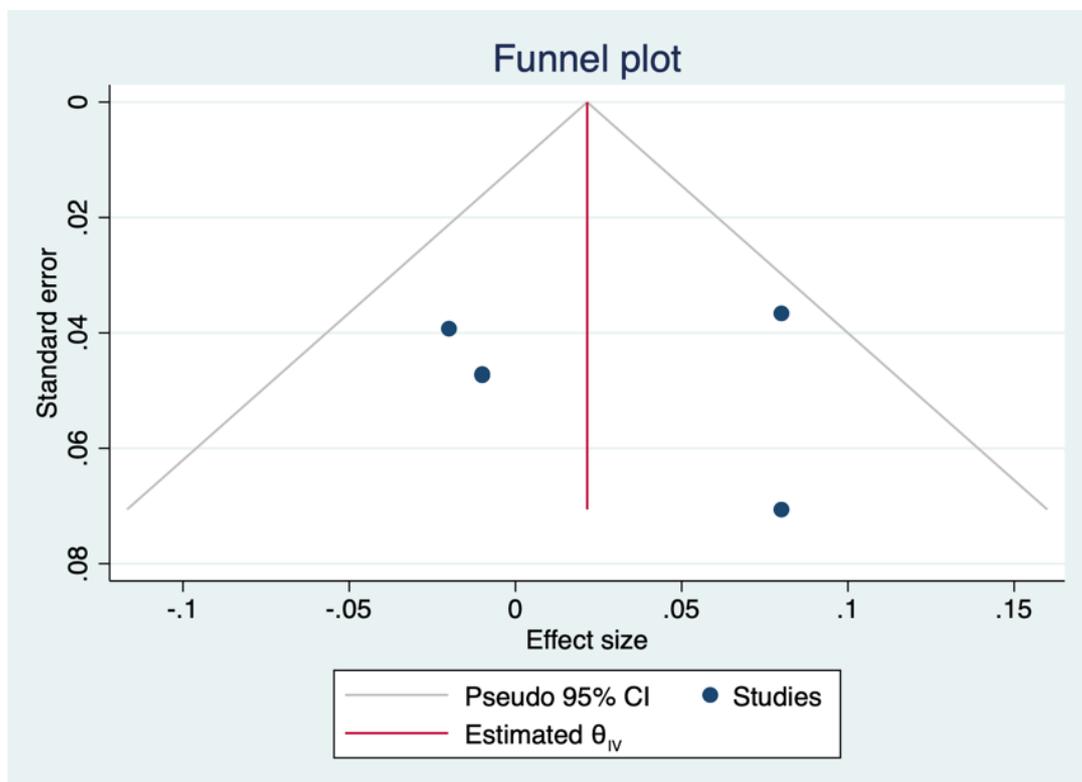
(b)

Figure 28

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between the Number of Women Taking Care of Children and Parental Burnout



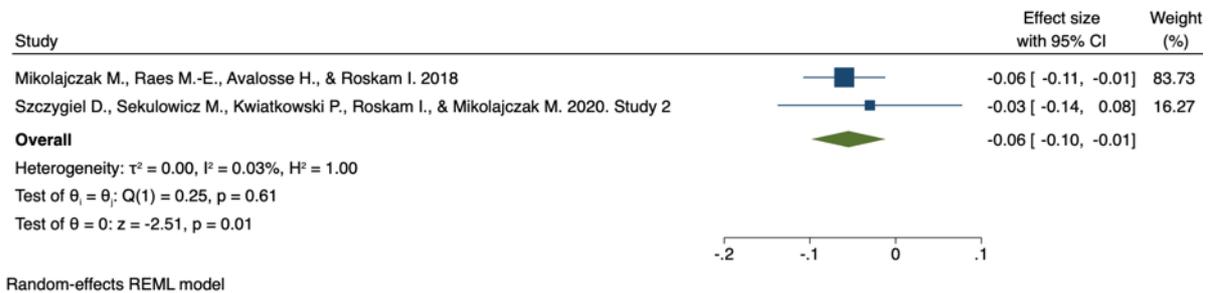
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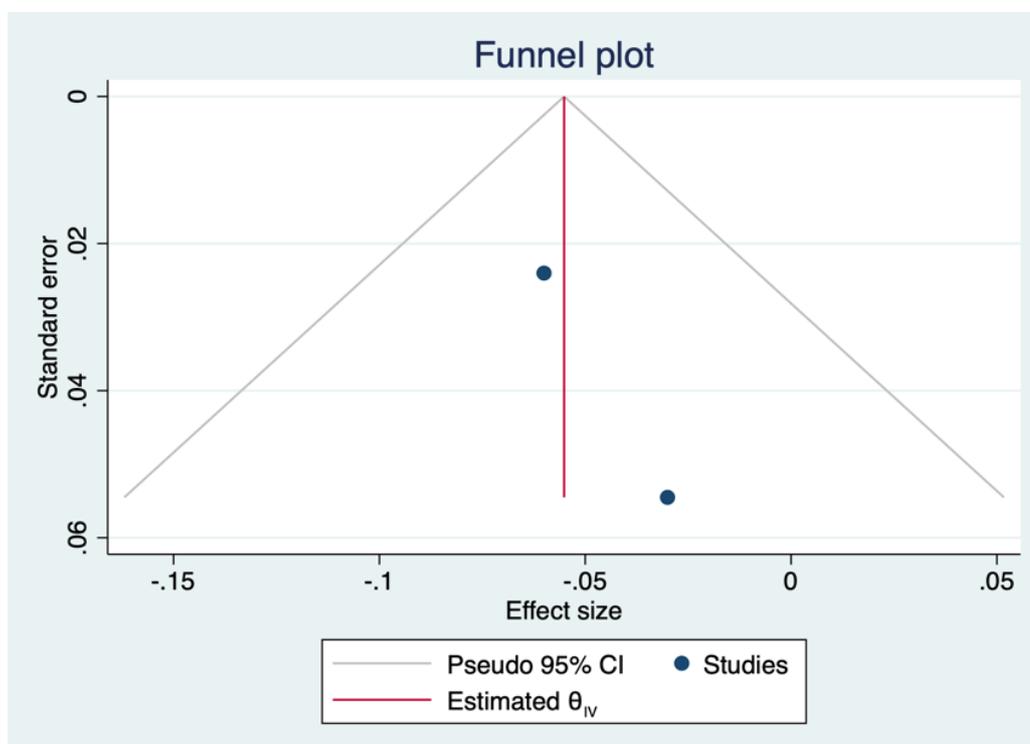
(b)

Figure 29

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Openness of the Parent and Parental Burnout



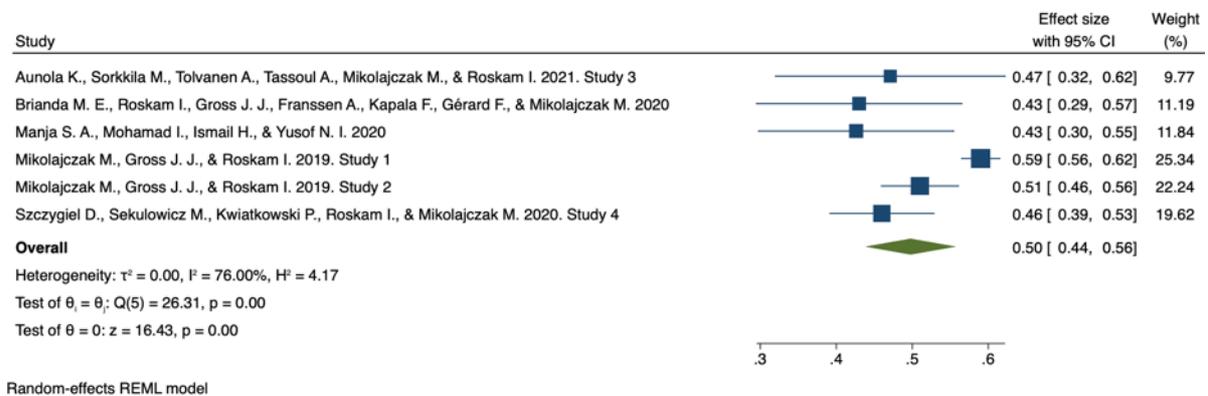
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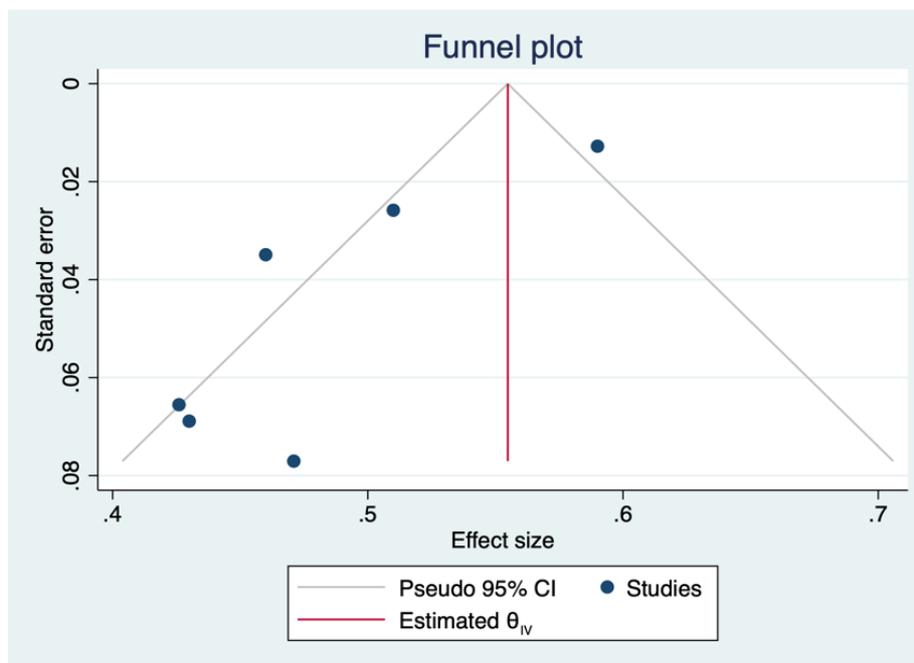
(b)

Figure 30

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Parental Neglect and Parental Burnout



