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Foster care placement instability: A meta-analytic review

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ABSTRACT

Foster care is the preferred type of out-of-home placement for children and youth when they are not able to live with their own parents. However, placement instability, and its effect on children's behavioral well-being, remains a major issue in foster care. Ten multilevel meta-analyses were performed to examine factors that can affect instability of foster care placement. We included 42 studies (published between 1990 and 2017) examining putative factors associated with placement instability, which yielded 293 effect sizes. Indications of publication bias were found, but the trim and fill procedure confirmed the main findings. Medium significant effects were found for child behavioral problems ($r = 0.35$), (non-)kinship care ($r = 0.31$), and quality parenting ($r = 0.29$). Smaller effects were found for age of the child ($r = 0.25$), placement with(out) siblings ($r = 0.16$), and history of maltreatment of the child before placement ($r = 0.14$). The effects were generally modest, but showed generalizability across continents and time. The findings can be used to improve interventions for the prevention of placement instability in foster care, and further investigations.

1. Introduction

Children who no longer can be brought up by their parents may be referred to residential care or – preferably – foster care (*Chamberlain et al., 2006; Shore, Sim, Le Prohn, & Keller, 2002; Strijker & Zandberg, 2005). Foster care is a form of care in which a child is placed in a different family than the family of origin (Rock, Michelson, Thomson, & Day, 2015; *Strijker & Van Oijen, 2008) for several reasons. The largest percentage of foster children is placed because of inadequate parenting, such as abusive and neglectful behavior, often combined with parental psychopathology, parental delinquency and/or substance abuse; much smaller percentages of children are placed because of parental death and parental incarceration (McDonald & Brook, 2009; Okma-Rayzner, 2006; Shaw, Bright, & Sharpe, 2015; Takayama, Wolfe, & Coulter, 1998).

Foster care placements vary in aim and length. The main aim of foster care placements is permanency, which refers to stability in a child's living situation and to preservation of family connections and relationships (Bell & Romano, 2017). Most frequently, permanency is found in adoption, reunification with the birth family or long-term foster care. Reunification is the preferred option in every country. If that is not possible within a short period of time (9–12 months) or can (probably) never be achieved, long-term foster care or adoption are considered (Goemans, Van Geel, & Vedder, 2015; *Strijker & Van Der Loo, 2010). In the United States and the United Kingdom adoption is often the most desirable option in these cases (www.childwelfare.gov) while in Nordic countries, the Netherlands, Spain and Australia, long-term stable foster care is preferred because family connections and relationships can better be maintained (*Sallnäs, Vinnerljung, & Kyhle Westermark, 2004; Strijker, Zandberg, & Van Der Meulen, 2003).

Despite the different legislations and preferences, in all Western countries many children live in foster families for many years, sometimes until the age of 18, aiming at a stable and safe family rearing environment (Strijker, Knorth, & Knot-Dickscheit, 2008). Foster families can be either kin or relatives of the child, or families recruited by care providers. The proportion of kinship placements differs between countries. For instance, in England and Wales 11% (Brown & Sen, 2014), in the USA 23% (Brown & Sen, 2014), and in Spain 80% of all foster care placements (*López López, del Valle, Montserrat, & Bravo, 2011) concern kin placements.

A substantial number of children in long-term foster care (20% to 50%) experience a premature ending of their stay (e.g., Farmer,

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Lipscombe, & Moyers, 2005; *Leathers, 2006; *López López et al., 2011; Minty, 1999). They move either to another foster family, to residential care, (unplanned) back to their parent(s) at home, or they run away to an unknown place (*James, 2004; *Leathers, 2006). Terms that refer to these unplanned terminations of foster care placements are: breakdown, disruption, frequent moves or – in general – placement instability (e.g., Rock et al., 2015).

Foster care instability may result in consecutive changes in primary caretakers, requiring foster children to adapt to new social and physical environments, such as a new neighborhood and a new school. Consequently, foster children may lose intimate bonds, significant social relationships, and familiar places (Strijker et al., 2008). Further, placement instability has a negative effect on different developmental outcomes of foster children (Aarons et al., 2010; Akin, Byers, Lloyd, & McDonald, 2015; Herrenkohl, Herrenkohl, & Egolf, 2003; Humphreys et al., 2015), including physical development (Johnson et al., 2018), brain development (Van Rooij, Maaskant, Weijers, Weijers, & Hermanns, 2015), and well-being (Rubin, O'Reilly, Luan, & Localio, 2007). Placement instability increases the risk for children's behavioral, social, and academic problems, negative self-esteem, psychopathology, and increased distrust in guardians and other adults (Becker, Jordan, & Larsen, 2007; Bilaver, Jaudes, Koepke, & George, 1999; Humphreys et al., 2015; Oosterman, Schuengel, Slot, Bullens, & Doreleijers, 2007; Rock et al., 2015; Strijker et al., 2008). The accumulation of these problems may result in a negative spiral: the ability of building new secure attachments to new caretakers or foster parents decreases, children's behavior problems increase, and the risk for instability in the next placement grows (*Newton, Litrownik, & Landsverk, 2000).

When children live in stable environments, which is a prerequisite for developing secure attachment relationships with caregivers, they are less likely to develop externalizing problems (*Newton et al., 2000; Rubin et al., 2007), delinquent behavior (Ryan & Testa, 2005), and psychopathology (Humphreys et al., 2015). They are more likely to have healthy brain development (Vanderwert, Zeanah, Fox, & Nelson III, 2016) and favorable academic achievements (Zima et al., 2000). Therefore, stability is important for successful foster care placements and a necessary precondition for positive child development (*Newton et al., 2000; Strijker et al., 2008). However, this does not mean that all children with unstable placements develop problems, because resilience is a key factor in how children cope with previous negative experiences (*Lutman, Hunt, & Waterhouse, 2009). Nor does this mean that a stable foster care placement necessarily leads to positive child outcomes. A recent meta-analysis revealed that children, on average, show stable patterns of behavior problems during their stay in foster care (Goemans et al., 2015).

In order to find starting points to reduce the risk for placement instability, a growing number of studies have been directed at examining whether and how characteristics of the children, foster care placements, and foster parents are associated with placement instability. Several reviews and one meta-analysis synthesized these studies in an attempt to create a systematic overview of these factors (e.g., Holland, Faulkner, & Perez-del-Aguila, 2005; Munro & Hardy, 2007; Oosterman et al., 2007; Rock et al., 2015; Winokur, Holtan, & Batchelder, 2018). To date, the quantitative review of Oosterman et al. (2007) is the first meta-analysis examining putative factors associated with instability of foster care placements. A relatively old age of children at placement, externalizing behavioral problems of children, and a child's history of residential care showed significant small to moderate associations. Oosterman et al. (2007) also showed that high quality child rearing practices of foster parents – being effective at setting boundaries, tolerant, and emotionally involved and child-centered – were associated with less disruptions (i.e., placement instability).

The narrative research synthesis of Rock et al. (2015) focused on correlates of placement instability reviewing quantitative as well as qualitative studies, and classified these factors into risk and protective factors. Some of these risk factors were also identified by Oosterman et al. (2007), such as a relatively old age of children at first placement, externalizing behavior problems of children (particularly disruptive and hyperactive behavior), having spent a relatively long time in care, and a child's history of unstable placements and residential care. In addition to Oosterman et al. (2007), Rock et al. (2015) found that the involvement of multiple social workers, and being placed in non-kinship foster care (compared to kinship care) were risk factors for placement instability. Oosterman and colleagues did not find a significant association between foster care type (non-kin or kinship care) and placement breakdown (i.e., placement instability). This is remarkable, as not only Rock et al., but also Winokur et al. (2018), who reviewed studies comparing children in kinship and non-kinship foster care, found strong evidence that kinship placements were relatively stable. Rock et al. (2015) also identified a number of protective factors: placement with siblings, placement with relatively old foster parents, more experienced foster parents, foster parents with strong parenting skills, and foster parents who stimulate children in their intellectual development.

Since the meta-analysis of Oosterman et al. (2007) many new primary studies on factors associated with placement instability in foster care have been conducted, and the more sophisticated three-level approach to meta-analysis has become available, which allows the inclusion of multiple effect sizes per study, the examining of both within and between study variability in effect sizes, and increases statistical power (Assink & Wibbelink, 2016). Therefore, the primary aim of this review was to update the current knowledge of these factors and their effects by performing a meta-analysis in which the three-level approach is used. A second aim was to examine variables that may moderate the association between putative predictors of placement instability, including child and study characteristics (e.g., age of the child and the child's ethnicity). Clarity on the factors associated with instability of foster care placements may enable practitioners to improve the quality and stability of foster care placements, which contributes to a positive development of children with complex needs.

2. Method

2.1. Selection of the studies

We searched for primary studies from 1990 in the databases: PsycINFO and ERIC (Fig. 1). The following two search strings were combined: (foster care OR out-of-home-care OR out-of-home placement) AND (breakdown OR failure OR disruption OR (in)stability OR continuity OR permanency OR movement OR transition). To determine whether the retrieved studies could be included in our meta-analysis, we read titles, abstracts, and full article texts, if relevant. In total, our literature search strategy yielded 930 studies. Also reference lists of reviews were checked for additional studies, but no extra publications were found.