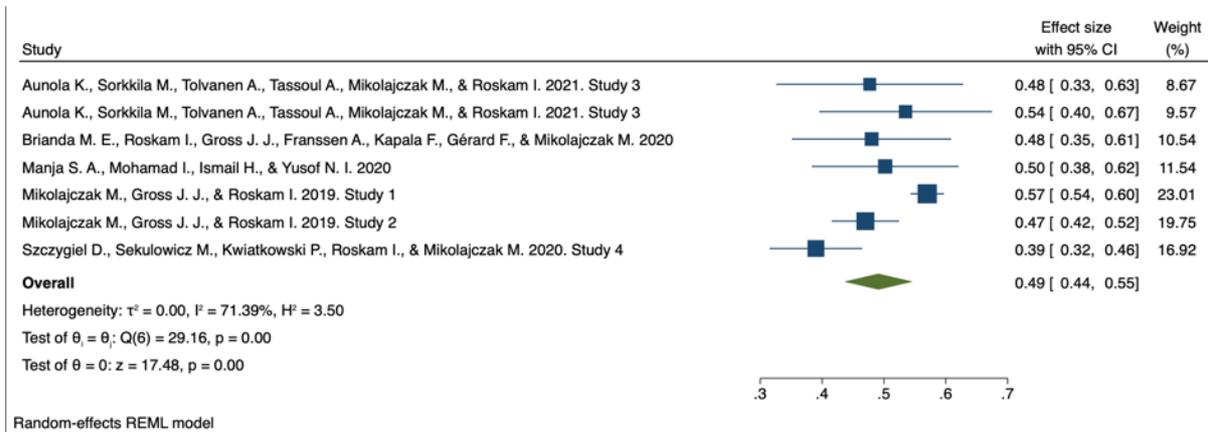
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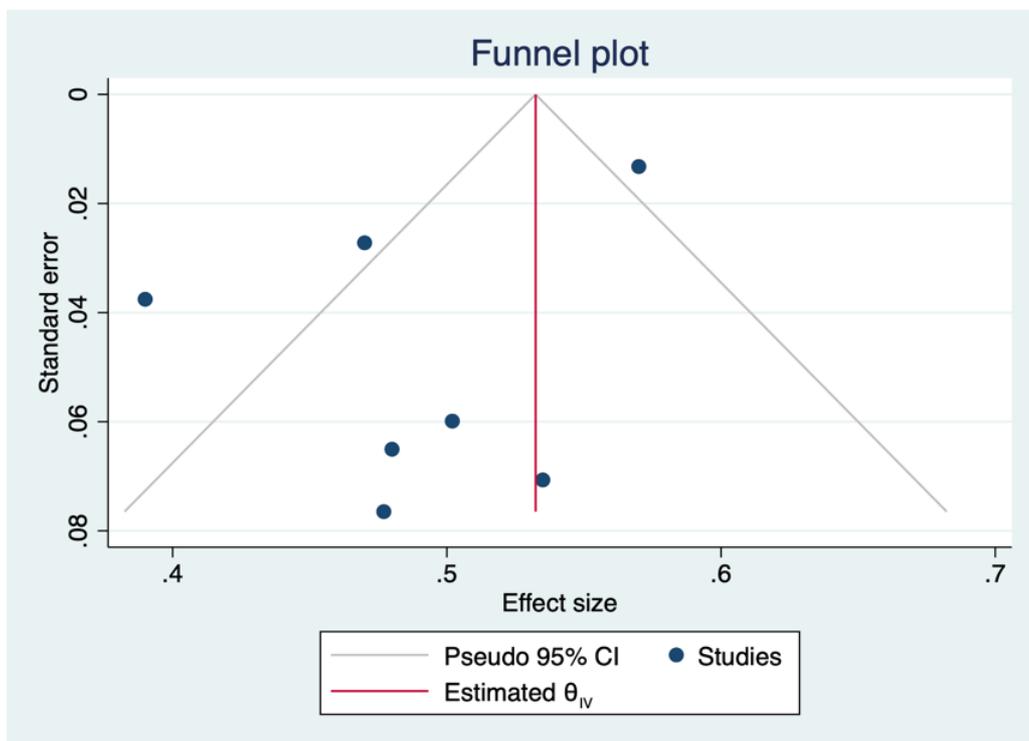
(b)

Figure 31

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Parental Violence and Parental Burnout



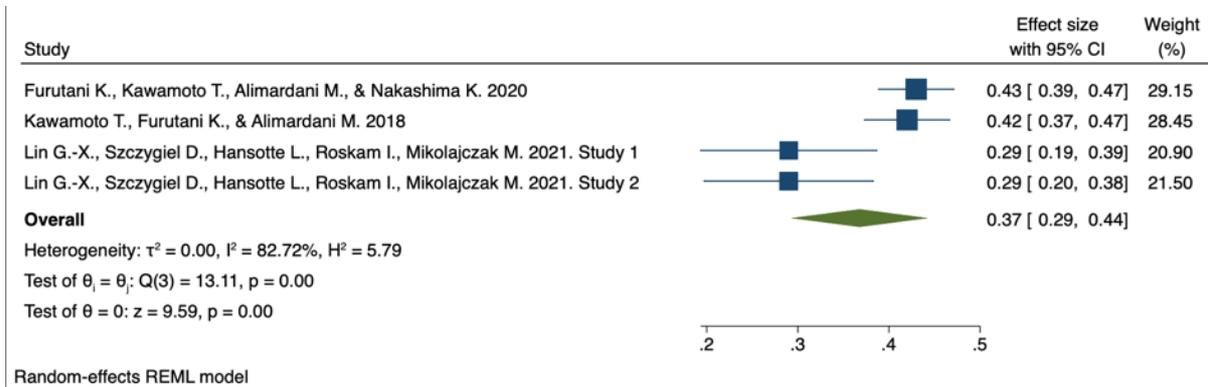
(a)



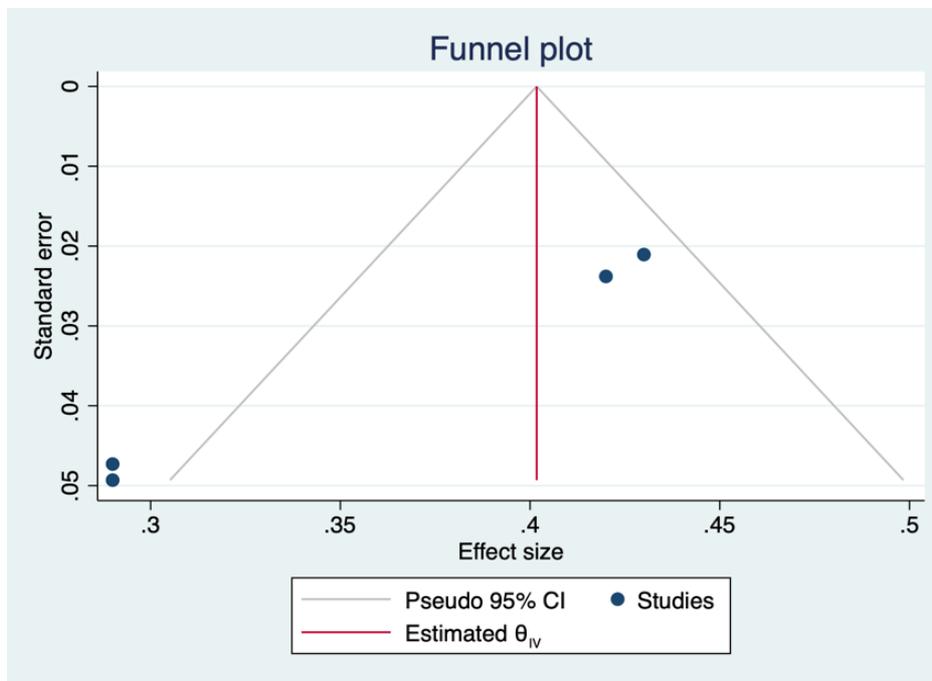
(b)

Figure 32

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Parenting Perfectionism Concerns and Parental Burnout



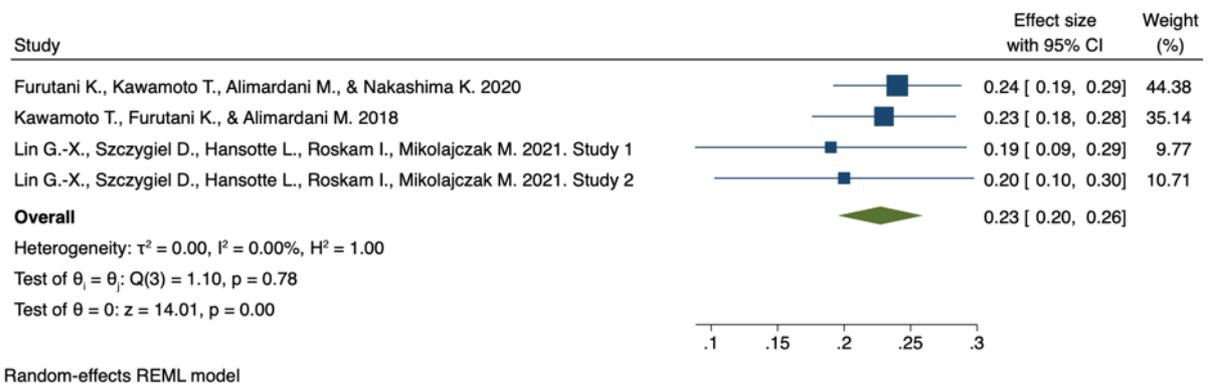
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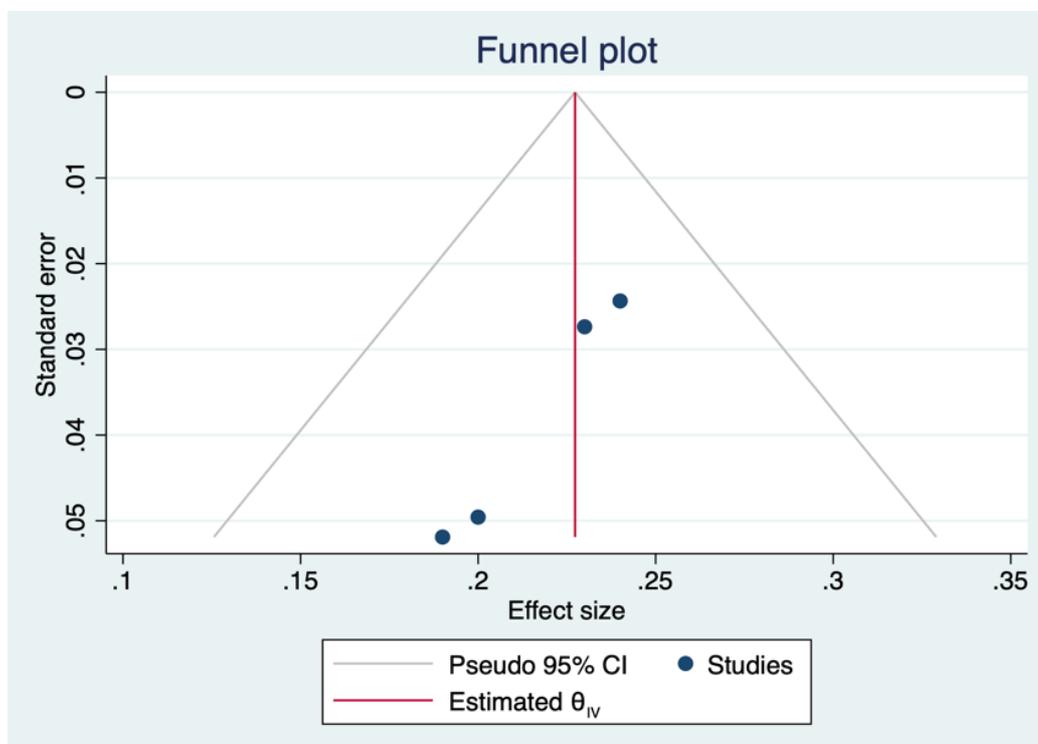
(b)

Figure 33

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Parenting Perfectionism Striving and Parental Burnout



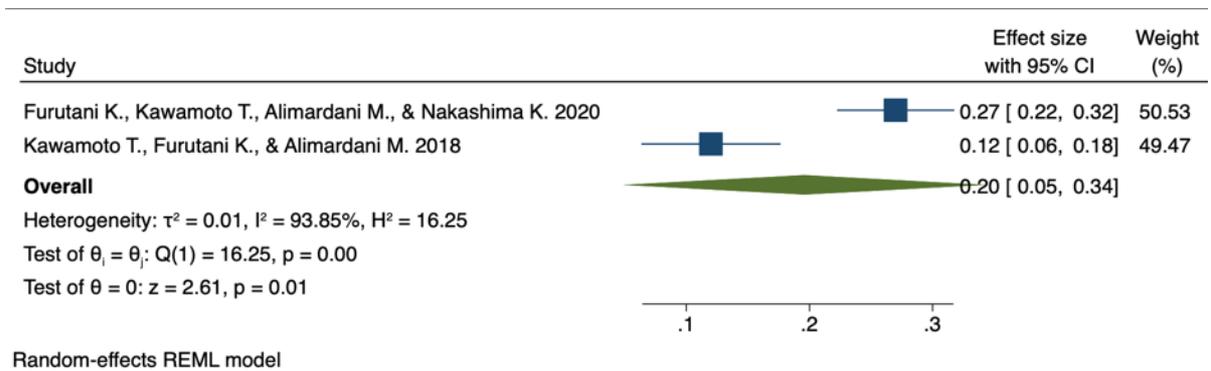
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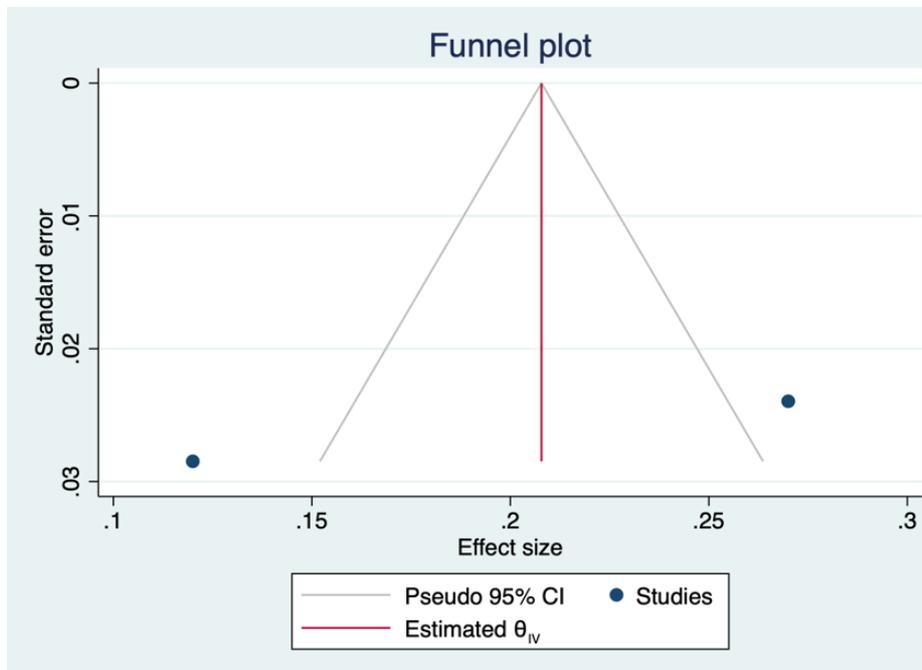
(b)

Figure 34

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Job Perfectionism and Parental Burnout



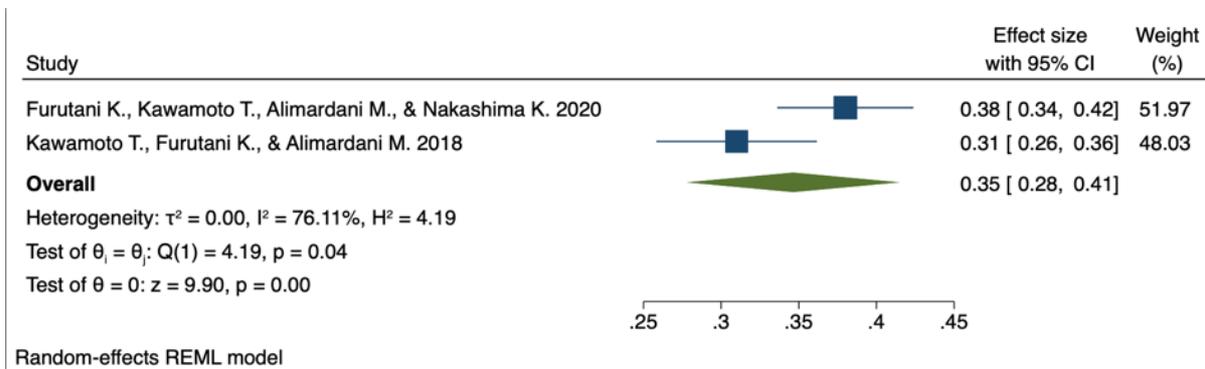
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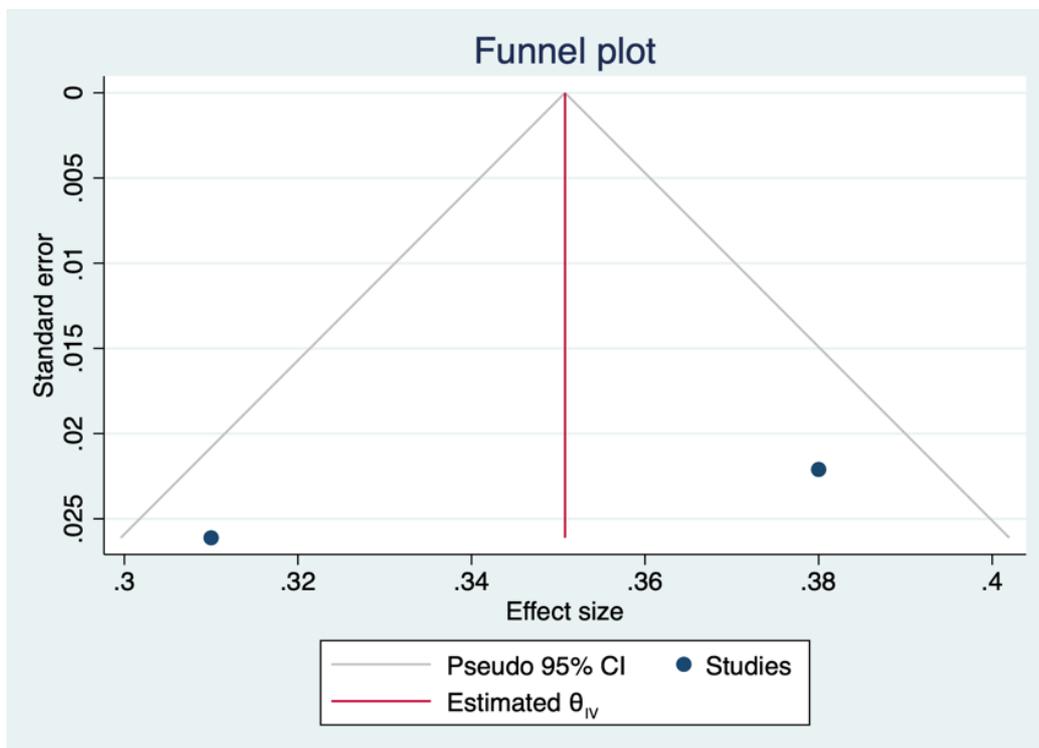
(b)

Figure 35

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Job Perfectionism Concerns and Parental Burnout



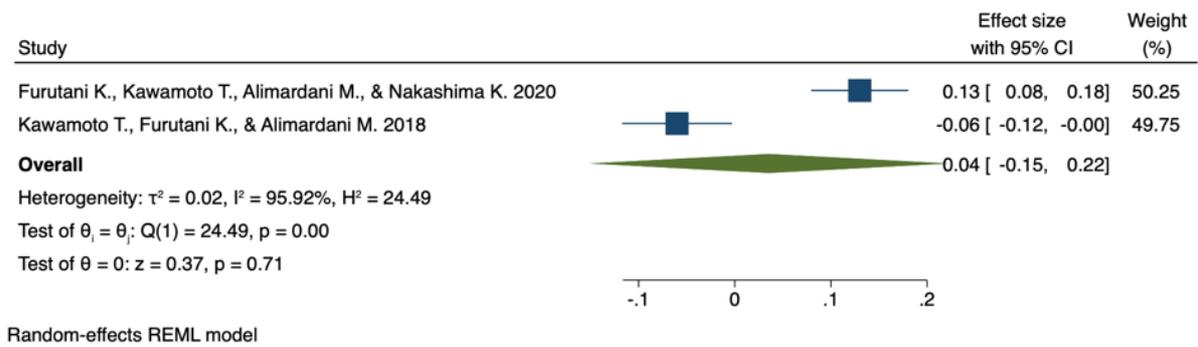
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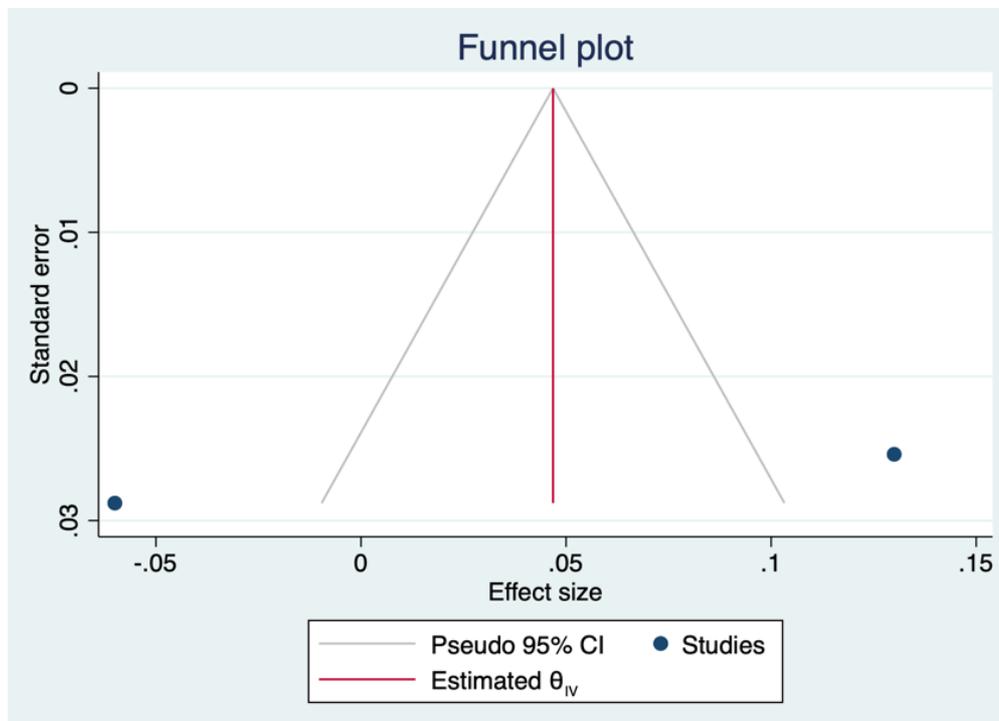
(b)

Figure 36

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Job Perfectionism Striving and Parental Burnout



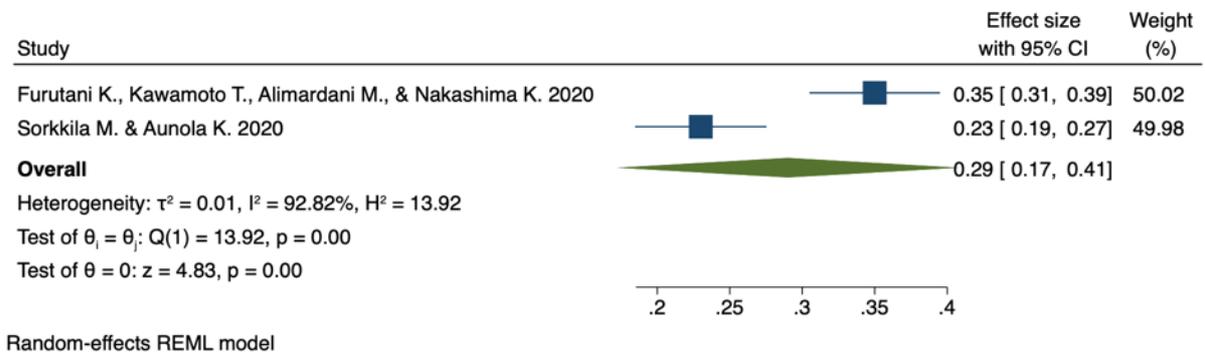
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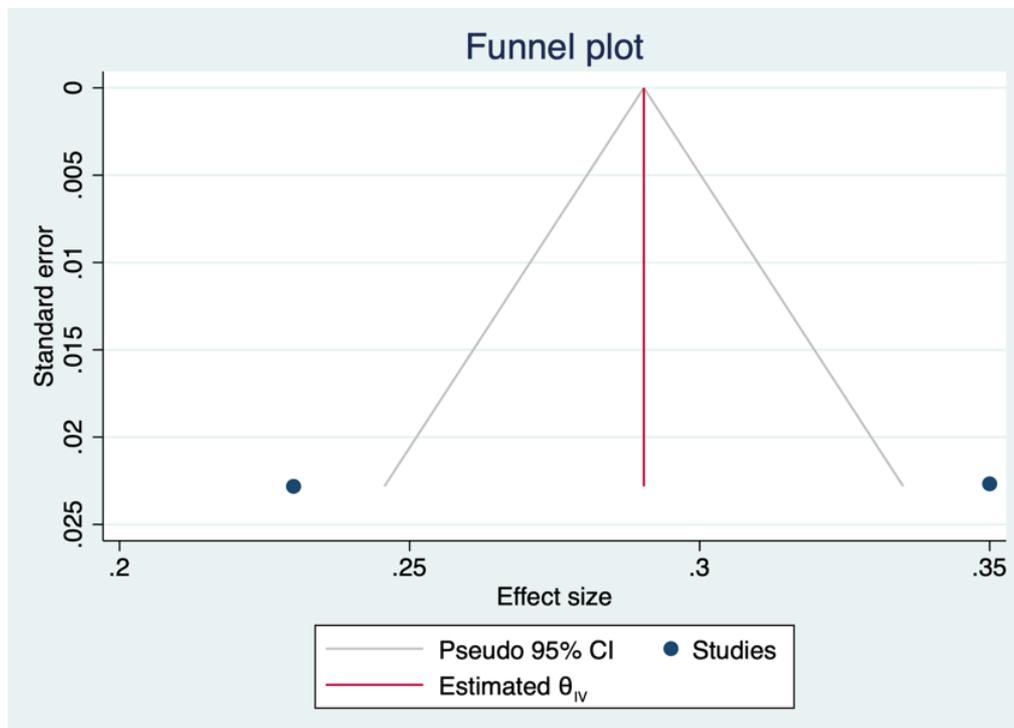
(b)