For including primary studies, several inclusion criteria were formulated. To be included, studies had to examine long-term foster care and factors associated with instability of foster care placements, to contain empirical data, to be published from 1990, to be published in peer-reviewed scientific journals, to be written in English and conducted in Western countries. Only publications from Western countries (U.S., Canada, Austria, Europe) were included to minimize potential generalization problems of the results. Studies on short-term foster care and permanency of placements in terms of (post-foster care) adoption and guardianship were not included in our analysis, because factors explaining instability of adoption and guardianship were considered beyond the scope of our meta-analysis, and would require a separate review.

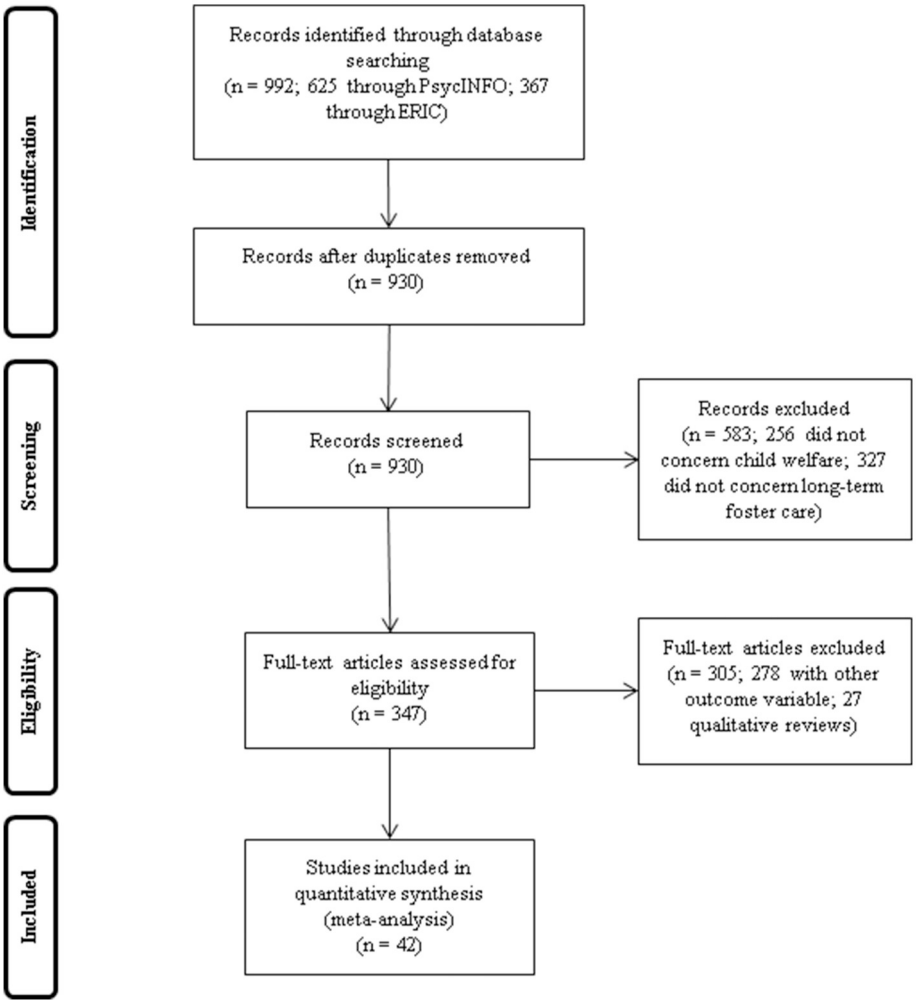


Fig. 1. Selection of the studies (see Appendix A).

Studies from 1990 to 2017 were included, which covers a period of little > 25 years. Going further back in time would substantially reduce the relevance of our study for the more recent developments in foster care, case management in child welfare, and society at large. For instance, many changes took place in the lives of families after 1990 (e.g., further decline of the extended family, higher divorce rates, non-traditional family arrangements, lower birth rates) in the Western world (OECD, 2011), while case management in child welfare gradually became an evidence-based practice (Busschers, Van Vugt, & Stams, 2016). We included studies on instability if they focused on breakdown (placement is ended unplanned and prematurely, before the goals were achieved), disruption (unplanned move from one foster family to another), or multiple foster care placements.

2.2. Coding of studies

In developing a coding form, guidelines proposed by Lipsey and Wilson (2001) were followed. More than 50 factors that were putatively associated with placement instability were coded: child behavior (such as externalizing or internalizing behavior, traumatic experiences, attachment problems), child characteristics (age, gender, ethnic background), foster parents characteristics (age, education, income, ethnicity - match with the foster child, kin or no kin of the child), presence of biological children of the foster parents, factors concerning the quality of fostering (experience, motivation to foster, parenting skills, received support, co-operation with the birth parents), placement factors (residential care prior to the foster care placement, placement with siblings, voluntary or custody care), social worker characteristics (type of training, quality of support provided to the child, the birth parents or the foster family) and birth parents characteristics (age, education, type of problems, co-operation to the placement, quality of the relation to their child).

Following Oosterman et al. (2007) and Rock et al. (2015), factors which had been examined in at least five studies, were classified into ten domains and coded following the putative association with instability of long-term foster care placement: being a boy, older age of the child (continuous variable), ethnic minority status, behavior problems (externalizing, internalizing or general behavior problems), history of maltreatment (neglect, emotional, sexual, physical abuse), low quality parenting provided by foster parents, non-kinship care, placement without siblings, prior out-of-home episodes, and previous number of out-of-home placements. Notably, each of the ten factor domains may subsequently appear as a moderator of one of the other factor domains possibly affecting placement instability.

Besides categorizing the ten domains of factors that may be associated with placement instability, we distinguished several study characteristics that could moderate the association between these (putative risk or protective) factor domains and placement instability. The moderating effects of the proportion of female children, mean age of the foster children, the proportion of children with an ethnic minority background were investigated, except of course in the respective domains. Furthermore, the influence of the type of behavior problems (externalizing, internalizing, general), maltreatment (neglect, emotional, sexual, physical abuse), analysis (univariate or multivariate),

and outcome variable (breakdown, disruption, multiple foster care placements) were examined. In addition, publication year was included as a moderator, since effect sizes may decrease over time because of the use of more sophisticated and robust statistical techniques, designated as 'the decline effect' (Cronbach, 1975). Furthermore, continent where the study was carried out was included as a moderator, because youth care systems and legislation may differ in various countries.

2.3. Calculation effect sizes

The Pearson's *r* correlation coefficient was chosen as the effect size in the meta-analyses of the ten factor domains, representing the association between a risk or protective factor and placement instability as defined in the inclusion criteria. The associations were reported in terms of odds ratio's, chi-square statistics, Cohen's *d*, means and standard deviations, *t*-test values, and frequencies. With the effect size calculator of Lipsey and Wilson (2001), the reported statistical information was converted to Pearson's *r* for each variable of which the predictive value for instability was examined. Interrater reliability was assessed by two coders who coded all studies independently. Eighty-nine percent of the codings showed correspondence. Discussing the 11% differences with a third person led to consensus over most of the ratings (Cohen's kappa = 0.99).

All statistics in the publications, converted to Pearson's *r*, subsequently were transformed into Fischer z-scores to be analyzed. Since extreme effect sizes may have a disproportionate influence on conclusions drawn from statistical analyses, we checked for outliers by searching for effect sizes with standardized scores larger than 3.29 or smaller than −3.29 (Tabachnik & Fidell, 2013). No outliers were found.

2.4. Statistical analyses

Most studies reported on multiple putative factors associated with placement instability, and therefore more than one effect size could be extracted from these studies. In order to account for statistical dependency of effect sizes, a three-level random effects model was used for the calculation of combined effect sizes and moderator analyses (Hox, 2002; Van den Noortgate & Onghena, 2003). While level 1 is random sampling error, level 2 accounts for variance within studies, and level 3 for variance between studies (Assink & Wibbelink, 2016).

A three-level intercept-only model was used to obtain an overall estimate of the effect of each domain, and in case of significant variation between effect sizes from the same study and/or between studies, it was extended by including potential moderators to determine whether this heterogeneity could be explained by within or between study characteristics. We conducted separate moderator analyses for each of the 10 domains of factors that were assumed to be associated with placement instability.

For the statistical analyses, we used the R environment (version 3.2.0; R Core Team, 2015; Viechtbauer, 2010). The R syntax was written so that the three sources of variance as described by for instance Van den Noortgate, López-López, Marin-Martinez, and Sánchez-Meca (2013, 2014) were modeled (Assink & Wibbelink, 2016). The t-distribution was used for testing individual regression coefficients of the meta-analytic models and for calculating the corresponding confidence intervals, and the F-distribution was used in the omnibus test of all coefficients in a model with moderators (Knapp & Hartung, 2003). To determine whether the variance between effect sizes from the same study (Level 2), and the variance between studies (Level 3) were significant, the deviance of the full model was compared to the deviance of a model excluding one of the variance parameters in a log-likelihood ratio test. The sampling variance of observed effect sizes (Level 1) was estimated by using the formula of Cheung (2014). All model parameters were estimated using the restricted maximum likelihood estimation method and before moderator analyses were conducted, each continuous variable was centered around its mean, and dichotomous dummy variables were created for all categorical variables. The log-likelihood-ratio-tests were performed one-tailed and all other tests were performed two-tailed. We considered *p*-values smaller than 0.050 as statistically significant.