Figure 37

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Self-Oriented Perfectionism and Parental Burnout



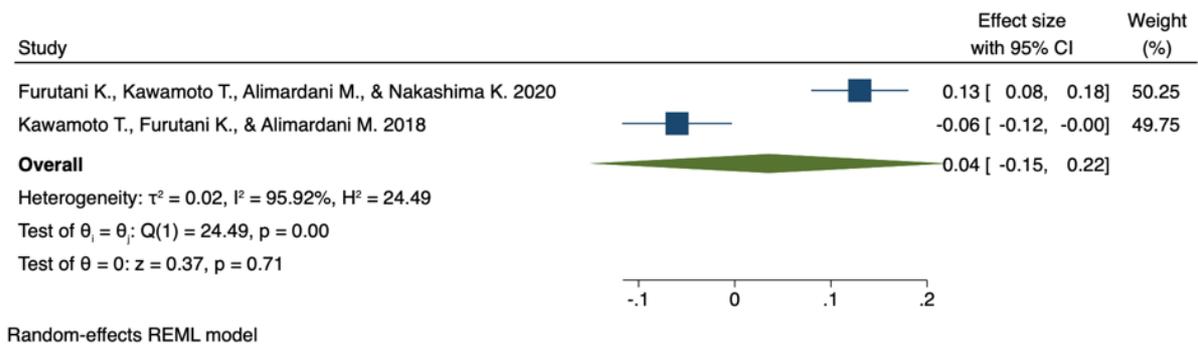
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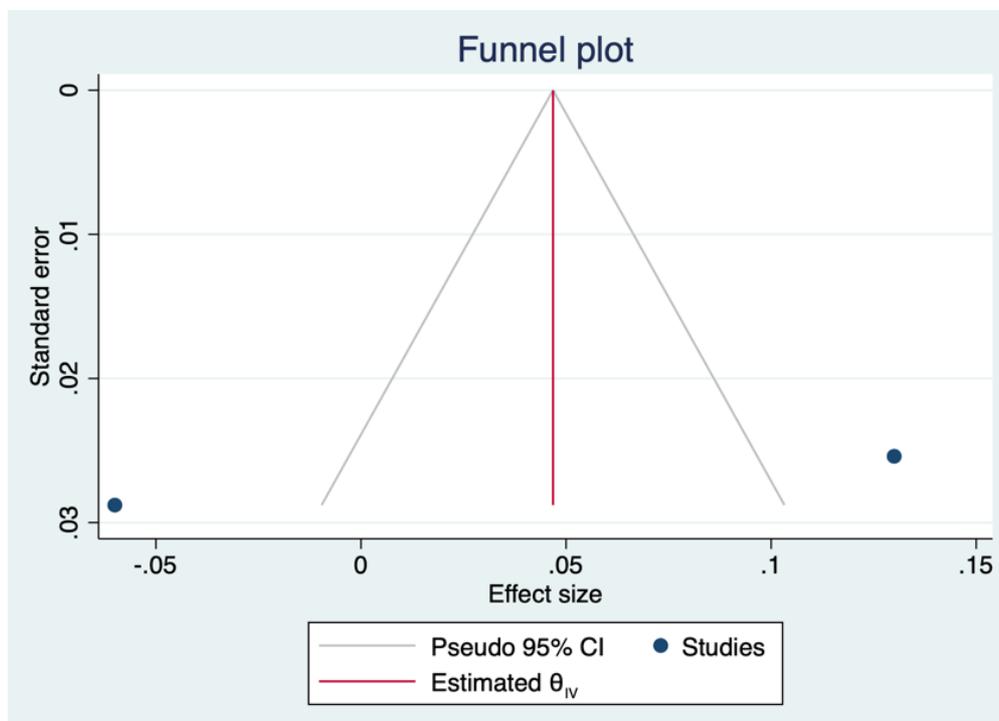
(b)

Figure 38

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Socially Prescribed Perfectionism and Parental Burnout



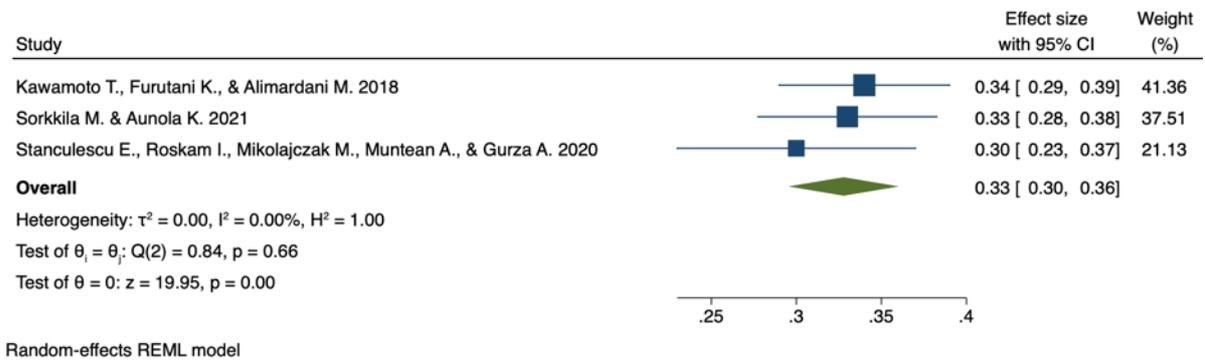
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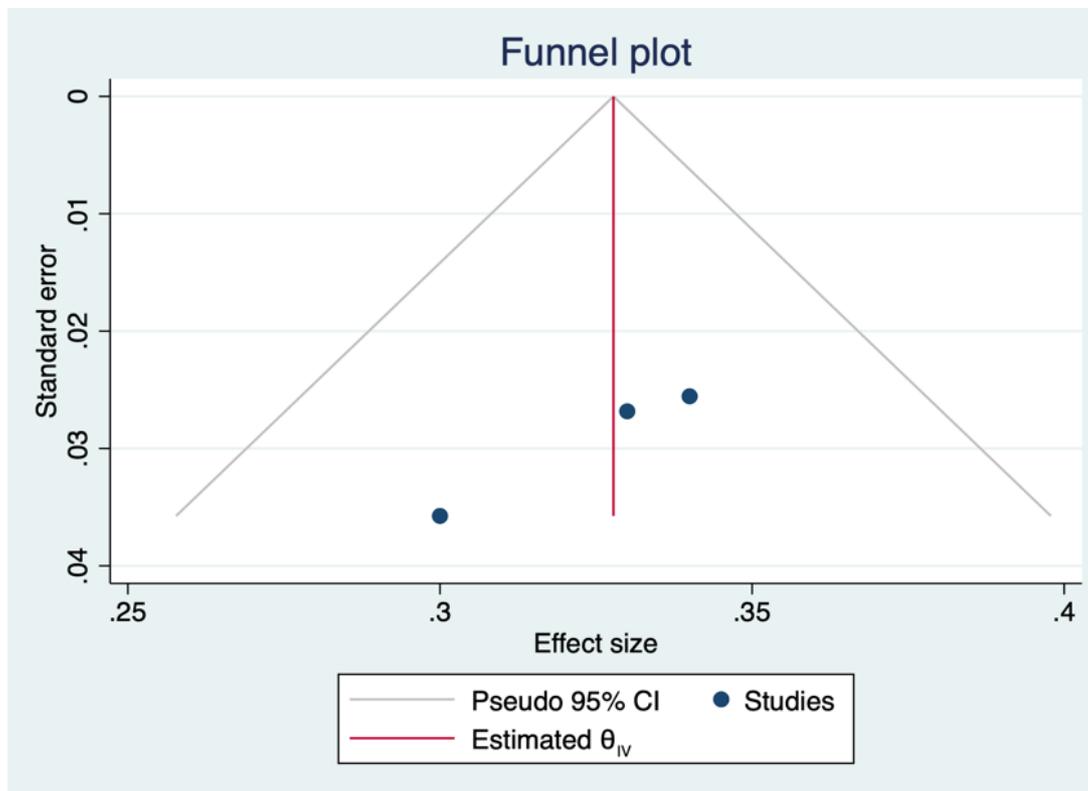
(b)

Figure 39

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Perfectionism and Parental Burnout



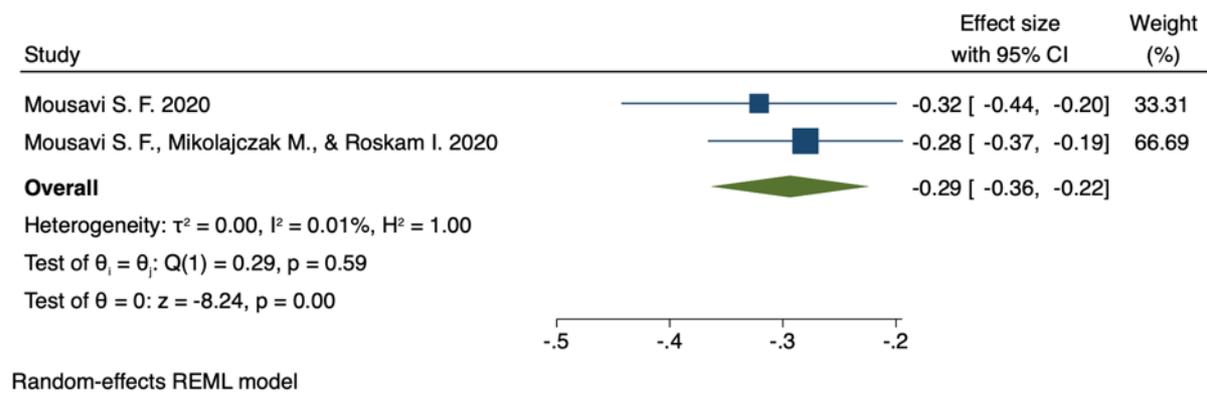
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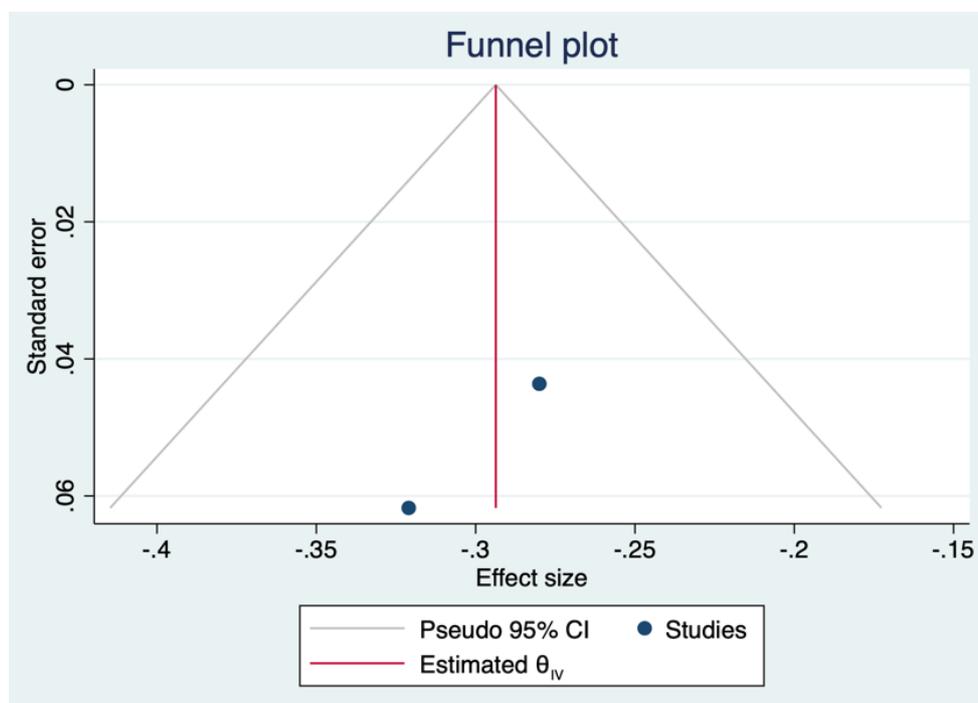
(b)