2.5. Bias analysis

In conducting meta-analytic research, the results may be influenced by different forms of bias, of which publication bias is the most well-known. Publication bias refers to the fact that articles reporting non-significant or unanticipated (small and/or negative) effects are less likely to be published than articles reporting significant and/or hypotheses supporting results. To examine the degree to which our results may have been influenced by different forms of bias, we conducted a funnel plot analysis as described by Duval and Tweedie (2000a, 2000b) by using the function "trimfill" of the metafor package (Viechtbauer, 2010) in the R environment (Version 3.2.0; R Core Team, 2015). In the absence of bias, a symmetrical distribution of effect sizes around an estimated overall effect is assumed. This implies that a plot of observed effect sizes (on the x-axis) and their corresponding standard errors (on the y-axis) would produce a symmetrical funnel. Asymmetry in the funnel plot is caused my "missing" effect sizes either to the left or the right of the estimated overall effect. In the former, (insignificant) small or negative effect sizes are missing, indicating that the estimated overall effect is an overestimation that may be due to publication bias. In the latter, (significant) positive or large effect sizes are missing, indicating that the estimated overall effect is an underestimation that is not necessarily due to a form of bias in the effect sizes that are analyzed.

Among the available techniques for assessing the possibility of publication bias in a meta-analysis, the trim and fill method provides an estimate of the degree to which publication (or other forms of) bias might affect an estimation of the overall or mean effect size. The algorithm restores the symmetry of an asymmetric funnel plot by imputing missing effect sizes that can be calculated on the basis of existing effect sizes (Nakagawa & Santos, 2012). Next, a 'corrected' overall effect can be estimated to determine whether and how an initially estimated overall effect was influenced by bias in the effect sizes that were analyzed. In the present review, the trim-and-fill algorithm was performed for assessing (forms of) bias in individual risk domains, because risk domains do not refer to one common effect size (i.e., risk factor strength). However, most studies produced effects of multiple variables that were simultaneously tested as risk factors for placement instability, of which only some were reported as significant. Consequently, our bias assessment approach did not allow us to test whether studies are missing with insignificant effects *across any and all* factors that primary researchers examined. This somewhat hampered a thorough assessment of (publication) bias. On the other hand, we did find a study that produced only a single effect size, which was even not significant (*Andersen & Fallesen, 2015), indicating that primary researchers do not always test multiple variables as risk factors.

Further, it is important to note that the adjusted mean effect sizes, produced by the trim and fill analyses, should not be regarded as true mean effects. There are several methodological difficulties regarding this method. For instance, Nakagawa and Santos (2012) argued that trim and fill analysis should meet the assumption of independence of effect sizes, which was violated in our multi-level meta-analytic approach. Terrin, Schmid, Lau, and Olkin (2003) showed that between-study heterogeneity invalidates the results produced by trim and fill analysis (for a similar result, see Peters, Sutton, Jones, Abrams, & Rushton, 2007). Therefore, the differences between the adjusted and the observed mean effect sizes in the present study should only be interpreted as an indication of bias.

Table 1
Overall study characteristics.

Author(s)	Year	# N	Country	Mean age	% Females	% Minorities
(1) *Walsh & Walsh	1990	106	USA /Canada	–	–	–
(2) *Thorpe & Swart	1992	115	Europe	5.9	34.8	-
(3) *Iglehart	1994	812	USA /Canada	–	62.0	71.0
(4) *Palmer	1996	184	USA /Canada	–	57.0	23.0
(5) *Drapeau, Simard, Beaudry, Charbonneau	2000	335	USA /Canada	10.9	48.4	–
(6) *McAuley & Trew	2000	19	Europe	8.5	36.8	–
(7) *Newton et al.	2000	415	USA /Canada	6.6	53.5	55.0
(8) *Webster, Barth, Needell	2000	5137	USA /Canada	–	42.1	69.7
(9) *Barber, Delfabbro, Cooper	2001	235	Australia	10.8	48.5	16.0
(10) *Kalland & Sinkkonen	2001	233	Europe	3.9	44.0	–
(11) *Ward & Skuse	2001	249	Europe	7.0	44.0	68.0
(12) *Lipscombe et al.	2003	68	Europe	14.3	51.0	–
(13) *Sinclair & Wilson	2003	387	Europe	–	–	–
(14) *Wulczyn, Kogan, Harden	2003	16170	USA /Canada	–	–	–
(15) *Holland & Gorey	2004	45	USA /Canada	10.9	49.0	–
(16) *James	2004	605	USA /Canada	7.2	55.3	53.8
(17) *Sallnäs et al.	2004	467	Europe	–	50.0	–
(18) *Leathers	2005	196	USA /Canada	12,5	51.0	92.0
(19) *Strijker, Zandberg, Van der Meulen	2005	76	Europe	10.9	59.0	–
(20) *Chamberlain et al.	2006	246	USA /Canada	8.7	46.7	65.0
(21) *Leathers	2006	179	USA /Canada	12.9	47.6	91.0
(22) *Osborn, Delfabbro, Barber	2007	364	Australia	12.9	42.0	22.0
(23) Strijker et al.	2008	419	Europe	9.9	50.1	–
(24) *DeGarmo et al.	2009	337	USA /Canada	8.9	50.0	77.0
(25) *Lutman et al.	2009	113	Europe	–	47.8	17.0
(26) *Crum	2010	115	USA /Canada	–	–	13.9
(27) *Hurlburt et al.	2010	294	USA /Canada	–	–	78.0
(28) Strijker & Van der Loo	2010	99	Europe	6.2	48.9	–
(29) Akin	2011	121	USA /Canada	11.7	56.2	21.5
(30) *Courtney & Prophet	2011	3248	USA /Canada	–	–	–
(31) *Fisher, Stoolmiller, Mannering, Takahashi, Chamberlain	2011	60	USA /Canada	4.3	41.7	6.6
(32) *Helton	2011	315	USA /Canada	–	55.0	64.0
(33) *López López et al.	2011	318	Europe	12.5	–	–
(34) *Weiner, Leon, Stiehl	2011	1448	USA /Canada	10.2	48.0	67.6
(35) Meloy & Phillips	2012	18944	USA /Canada	1.4	48.0	61.0
(36) *O'Neill, Risley-Curtiss, Ayón, Williams	2012	95	USA /Canada	3,4	50.0	59.4
(37) *Perry et al.	2012	852	USA /Canada	–	–	–
(38) *Holtan et al.	2013	136	Europe	17.7	43.4	–
(39) *Koh, Rolock, Cross, Eblen-Manning	2014	3407	USA /Canada	3.8	48.2	71.5
(40) *Andersen & Fallesen	2015	13157	Europe	12.0	48.9	–
(41) *Santen	2015	14171	Europe	–	50.8	22.1
(42) Van Rooij et al.	2015	164	Europe	9.8	57.0	46.0

Note. Year = year of publication; # N = sample size; Continent = continent where studies were conducted; Mean age = mean age of child; % Females = percentage females in the study; % Minorities = percentage children of minority groups in the study.

3. Results

3.1. Descriptives, central tendency and variability

In the present review, 42 studies (*k*) published between 1990 and 2017 were included (see Table 1 for an overview), 28 of which were published after 2003, the publication year of the most recent included study in Oosterman et al. (2007). The total sample (*N*) counts 84,470 foster care children, and the sample size of included studies ranged from 19 to 18,944 participants. The mean age of the participants was 9.13 years (*SD* = 3.77); the mean percentage of minority children in samples was 54% (varying from 7% to 92%); and the mean percentage of girls in samples was 49% (varying from 35% to 62%). Studies were conducted in Northern America, including the USA and Canada (*k* = 24), in Europe (*k* = 16), and in Australia (*k* = 2). In total, the coded studies produced 293 effect sizes, each reflecting the effect of the (putative) risk for instability in foster care placement.

An overview of the overall effect sizes of the 10 factor domains is presented in Table 2. Each overall effect size represents the effect of the risk for instability in foster care placement. Significant overall effect sizes were found for six domains, with small (*r* = 0.14 for maltreatment) to medium (*r* = 0.35 for behavioral problems) effect sizes, based on criteria for the interpretation of the magnitude of effect sizes as formulated by Mullen (1989). The results indicated that children with behavioral problems, children who were placed in non-kinship foster families, children who had foster parents with a low quality of parenting practices, children who were relatively old at the beginning of the placement, children who were placed without their brother (s) and sister(s) when they had any, and children with a history of maltreatment were at risk for placement instability, including breakdown and disruption (see Table 2). No significant overall effect sizes were found for gender, ethnicity, previous number of out-of-home placements, and prior out-of-home care episodes, meaning that these effect sizes did not significantly deviate from zero.

The results of the likelihood-ratio tests showed that there was significant variance between effect sizes from the same study (i.e., level 2 variance) and/or between studies (i.e., level 3 variance) in each of the ten domains (see Table 2). We therefore conducted moderator analyses within each domain in order to find within or between study characteristics that could explain level 2 or level 3 variance.

The trim and fill analyses (see Method section) indicated that publication bias may have been present in all factor domains, except the

Table 2
Results for the overall mean effect sizes of the 10 domains.

	Domain of factors	# Studies	# ES	Mean *z* (SE)	95% CI	Sig. mean *z* (p)	% variance at level 1	Level 2 variance	% variance at level 2	Level 3 variance	% variance at level 3
(1)	Gender (% boys)	14	19	−0.003 (0.029)	−0.064, 0.058	0.922	1.61	0.010***	83.52	0.002	14.87
(2)	Age	21	58	0.251 (0.067)	0.117, 0.385	< 0.001***	0.12	0.098***	72.21	0.038	27.67
(3)	Ethnicity (% minorities)	12	36	−0.046 (0.058)	−0.163, 0.071	0.427	0.22	0.060***	77.54	0.017	22.24
(4)	Behavioral problems	27	58	0.347 (0.045)	0.257, 0.438	< 0.001***	1.09	0.064***	79.97	0.015	18.94
(5)	History of maltreatment	9	29	0.136 (0.062)	0.009, 0.263	0.037*	2.34	0.057***	81.24	0.012	16.43
(6)	Quality foster parenting	9	14	0.292 (0.037)	0.214, 0.371	< 0.001***	2.08	0.014***	97.92	0.000	9.19
(7)	Type of foster care (non-kinship vs kinship foster care)	19	32	0.311 (0.054)	0.200, 0.422	< 0.001***	1.14	0.013***	22.29	0.043**	76.57
(8)	Placement with(out) siblings	9	12	0.162 (0.052)	0.048, 0.275	0.010**	7.94	0.027***	92.06	0.000	1.51
(9)	Prior out-of-home episodes	6	9	0.142 (0.151)	−0.206, 0.490	0.374	0.20	0.000	3.26	0.133***	99.80
(10)	Previous number out-of-home placements	10	26	0.113 (0.079)	−0.050, 0.276	0.165	0.59	0.031***	41.41	0.043**	58.00

Note. # Studies = number of studies; # ES = number of effect sizes; Mean *z* = mean effect size (*z*); SE = standard error; CI = confidence interval; Sig = significance; % Var = percentage of variance explained; Level 1 variance = variance between all effect sizes; Level 2 variance = within-study variance; Level 3 variance = between-studies variance.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

domain referring to quality of foster parenting, as the distribution of effect sizes was asymmetrical in nine out of ten domains. Therefore, 'missing' effect sizes were added to the data on which each of these domains was based, and 'corrected' overall risk domain effects were estimated. After trim and fill analyses, the overall effect sizes of six domains were significant and ranged from a small ($r = 0.16$ for history of maltreatment) to a medium effect ($r = 0.39$ for behavioral problems) according to the criteria of Mullen (1989); see Table 3). The overall effect sizes of gender, ethnicity, previous number of out-of-home placements, and prior out-of-home care episodes were still not significant. For each domain, the funnel plot of effect sizes plotted against their corresponding standard errors is presented in Appendix B. The results showed that the overall effect of the risk domains referring to placement without siblings and low quality of parenting did not or hardly change in magnitude, but that effects of the risk domains referring to the age of the foster child, behavioral problems, history of maltreatment, and non-kinship care somewhat increased in magnitude. This indicated that the estimated effects of most domains were at least to some degree affected by bias.

The results of all moderator analyses are presented in Table 4, where moderators are classified into sample descriptors, research design descriptors, and risk factor characteristics. The moderator analyses yielded the following results. The overall effect of the child's behavioral problems domain was influenced by the type of those problems. The effect was smaller for general behavior problems ($r = 0.18$; small effect) and internalized problems ($r = .37$; medium effect) than for externalizing problems ($r = 0.49$; medium-to-large effect).

The effect size for children raised in non-kinship foster families decreased as the overall mean age at the beginning of the placement increased, which indicates that in particular younger children in non-kinship foster care were more at risk for placement instability than older children in non-kinship foster care. The effect size for the age domain decreased as the percentage of children from minority groups increased, which indicated that older children from ethnic majority samples were more at risk for placement instability than older children from ethnic minorities. The effect size for the history of maltreatment domain increased as the percentage of minorities in samples increased, which indicated that children from minority groups with a history of maltreatment were at greater risk for placement instability than children from majority samples with a history of maltreatment.

Although the overall effect size for previous number of out-of-home placements was not significant, the effect size was substantially smaller for girls than for boys, and significant for breakdown and not for disruption and multiple foster care placements. Furthermore, statistically unadjusted associations between previous number of out-of-home placements and instability (univariate analyses) were significantly stronger ($r = 0.22$) than statistically adjusted associations in multivariate analyses ($r = -0.16$). Only the mean association of the former significantly deviated from zero (i.e., no association). Therefore, previous number of out-of-home placements may not have a unique contribution in predicting instability, other factors may be more important. All of this indicated that previous out-of-home placement may be a risk for boys, for ending foster care placements prematurely (breakdown), and may not be exclusively associated with instability.

Finally, there was no evidence of a moderating effect of the continent where the study was carried out nor of the year in which the study was published, on any of the 10 domains.

4. Discussion

This multilevel meta-analysis aimed primarily to generate more specific knowledge on the (effects of the) factors that may influence (in) stability in foster care placement. A second aim was to examine a number of sample, study design, and publication characteristics as potential moderators of the effects of these factors. Significant small to medium overall effect sizes were found for six domains: behavioral

Table 3
Results for the Overall Mean Effect Sizes of the 10 Domains After Conducting Trim and Fill Analyses.

Domain of factors		# Studies	# ES	Mean z (SE)	95% CI	Sig. Mean z (p)
(1)	Gender (% boys)	20	25	0.010 (0.027)	−0.045, 0.064	0.719
(2)	Age	28	75	0.322 (0.065)***	0.192, 0.452	< 0.001***
(3)	Ethnicity (% minorities)	21	47	−0.083 (0.054)	−0.192, 0.025	0.128
(4)	Behavioral problems	34	68	0.385 (0.044)***	0.297, 0.473	< 0.001***
(5)	History of maltreatment	13	36	0.163 (0.065)*	0.031, 0.296	0.017*
(6)	Quality foster parenting	–	–	–	–	–
(7)	Type of foster care (non-kinship vs kinship foster care)	23	36	0.324 (0.053)***	0.217, 0.431	< 0.001***
(8)	Placement with(out) siblings	10	13	0.161 (0.051)**	0.049, 0.273	0.009**
(9)	Prior out-of-home episodes	7	10	0.147 (0.146)	−0.182, 0.477	0.338
(10)	Previous number out-of-home placements	14	33	0.035 (0.080)	−0.129, 0.199	0.667

Note. #Studies = number of studies; # ES = number of effect sizes; Mean z = mean effect size (z); SE = standard error; CI = confidence interval; Sig = significance. Dashes indicate a symmetrical distribution of effect sizes in a domain, meaning that trimming and filling of effect sizes was not necessary.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

problems of the children (highest risk for externalizing problems), non-kinship foster care (highest risk for younger children), low quality of foster parenting, older age at initial placement (highest risk for children from ethnic majorities), placement without siblings, and a history of maltreatment (highest risk for children from ethnic minority samples).

No significant overall effects were found for gender, ethnicity, prior out-of-home-episodes, and previous number of out-of-home placements. However, moderator analyses showed that previous number of out-of-home placements was a risk for boys only (not for girls), for placement breakdown (not for disruption or multiple placements), and did not have a unique contribution to the prediction of placement instability. Despite the heterogeneity of populations and child welfare systems across countries, and the evolvement of statistical techniques over time, there was no significant moderating effect on instability of foster care placements, meaning that the effects of all ten factor domains show generalizability across continent and time (at least in the last 25 years). Overall, these results confirm that multiple domains referring to both child and foster care characteristics play a role in the risk for placement instability.

The strongest association with instability of foster care placements was found for behavioral problems of the child, and in particular externalizing problems ($r = 0.49$). This is not surprising, as externalizing problems cause parenting stress (Goemans, Van Geel, & Vedder, 2018), are difficult to handle for parents (*Holland & Gorey, 2004; Wilson, 2006), and have a direct negative impact on supportive parenting behaviors (*Holland & Gorey, 2004), which can lead to instability of foster care placements. Moreover, there is empirical evidence showing that behavioral problems of children in foster care tend to remain stable over time (Goemans et al., 2015), and that these behavioral problems are unrelated to child problems at the beginning of a placement (Rubin et al., 2007). So behavior problems can serve as a cause as well as a consequence of placement instability (*Newton et al., 2000). Treatment of behavior difficulties (if there are any) by treatment foster care (Fisher & Chamberlain, 2000) or other effective approaches is necessary for a stable continuation of the placement and for positive development and well-being of the children.

The next strongest association with placement instability was found for non-kinship foster care (compared to kinship care) ($r = 0.31$). Non-kinship foster care was associated with higher rates of breakdown and disruption, which was most pronounced in younger children. While Oosterman et al. (2007) did not find empirical evidence for this risk factor, our finding is congruent with recent systematic reviews (Bell & Romano, 2017; Rock et al., 2015; Winokur et al., 2018). A first explanation is that children in non-kinship care show more psychopathology than children in kinship foster care (Bakker, 2014; Oosterman et al., 2007; Rock et al., 2015; Winokur et al., 2018; Winokur, Holtan, & Batchelder, 2014), possibly due to selective placement (Vanderschoonlandt, Vanderfaeillie, Van Holen, De Maeyer, & Andries, 2012), which might increase the risk for placement instability. An alternative explanation would be that kinship foster parents appear to be more dedicated and personally involved than non-kinship foster parents. The former tend to offer care unconditionally, and feel a sense of binding duty to the relative in their care (Rock et al., 2015). Notably, kinship foster care has been characterized as a combination of empathy, altruism and dutifulness (*Andersen & Fallesen, 2015; *Holtan, Handegård, Thørnblad, & Vis, 2013). Furthermore, a child raised in a familiar environment may experience a higher degree of continuity of care, keep more and regular contact with the birth parents (Honomichl & Brooks, 2010; *Iglehart, 1994; Le Prohn, 1994), and may have more access to natural (informal) mentors, who have been shown to contribute to positive youth outcomes, especially when mentor-mentee relationship quality is high (Van Dam et al., 2018). So, kinship care may buffer against the risk for placement instability. *Sallnäs et al. (2004) confirm that even after controlling for several background variables, being placed with kin seems to be a strong protective factor for placement breakdown. However, more research is needed to understand the mechanisms through which kinship care shows more stability, which is especially the case for the somewhat older children at initial placement, as our moderator analysis showed.