Figure 40

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Psychological Well-Being and Parental Burnout



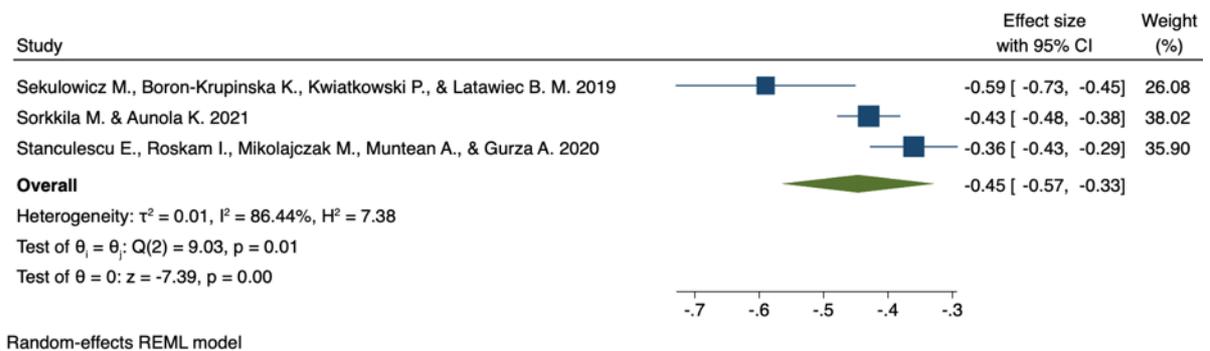
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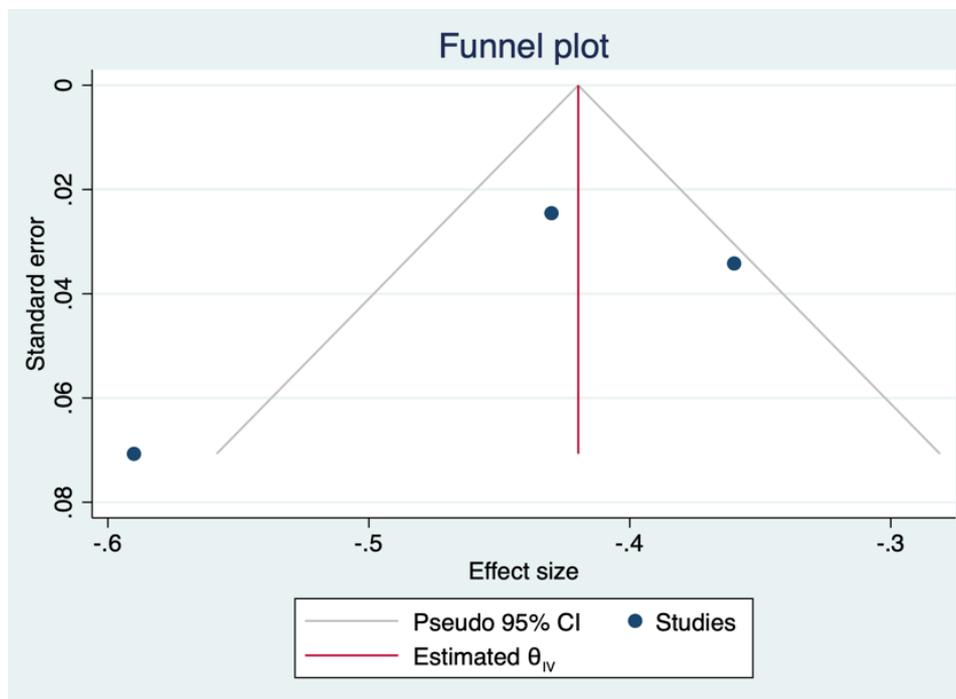
(b)

Figure 41

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Resilience and Parental Burnout



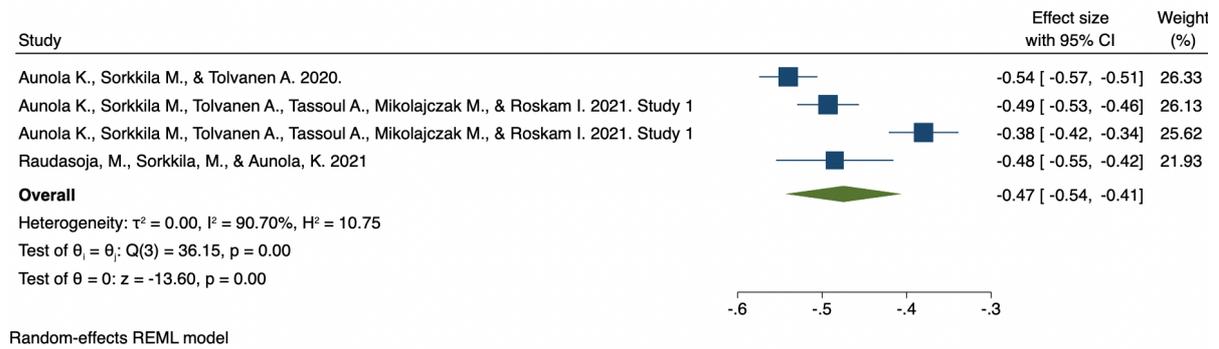
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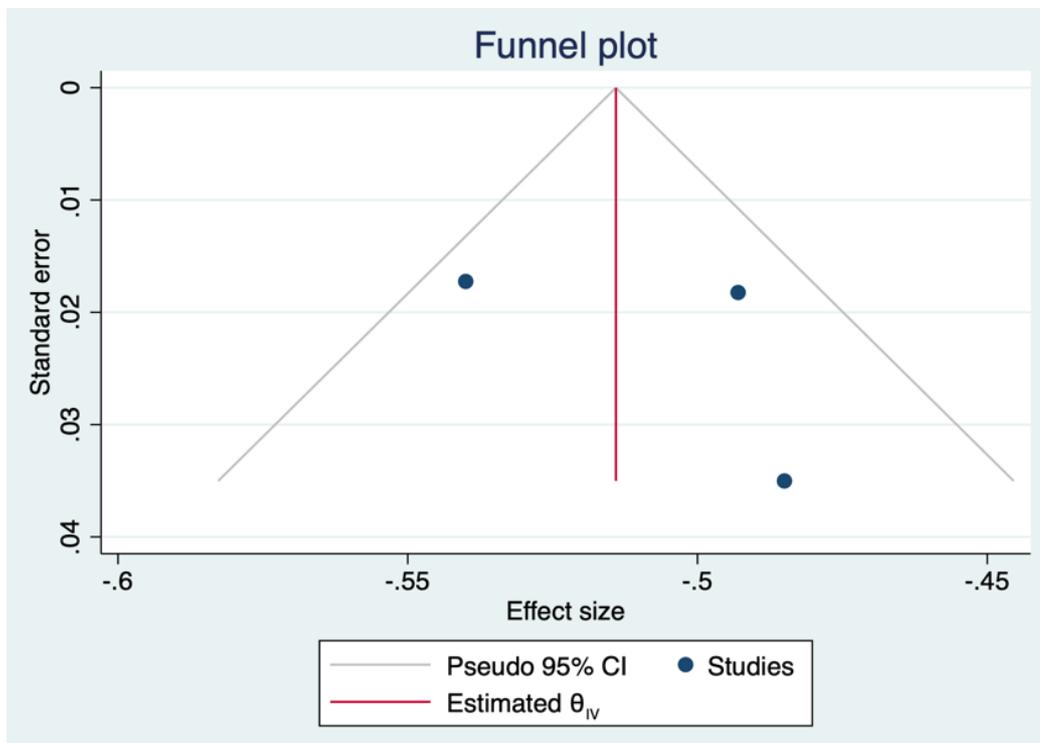
(b)

Figure 42

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Self-Esteem of the Parent and Parental Burnout



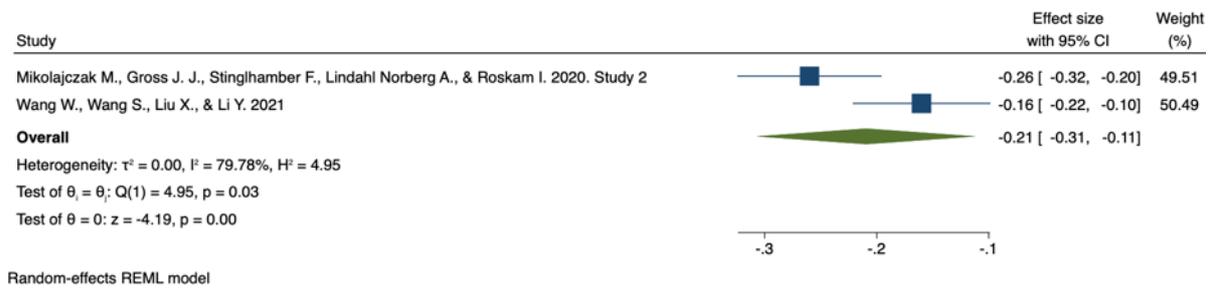
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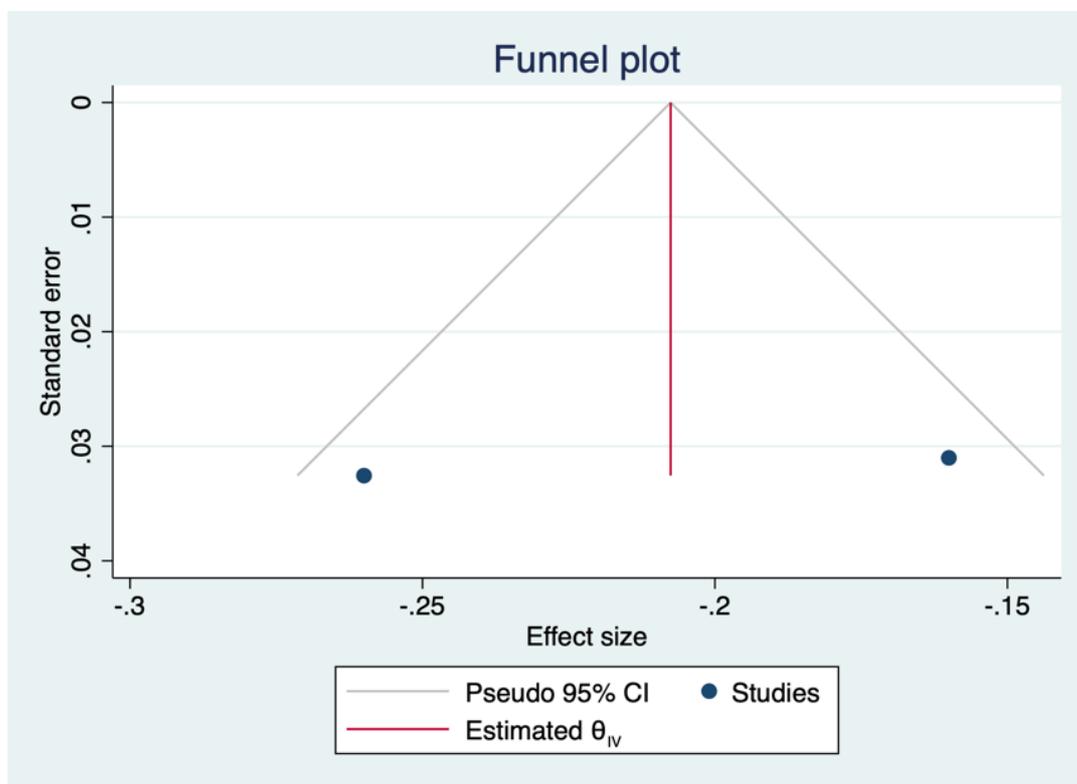
(b)