The third strongest factor associated with instability of foster care placements was low quality of foster parenting, and in line with the expectations, this factor serves as a risk factor for placement instability. Foster parents with low parenting skills tend to have problems with setting and maintaining boundaries (*Crum, 2010), and with reacting adequately to the emotional and developmental age of the foster child (*Lipscombe, Farmer, & Moyers, 2003), which might increase the risk for placement breakdown. In contrast, high quality foster parenting may constitute a protective factor for placement instability, because evidence shows that supporting foster parents to improve their parenting skills increases placement stability (Carnochan, Moore, & Austin, 2013; *James, 2004; Price et al., 2008; Van Andel, Grietens, Strijker, Van der Gaag, & Knorth, 2014).

The fourth strongest factor associated with placement instability is a relatively older age of the foster child at initial placement, especially in ethnic majority samples. Children placed at a relatively older age have more often persistent behavioral problems (Barth et al., 2007), whereas early adolescents might be looking for behavioral and psychological autonomy, which can traverse the stability of the placement (Berridge,

Table 4
Results for continuous and categorical moderators (bivariate models).

Moderator variables	# studies	#ES	Intercept (95% CI)	β (95% CI)	F (df1, df2)[a]	p-Value[b]	Level 2 variance	Level 3 variance
(1) Gender								
Sample descriptor								
Percentage minorities	11	15	−0.072 (−0.367, 0.223)	0.001 (−0.004, 0.006)	F(1, 13) = 0.167	0.689	0.008***	0.013
Overall mean age	8	10	0.002 (−0.214, 0.218)	0.004 (−0.019, 0.027)	F(1, 8) = 0.175	0.687	0.000	0.014
Research design descriptors								
Encoded continent [c]					F(1, 17) = 0.754	0.397	0.009***	0.004
Europe (RC)	4	8	0.032 (−0.079, 0.142)					
USA / Canada	10	11	−0.024 (−0.104, 0.055)	−0.056 (−0.192, 0.080)				
Type of outcome variable					F(2, 16) = 2.542	0.110	0.010***	0.000
Breakdown (RC)	2	6	0.039 (−0.053, 0.131)					
Disruption	8	9	0.027 (−0.056, 0.110)	−0.012 (−0.136, 0.112)				
Multiple placements	4	4	−0.105 (−0.219 0.009)	−0.144 (−0.290, 0.003)				
Type of analysis					F(1, 17) = 1.726	0.206	0.007***	0.006
Multivariate (RC)	6	7	0.041 (−0.062, 0.144)	−0.084 (−0.219, 0.051)				
Univariate	8	12	−0.043 (−0.131, 0.045)					
Publication year	14	19	−0.015 (−0.076, 0.047)	0.007 (−0.004, 0.018)	F(1, 17) = 1.973	0.178	0.012***	0.000
(2) Age								
Sample descriptors								
Percentage of girls	18	50	0.628 (−1.248, 2.505)	−0.007 (−0.045, 0.031)	F(1, 48) = 0.146	0.704	0.108***	0.051
Percentage minorities	14	45	−0.410 (0.227, 0.594)***	−0.004 (−0.008, −0.001)*	F(1, 43) = 5.711*	0.021*	0.082***	0.000
Research design descriptors								
Encoded continent					F(2, 55) = 1.639	0.203	0.093***	0.045
Europe (RC)	10	33	0.393 (0.186, 0.600)***					
USA / Canada	10	23	0.145 (−0.050, 0.340)	−0.248 (−0.532, 0.036)				
Australia	1	2	0.114 (−0.499, 0.726)	−0.279 (−0.926, 0.367)				
Type of outcome variable					F(2, 55) = 1.426	0.249	0.091***	0.053
Breakdown (RC)	6	31	0 0.324 (0.088, 0.560)**					
Disruption	9	13	0.102 (−0.134, 0.339)	−0.222 (−0.556, 0.111)				
Multiple placements	6	14	0.355 (0.087, 0.623)*	0.057 (−0.295, 0.409)				
Type of analysis					F(1, 56) = 0.608	0.439	0.095***	0.048
Multivariate (RC)	6	7	0.146 (−0.165, 0.458)					
Univariate	15	51	0.282 (0.124, 0.441)***	0.136 (−0.213, 0.486)				
Publication year	21	58	0.256 (0.120, 0.391)***	−0.017 (−0.037, 0.004)	F(1, 56) = 2.613	0.112	0.094***	0.041
(3) Ethnicity								
Sample descriptor								
Percentage of girls	10	29	0.039 (−1.565, 1.642)	−0.002 (−0.035, 0.030)	F(1, 27) = 0.021	0.885	0.070***	0.021
Overall mean age	7	16	−0.361 (−0.757, 0.035)	0.039 (−0.011, 0.089)	F(1, 14) = 2.764	0.119	0.128***	0.000
Research design descriptors								
Encoded continent [c]					F(1, 34) = 0.000	0.994	0.060***	0.021
Europe (RC)	2	5	−0.046 (−0.371, 0.280)					
USA / Canada	10	31	−0.044 (−0.178, 0.089)	0.001 (−0.351, 0.353)				
Type of outcome variable					F(2, 33) = 0.080	0.923	0.059***	0.027
Breakdown (RC)	1	4	0.020 (−0.397, 0.437)					
Multiple placements	3	13	−0.073 (−0.312, 0.167)	−0.093 (−0.573, 0.388)				
Disruption	8	19	−0.038 (−0.208, 0.131)	−0.058 (−0.508, 0.392)				
Type of analysis					F(1, 34) = 0.090	0.766	0.059***	0.022
Multivariate (RC)	6	19	−0.028 (−0.193, 0.137)					
Univariate	6	17	−0.065 (−0.253, 0.122)	−0.037 (−0.287, 0.213)				
Publication year	12	36	−0.048 (−0.169, 0.073)	0.005 (−0.019, 0.029)	F(1, 34) = 0.203	0.655	0.060***	0.019
(4) Behavioral problems								
Sample descriptors								
Percentage of girls	22	51	−0.195 (−1.259, 0.869)	0.011 (−0.010, 0.032)	F(1, 49) = 1.057	0.309	0.069***	0.021
Percentage minorities	17	36	0.287 (0.094, 0.479)**	−0.000 (−0.004, 0.004)	F(1, 34) = 0.000	0.992	0.062***	0.000

(*continued on next page*)

Table 4 (*continued*)

Moderator variables	# studies	#ES	Intercept (95% CI)	β (95% CI)	F (df1, df2)[a]	p-Value[b]	Level 2 variance	Level 3 variance
Overall mean age	20	47	0.438 (0.013, 0.862)*	−0.010 (−0.052, 0.032)	F(1, 45) = 0.239	0.627	0.077***	0.025
Factor characteristic					F(2, 55) = 9.153***	< 0.001***	0.045***	0.017
Externalizing problems (RC)	17	29	0.486 (0.376, 0.595)***					
Internalizing problems	5	7	0.369 (0.174, 0.564)***	−0.116 (−0.321, 0.088)				
General behavior problems	16	22	0.180 (0.065, 0.295)**	−0.306 (−0.449, −0.162)***				
Research design descriptors								
Encoded continent					F(2, 55) = 0.500	0.609	0.065***	0.016
Europe (RC)	10	19	0.357 (0.204, 0.510)***					
Australia	2	5	0.199 (−0.112, 0.510)	−0.158 (−0.505, 0.188)				
USA / Canada	15	34	0.364 (0.239, 0.488)***	0.006 (−0.191, 0.204)				
Type of outcome variable					F(2, 55) = 0.719	0.492	0.065***	0.016
Breakdown (RC)	6	13	0.414 (0.224, 0.603)***					
Multiple placements	8	19	0.381 (0.220, 0.543)***	−0.032 (−0.281, 0.217)				
Disruption	13	26	0.287 (0.151, 0.424)***	−0.126 (−0.360, 0.107)				
Type of analysis					F(1, 56) = 0.014	0.906	0.064***	0.017*
Multivariate (RC)	5	16	0.356 (0.169, 0.543)***					
Univariate	22	42	0.343 (0.237, 0.450)***	−0.013 (−0.228, 0.203)				
Publication year	27	58	0 0.334 (0.243, 0.425)***	−0.014 (−0.029, 0.002)	F(1, 56) = 3.198	0.079	0.061***	0.016*
(5) Maltreatment								
Sample descriptors								
Percentage of girls	7	22	0.847 (−0.370, 2.063)	−0.014 (−0.038, 0.010)	F(1, 20) = 1.449	0.243	0.086***	0.000
Percentage minorities	6	16	−0.353 (−0.819, 0.113)	0.010 (0.000, 0.020)*	F(1, 14) = 5.002*	0.042*	0.072***	0.000
Overall mean age	7	26	−0.148 (−0.770, 0.474)	0.021 (−0.039, 0.080)	F(1, 24) = 0.521	0.477	0.022***	0.016
Factor characteristics					F(1, 27) = 0.082	0.776	0.059***	0.012
Neglect, emotional abuse (RC)	9	18	0.126 (−0.023, 0.274)					
Physical, sexual abuse	4	11	0.156 (−0.041, 0.354)	0.031 (−0.190, 0.251)				
Research design descriptors								
Encoded continent					F(2, 26) = 2.826	0.078	0.056***	0.003
Australia	2	3	0.003 (−0.296, 0.301)	−0.035 (−0.373, 0.302)				
USA / Canada	4	13	0.272 (0.115, 0.429)**	0.234 (0.012, 0.455)*				
Europe (RC)	3	13	0.038 (−0.118, 0.195)					
Type of outcome variable					F(2, 26) = 0.165	0.849	0.054***	0.030
Multiple placements	6	13	0.171 (−0.043, 0.384)	0.085 (−0.375, 0.546)				
Disruption	2	10	0.079 (−0.218, 0.375)	−0.007 (−0.511, 0.498)				
Breakdown (RC)	1	6	0.085 (−0.323, 0.493)					
Type of analysis					F(1, 27) = 0.007	0.934	0.055***	0.023
Multivariate (RC)	1	4	0.118 (−0.278, 0.514)					
Univariate	8	25	0.135 (−0.025, 0.295)	0.017 (−0.410, 0.445)				
Publication year	9	29	0.138 (0.036, 0.239)**	−0.013 (−0.033, 0.007)	F(1, 27) = 1.737	0.199	0.064***	0.000
(6) Low quality parenting								
Sample descriptors								
Percentage of girls	6	9	0.867 (−1.044, 2.777)	−0.011 (−0.048, 0.026)	F(1, 7) = 0.502	0.501	0.016***	0.012
Percentage minorities	4	8	0.398 (0.170, 0.626)**	−0.005 (−0.013, 0.003)	F(1, 6) = 2.693	0.152	0.011***	0.000
Overall mean age	5	5	0.070 (−0.658, 0.798)	0.027 (−0.052, 0.106)	F(1, 3) = 1.215	0.351	0.022	0.022
Research design descriptors								
Encoded continent [c]					F(1, 12) = 0.311	0.587	0.015***	0.000
Europe (RC)	6	9	0.307 (0.208, 0.405)***					
USA / Canada	3	5	0.260 (0.110, 0.411)**	−0.046 (−0.226, 0.134)				
Type of outcome variable					F(2, 11) = 0.187	0.832	0.013***	0.009
Breakdown (RC)	3	7	0.312 (0.137, 0.487)**					
Multiple placements	3	4	0.244 (0.044, 0.444)*	−0.058 (−0.247, 0.131)				
Disruption	3	3	0.309 (0.092, 0.526)**	−0.004 (−0.282, 0.275)				
Type of analysis					F(1, 12) = 0.085	0.776	0.015***	0.000
Multivariate (RC)	1	2	0.264 (0.035, 0.493)*					

(*continued on next page*)

Table 4 (*continued*)

Moderator variables	# studies	#ES	Intercept (95% CI)	β (95% CI)	F (df1, df2)[a]	p-Value[b]	Level 2 variance	Level 3 variance
Univariate	8	12	0.297 (0.208, 0.386)***	0.033 (−0.213, 0.278)				
Publication year	9	14	0.289 (0.197, 0.380)***	−0.006 (−0.017, 0.005)	F(1, 12) = 1.522	0.241	0.012***	0.003
(7) Non kinship foster care								
Sample descriptors								
Percentage of girls	16	24	1.050 (−0.149, 2.245)	−0.014 (−0.038, 0.009)	F(1, 22) = 1.608	0.218	0.021***	0.039
Percentage minorities	11	17	−0.153 (−1.383, 1.077)	0.009 (−0.010, 0.027)	F(1, 15) = 0.952	0.345	0.004***	0.065**
Overall mean age	12	16	0.627 (0.316, 0.937)***	−0.037 (−0.071, −0.003)*	F(1, 14) = 5.464*	0.035*	0.043***	0.010
Research design descriptors								
Encoded continent [c]					F(1, 30) = 2.497	0.125	0.012***	0.040**
USA / Canada	12	23	0.371 (0.238, 0.505)***	0.175 (−0.051, 0.402)				
Europe (RC)	7	9	0.196 (0.013, 0.379)*					
Type of outcome variable					F(2, 29) = 0.244	0.785	0.012***	0.049**
Breakdown (RC)	4	6	0.241 (−0.020, 0.503)					
Multiple placements	6	16	0.354 (0.153, 0.556)**	0.113 (−0.217, 0.443)				
Disruption	9	10	0.311 (0.139, 0.484)	0.070 (−0.243, 0.383)				
Type of analysis					F(1, 30) = 0.138	0.713	0.013***	0.046**
Multivariate (RC)	6	7	0.342 (0.139, 0.545)**					
Univariate	13	25	0.297 (0.160, 0.435)***	−0.045 (−0.290, 0.201)				
Publication year	19	32	0.301 (0.190, 0.412)***	0.012 (−0.008, 0.032)	F(1, 30) = 1.439	0.240	0.013***	0.042**
(8) Placement without siblings								
Sample descriptors								
Percentage of girls	8	11	0.724 (−0.354, 1.803)	−0.011 (−0.033, 0.011)	F(1, 9) = 1.320	0.280	0.026***	0.000
Percentage minorities	5	7	0.025 (−0.904, 0.954)	0.002 (−0.010, 0.014)	F(1, 5) = 0.154	0.711	0.045***	0.000
Overall mean age	8	11	0.124 (−0.276, 0.525)	0.005 (−0.031, 0.041)	F(1, 9) = 0.110	0.748	0.030***	0.000
Research design descriptors								
Encoded continent [c]					F(1, 10) = 0.325	0.581	0.029***	0.000
USA / Canada	6	9	0.145 (0.010, 0.280)*	−0.072 (−0.353, 0.209)				
Europe (RC)	3	3	0.217 (−0.029, 0.463)					
Type of outcome variable [d] *					F(1, 10) = 0.223	0.647	0.029***	0.000
Disruption (RC)	5	7	0.184 (0.027, 0.340)*					
Multiple placements	4	5	0.133 (−0.050, 0.315)	−0.051 (−0.292, 0.190)				
Type of analysis					F(1, 10) = 0.114	0.742	0.030***	0.000
Multivariate (RC)	4	6	0.145 (−0.022, 0.311)					
Univariate	5	6	0.181 (0.008, 0.354)*	0.036 (−0.204, 0.277)				
Publication year	9	12	0.166 (0.036, 0.296)*	0.002 (−0.018, 0.021)	F(1, 10) = 0.029	0.867	0.030***	0.000
(9) Previous number of out-of-home placements								
Sample descriptors								
Percentage of girls	9	24	1.634 (0.840, 2.429)***	−0.033 (−0.050, −0.016)***	F(1, 22) = 16.425***	0.001***	0.036***	0.000
Percentage minorities	7	21	0.221 (−0.590, 1.033)	−0.003 (−0.015, 0.010)	F(1, 19) = 0.195	0.664	0.034***	0.051*
Overall mean age	8	16	0.004 (−0.461, 0.468)	0.004 (−0.042, 0.050)	F(1, 14) = 0.030	0.865	0.035***	0.037
Research design descriptors								
Encoded continent [c]					F(1, 24) = 0.495	0.488	0.031***	0.046*
USA / Canada	6	21	0.072 (−0.135, 0.279)	−0.120 (−0.473, 0.232)				
Europe (RC)	4	5	0.192 (−0.093, 0.478)					
Type of outcome variable					F(2, 23) = 3.697*	0.041*	0.031***	0.020
Multiple placements	3	14	0.207 (−0.003, 0.417)	−0.158 (−0.536, 0.220)				
Disruption	5	9	−0.065 (−0.254, 0.124)	−0.430 (−0.797, −0.063)*				
Breakdown (RC)	2	3	0.365 (0.051, 0.679)*					
Type of analysis					F(1, 24) = 8.948**	0.006**	0.031***	0.015
Multivariate (RC)	3	6	−0.158 (−0.375, 0.059)					
Univariate	7	20	0.216 (0.076, 0.355)**	0.374 (0.116, 0.632)**				
Publication year	10	26	0.086 (−0.074, 0.246)	−0.015 (−0.036, 0.007)	F(1, 24) = 2.010	0.169	0.030***	0.038*

(*continued on next page*)

Table 4 (*continued*)

Moderator variables	# studies	#ES	Intercept (95% CI)	β (95% CI)	F (df1, df2)[a]	p-Value[b]	Level 2 variance	Level 3 variance
(10) Prior out-of-home episodes								
Sample descriptors								
Percentage of girls	6	9	1.501 (−3.367, 6.369)	−0.027 (−0.124, 0.070)	F(1, 7) = 0.439	0.529	0.000	0.150***
Percentage minorities	5	8	0.181 (−0.230, 0.592)	0.003 (−0.010, 0.003)	F(1, 6) = 1.375	0.285	0.000	0.028**
Overall mean age	5	6	1.055 (−1.450, 3.558)	−0.085 (−0.320, 0.151)	F(1, 4) = 1.001	0.374	0.000	0.161
Research design descriptors								
Encoded continent [c]					F(1, 7) = 1.360	0.282	0.000	0.124***
USA / Canada	2	3	−0.099 (−0.697, 0.499)	−0.361 (−1.092, 0.371)				
Europe (RC)	4	6	0.262 (−0.160, 0.683)					
Type of outcome variable					F(2, 6) = 1.510	0.294	0.000	0.111***
Multiple placements	1	1	0.332 (−0.498, 1.161)	−0.069 (−1.081, 0.942)				
Breakdown (RC)	2	4	0.401 (−0.178, 0.980)					
Disruption	3	4	−0.099 (−0.579, 0.381)	−0.500 (−1.252, 0.252)				
Type of analysis					F(1, 7) = 1.360	0.282	0.000	0.124***
Multivariate (RC)	2	3	−0.099 (−0.697, 0.499)					
Univariate	4	6	0.262 (−0.160, 0.683)	0.361 (−0.371, 1.092)				
Publication year	6	9	0.155 (−0.233, 0.543)	−0.018 (−0.092, 0.057)	F(1, 7) = 0.314	0.593	0.000	0.155***

Note. #studies = number of studies; #ES = number of effect sizes; mean *r* = mean effect size (Pearson's *r*); CI = confidence interval; β = estimated regression coefficient; Level 2 variance = variance between effect sizes from the same study; Level 3 variance = variance between studies.