Figure 43

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Job Satisfaction and Parental Burnout



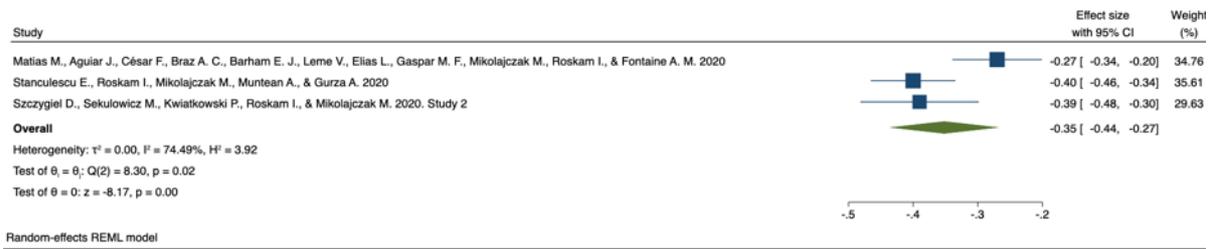
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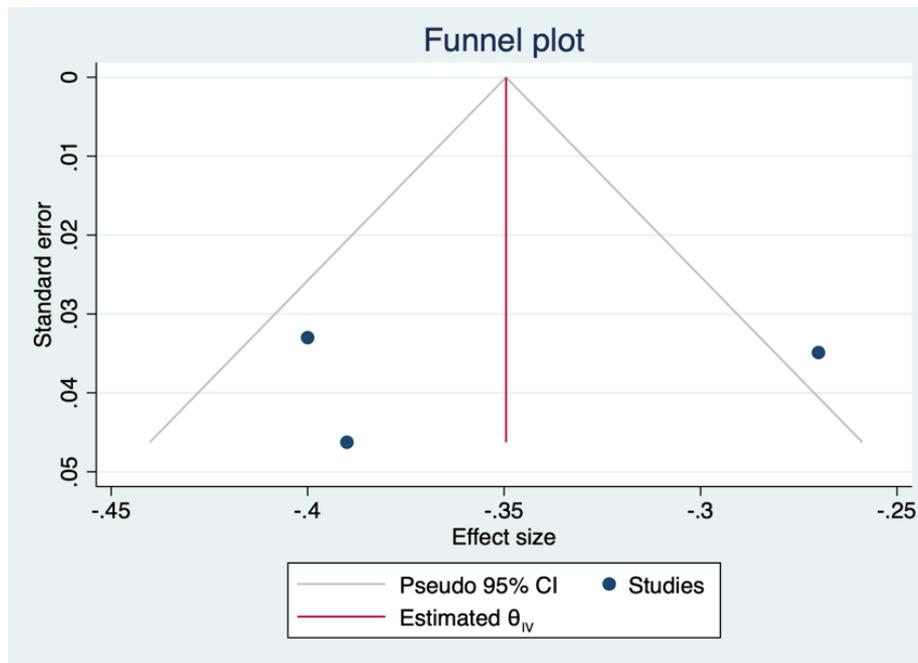
(b)

Figure 44

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Life Satisfaction and Parental Burnout



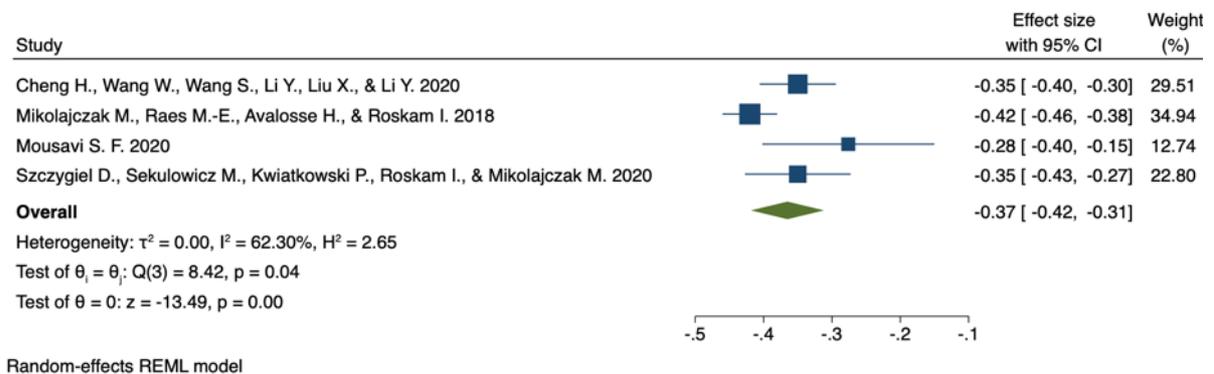
(a)



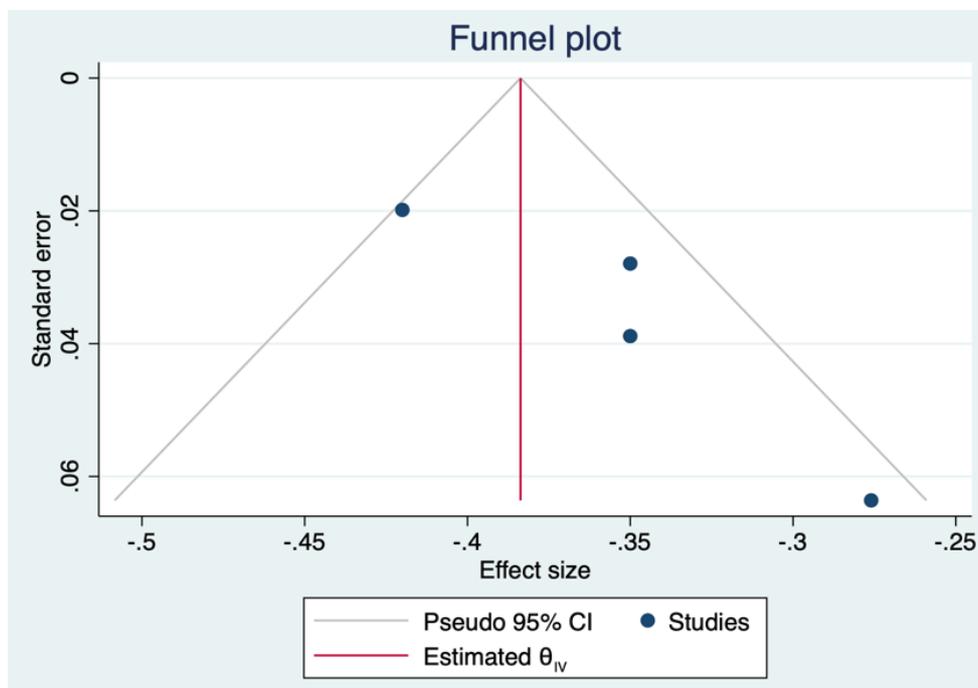
(b)

Figure 45

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Marital Satisfaction and Parental Burnout



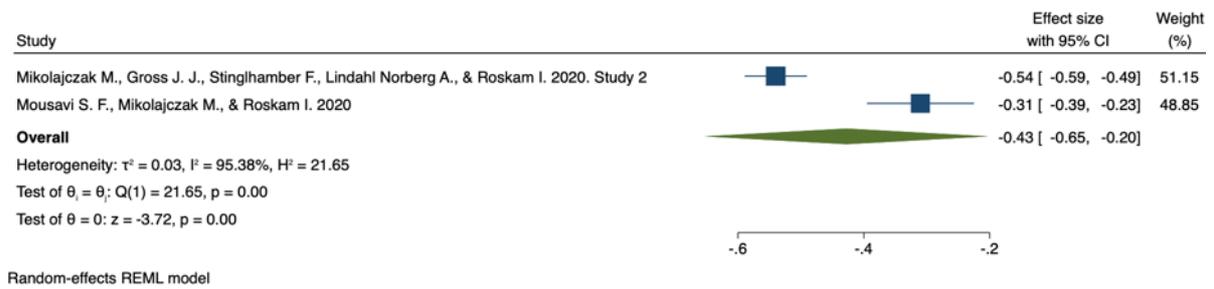
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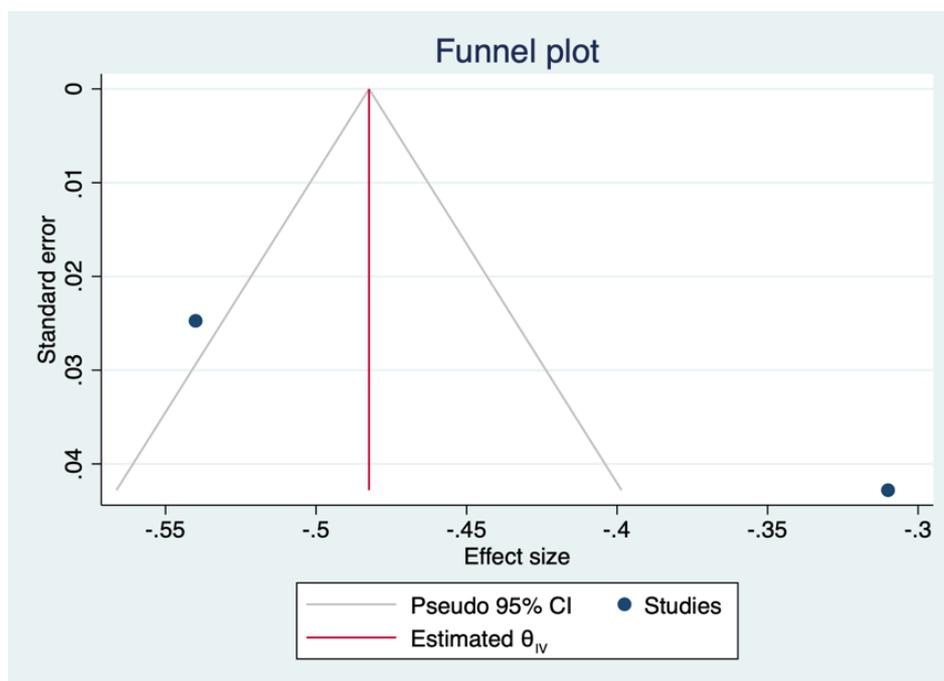
(b)

Figure 46

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Parental Satisfaction and Parental Burnout