[a] Omnibus test of all regression coefficients in the model.

[b] *p*-value of the omnibus test.

[c] No Australian publications in this domain.

[d] No study on outcome variable 'breakdown' in this domain.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

1997; Pardeck, 1984; Rowe, Hundleby, & Garnett, 1989). More research is required to further unravel the finding that age of the child was associated with placement instability in majority groups, but not in minority groups.

As expected, a history of experiencing maltreatment was found to be a risk for placement instability. Seventy percent of the foster children are neglected and/or abused by their birth parents and, as a result, may have developed traumatic symptoms (Greeson et al., 2012). One in four children who experience interpersonal trauma develop a post-traumatic stress syndrome, with girls being at higher risk than boys (Alisic et al., 2014). Experiences of abuse have a negative impact on the developing stress regulatory system of the brain, meaning that children with early experiences of abuse and neglect find it more difficult to regulate their emotions (Perry, Runyan, & Sturges, 1998; Vanderwert et al., 2016). Poor emotion regulation leads to more internalizing and externalizing behavior problems (Cole, Michel, & Teti, 1994). In addition, the effect of having a history of experiencing maltreatment was moderated by ethnicity, indicating that children of minority groups with a history of abuse and neglect have a higher risk for placement instability than children from ethnic majority samples with a similar history of maltreatment. An explanation for this may be related to the disproportionately high reported rates of abuse and neglect in the community of minority groups (Dakil, Cox, Lin, & Flores, 2011). Also experiences of racism, discrimination, and poverty can increase a child's risk for post-traumatic stress symptoms, decrease their resilience and delay recovery (APA, 2008).

Placement without siblings also increased the risk for placement breakdown. Rock et al. (2015) reported that children feel less secure when separated from their siblings and report missing them as much as their parents. Placement with their brother(s) and/or sister(s) may prevent placement disruption. In the aftermath of maltreatment, the relationship between siblings in foster care is often the most viable ongoing relationship available to the child, and may be critical to a youth's sense of connection, emotional support, and continuity (Kothari et al., 2017). Also in the long term, there may be a narrative coherence between sibling co-placement and youths' resilience in educational and occupational competence, housing quality, relational adjustment, and civic engagement, especially pronounced among males (Richardson & Yates, 2014). Thus, placement with siblings seems to be in particular a protective factor, and - according to Waid, Kothari, Bank, and McBeath (2016) - to both children co-placed in kinship care as in non-relative foster care.

Although no significant overall effect for prior out-of-home care episodes and previous number of out-of-home placements was found, the last factor proved to be a risk for boys (not for girls), and for placement breakdown (i.e., ending the placement before the goals are reached), but not for disruption or multiple foster care placements. Also, previous out-of-home placements may not have a unique contribution to the prediction of instability. Other factors may be more important. Oosterman et al. (2007) found that a history of residential care was a predictor of breakdown. This finding was based on seven studies, of which five were published before and two after 1990, which is the year our analysis period started (Fernandez, 1999; *Walsh & Walsh, 1990). Also Rock et al. (2015) showed that a history of residential care was a risk for placement instability, which was a finding based on three studies, one before and two after 1990 (i.e., Barth et al., 2007; Park & Ryan, 2009). In our meta-analysis, we did not examine the effect of the rather narrowly defined factor ‘having a history of residential care’, but instead we examined the effects of the more specific factors ‘prior out-of-home care episodes’ and ‘previous number of out-of-home placements’, which both refer to a broader spectrum of care than residential care only. There were not enough studies to examine the potential moderating effect of ‘having a history of specifically residential care’ in a meaningful way, as we considered five studies as a minimum to be analyzed in our meta-analysis.

4.1. Limitations

A number of limitations deserve to be mentioned. Firstly, indications of publication bias were found in nine out of ten factor domains, meaning that effect sizes may be missed in almost every domain. Although the trim and fill procedure confirmed our main findings, the results should be interpreted with care. Secondly, some relevant moderators could not be investigated due to lack of information, which was the most important limitation of these series of meta-analyses. This accounts for the factor having a history of residential care, as explained before, but also for the quality of the relationships between foster parents, birth parents of the child and social workers; the quality of the contact between the child and the birth parents; the expectations and motivation of the foster parents for foster care; and the presence of biological children of foster parents in the foster family. More knowledge on the contribution of these potential moderators to (in)stability of foster care placements could give additional starting points for improving foster care practice. For instance, contact of good quality between the child and the birth parents or other birth family members may repair disrupted ties (Kufeldt, Kufeldt, & Dorosh, 1996). A good relationship between foster parents and birth parents facilitates the acceptance of the foster care placement by both the child and the parents, and therefore increases the chance of a positive outcome (*Kalland & Sinkkonen, 2001). The presence of biological children in the foster family may increase the risk for placement breakdown, but may also facilitate successful fostering, depending on the age differences of the children and gender combinations (*Kalland & Sinkkonen, 2001; Oosterman et al., 2007; Rock et al., 2015). To this date, there is limited empirical evidence for the role of these relationships and co-operations for stability in foster care, and moreover, the evidence is inconsistent (Rock et al., 2015). More research is needed to illuminate the complexity of these relationships to generate specific directions for foster care support and matching of children and foster families.

5. Conclusions

The present three-level meta-analysis contributes to the literature on risk and protective factors for instability of foster care placements. The associations between putative risk and protective factors, and placement instability in our meta-analyses are generally modest, but show generalizability across continent and time (at least in the last 25 years). Since the last meta-analysis on this subject (Oosterman et al., 2007), several new studies appeared, and new statistical methods for conducting meta-analyses were developed, which we applied in the present meta-analytic study.

We found that when children are fostered at a later age, have experienced maltreatment in their birth family, and have developed behavior problems, the risk for instability of a foster care placement increases. The situation is even more complicated when the foster parents are not relatives of the child, the child is not co-placed with his or her siblings, and the foster parents have limited parenting skills. In other words, child characteristics, such as age, behavior problems, and a history of experiencing maltreatment, may be considered risk factors, whereas foster family characteristics, such as kinship, co-placement with siblings, and good parenting skills, can also become protective factors or starting points for improving foster families' support.

A number of improvements can be suggested. To begin with, regularly screening for (especially externalizing) behavior problems and post-traumatic stress symptoms during the placement may enable caseworkers to prevent a negative placement disruption by intervening timely (*Hurlburt, Chamberlain, DeGarmo, Zhang, & Price, 2010). This corresponds with research from Goemans et al. (2015), who found that

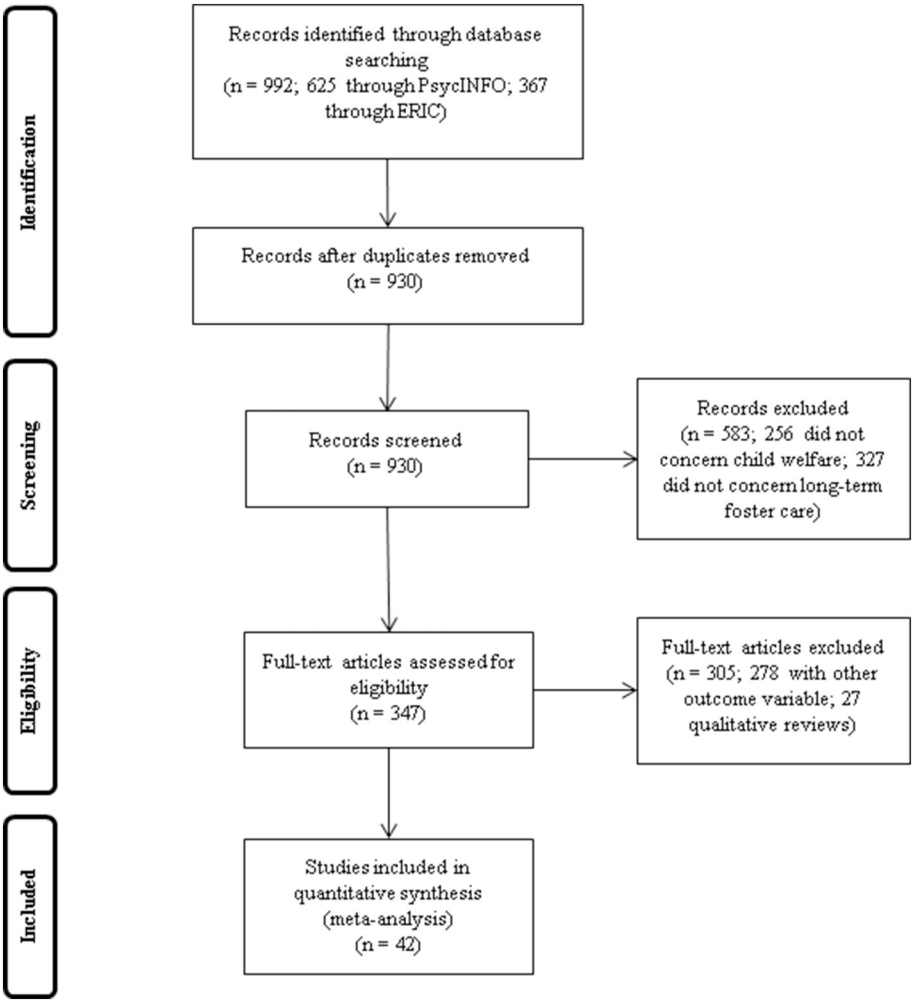
stability of the placement alone is not sufficient for positive development of foster children with behavior problems. Effective treatment of behavior problems and problems caused by traumatic stress are available, such as trauma-focused cognitive behavioral therapy (Slade & Warne, 2016). In addition to interventions for the foster child, specific support programs for foster parents, such as KEEP (Keep foster parents trained and supported) or Treatment Foster Care, may improve the parenting skills of foster parents, and thereby the child's rearing conditions and functioning (*DeGarmo, Chamberlain, Leve, & Price, 2009). Foster parents may be supported not only in parenting skills, but also in their expectations and sensitivity towards their foster children. Responsive and sensitive foster parents with sufficient parenting skills may reduce the risk for placement breakdown (*James, 2004).