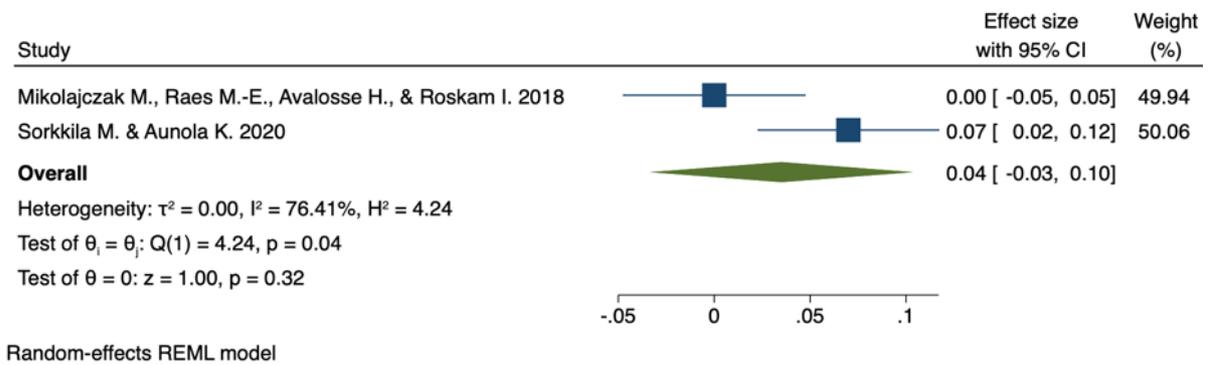
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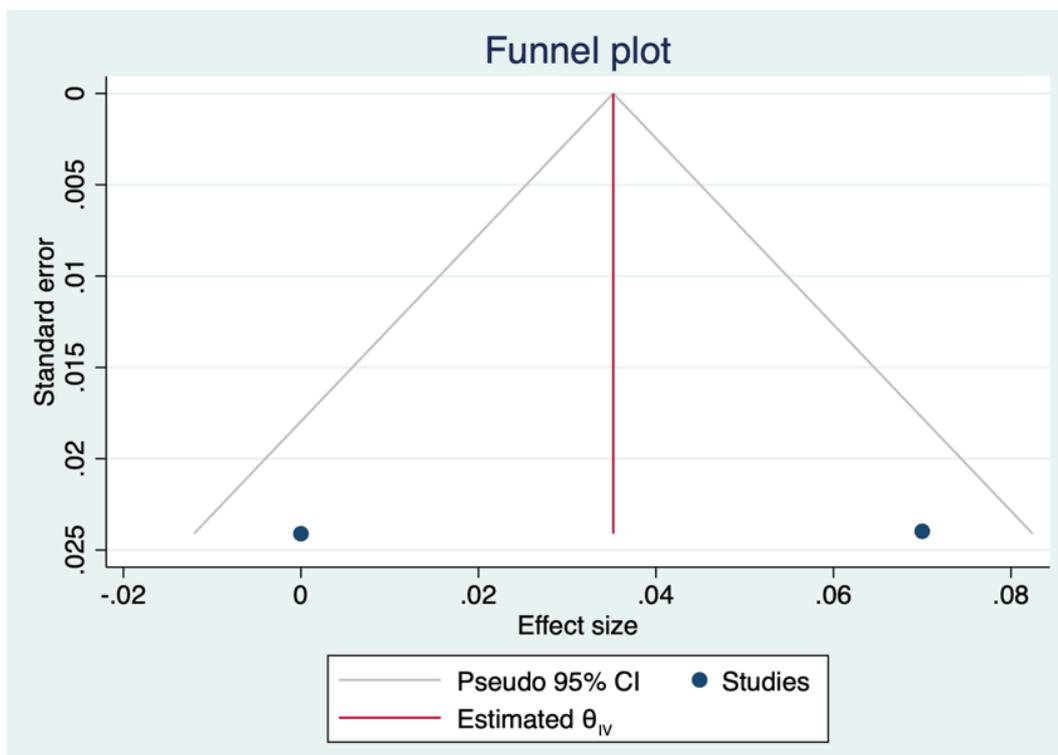
(b)

Figure 47

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Single Parenthood and Parental Burnout



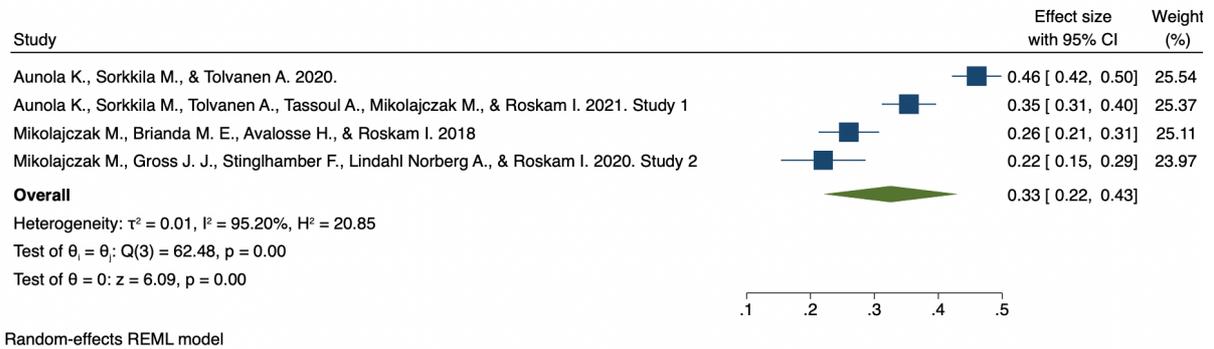
(a)



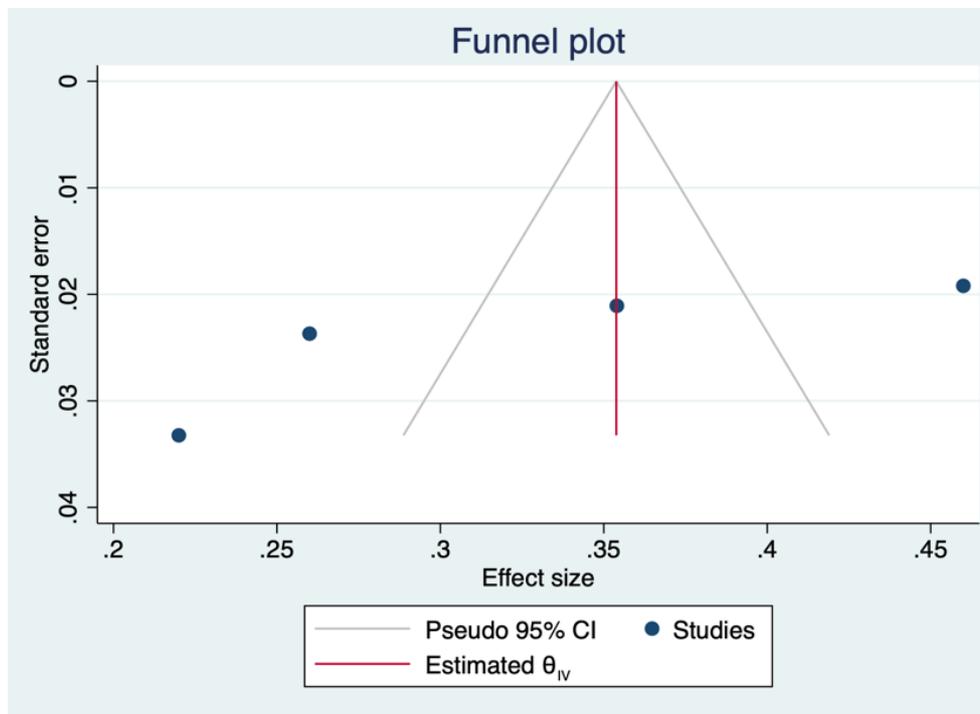
(b)

Figure 48

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Sleep Problems and Parental Burnout



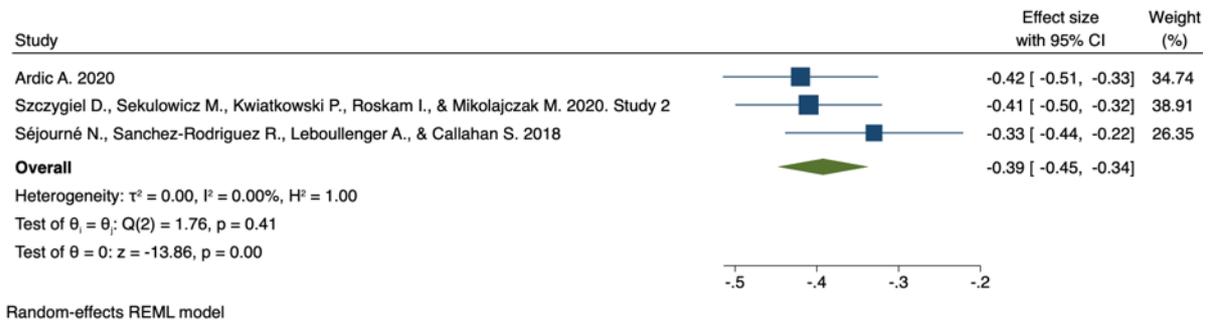
(a)



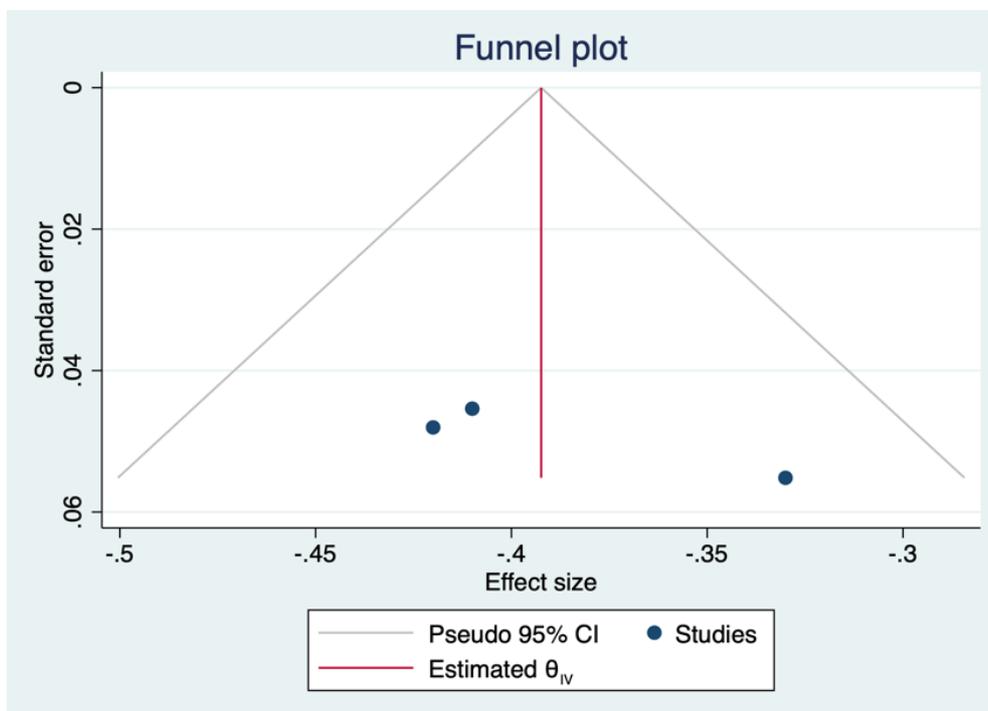
(b)

Figure 49

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Social Support and Parental Burnout



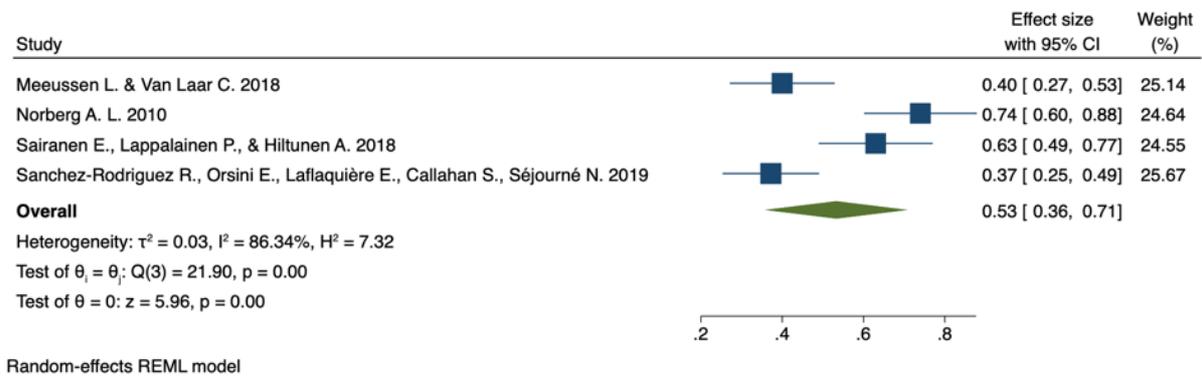
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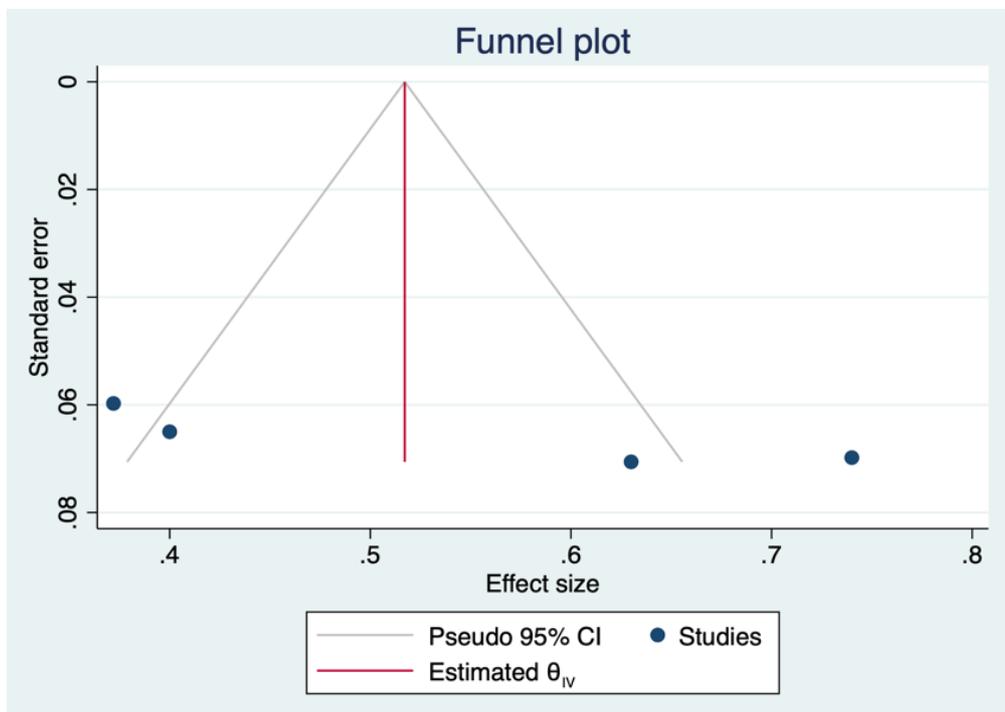
(b)

Figure 50

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Stress (global) and Parental Burnout



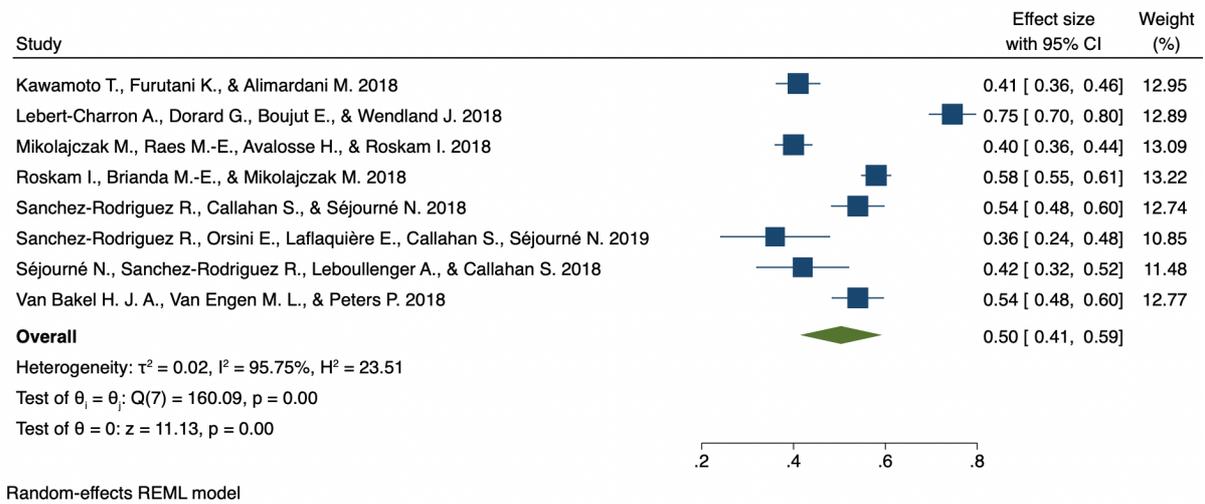
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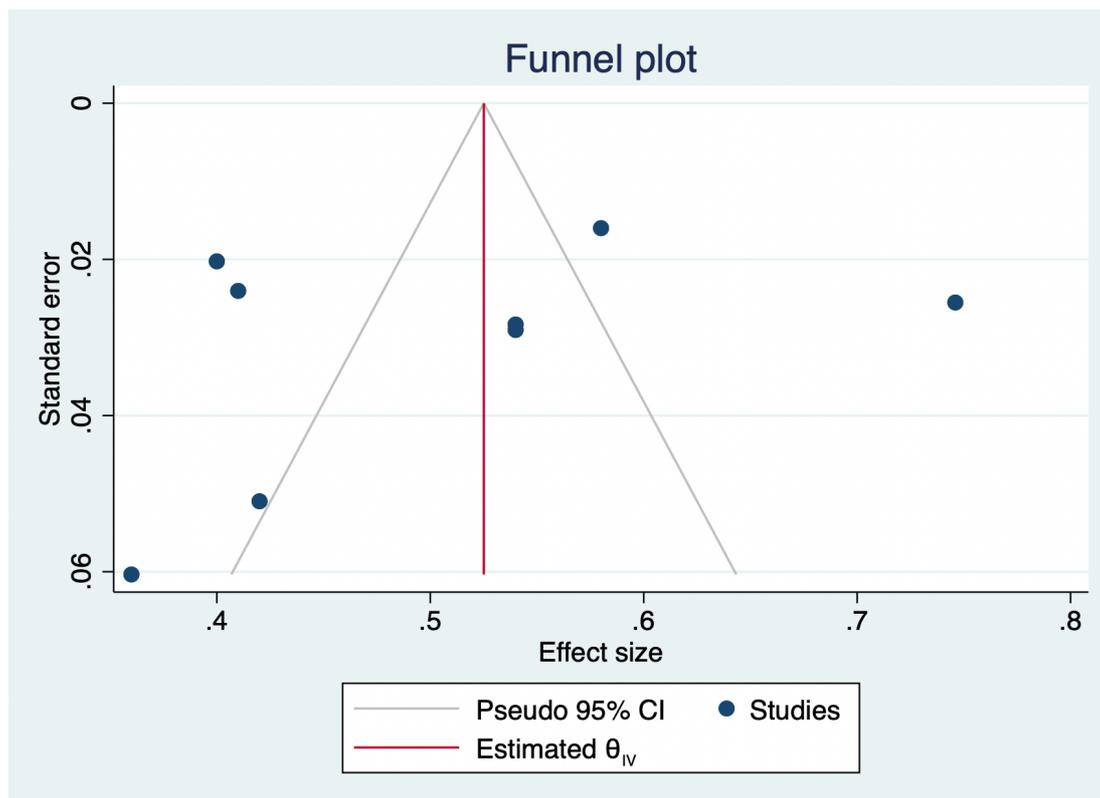
(b)

Figure 51

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Parenting Stress and Parental Burnout



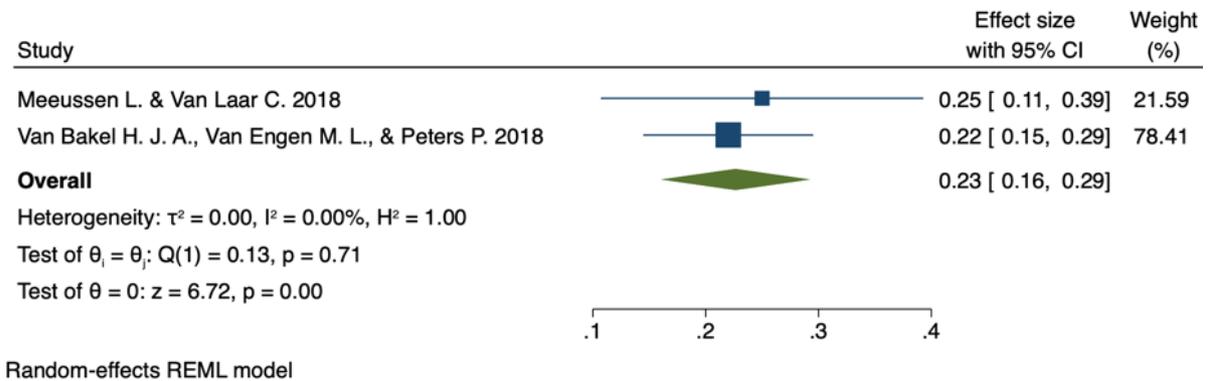
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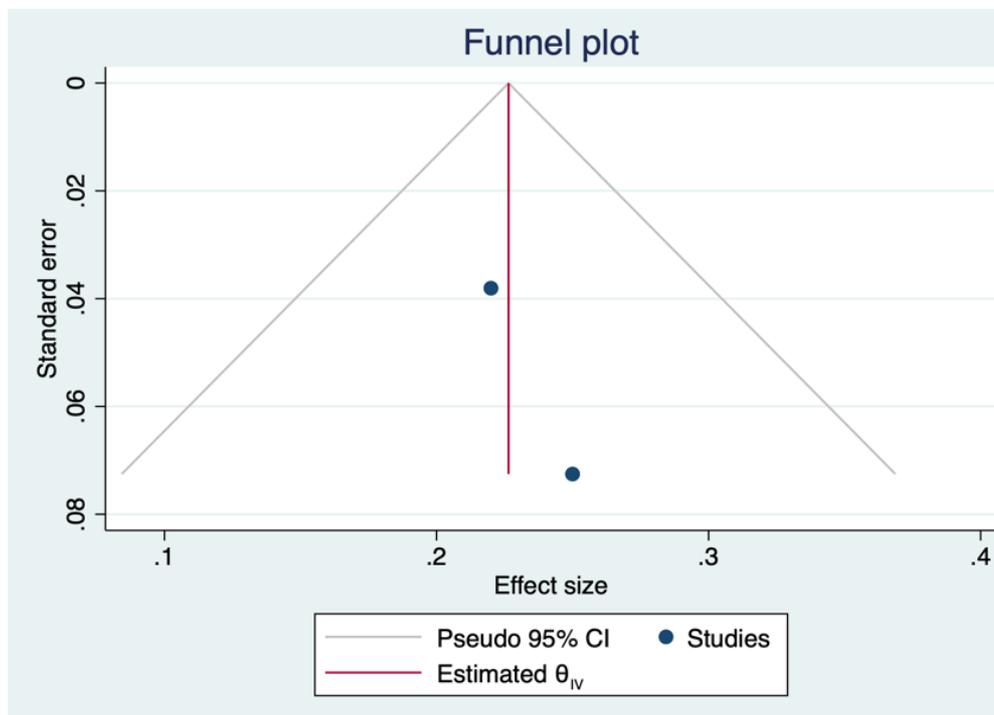
(b)

Figure 52

Forest Plot (a) and Funnel Plot (b) displaying a Random-Effects Meta-Analysis of the Relation between Work-Family Conflict and Parental Burnout



(a)



Supplementary References

(i.e., references of all studies included in the meta-analysis)

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