Furthermore, there is remarkably little attention for appropriate matching practices, given the importance of the relationship between foster parents and child, and the impact for the child of preliminary termination of a foster care placement (Zeijlmans, López, Grietens, & Knorth, 2018). More research is needed on how matching practices can be improved. Finally, whenever possible, children should preferably be placed with kin and together with their siblings (*Chamberlain et al., 2006; *Holtan et al., 2013; *Perry, Daly, & Kotler, 2012). The present meta-analytic study contributes to the identification of risk and protective factors and their effects, as well as an examination of how these effects are moderated by study and sample characteristics. The results of this review may strengthen strategies aimed at the prevention of breakdown and disruptions in foster care.

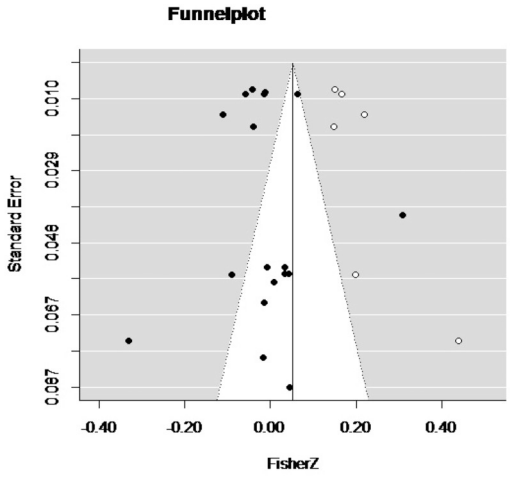
Declarations of interest

None.

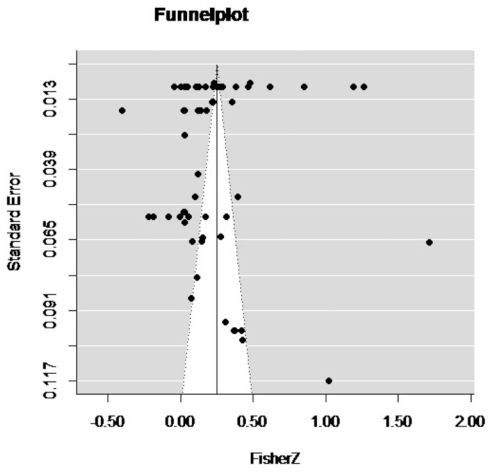
Appendix A



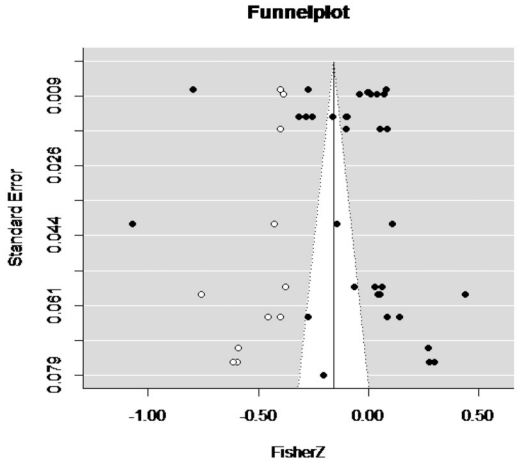
Appendix B. Funnelplots trim & fill analyses



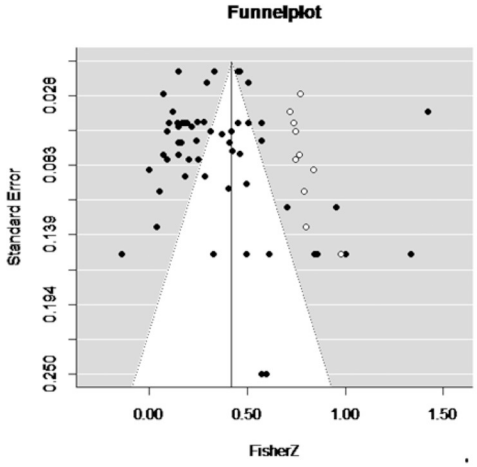
B.1: Funnelplot – gender domain



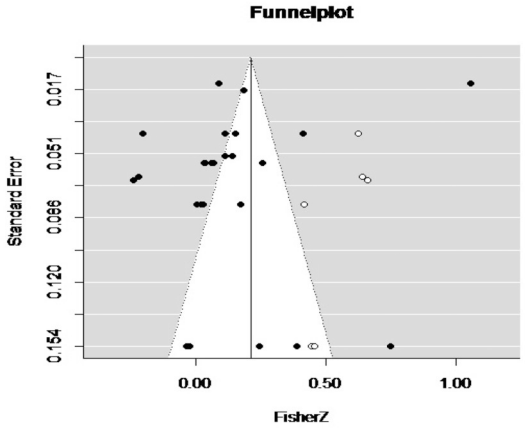
B.2: Funnelplot – age domain



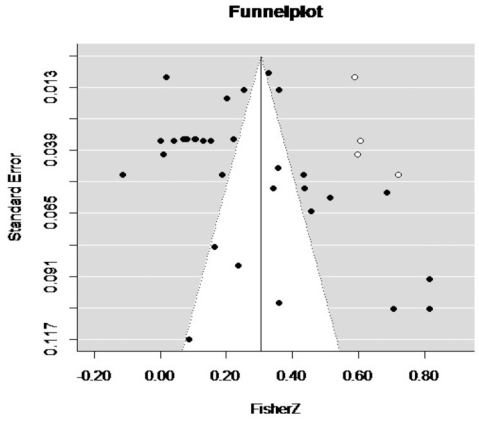
B.3: Funnelpot – ethnicity domain



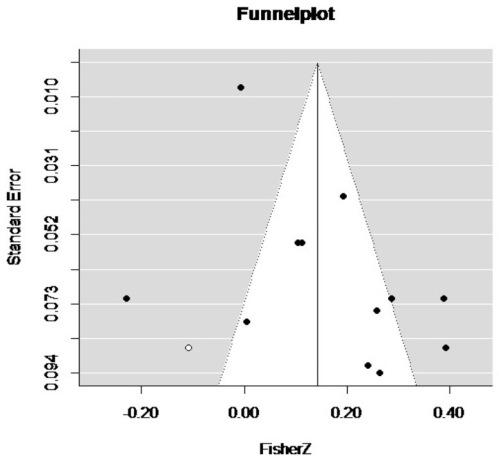
B.4: Funnelplot – behavior domain



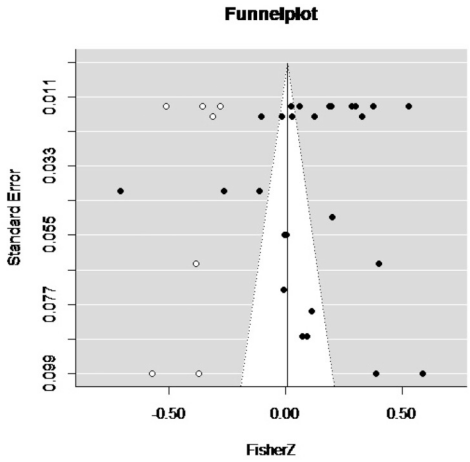
B.5: Funnelplot – Maltreatment domain



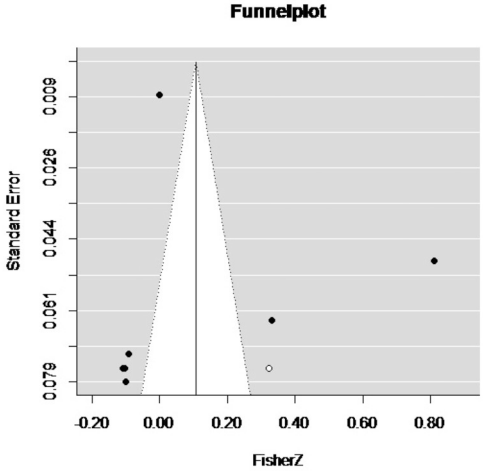
B.6: (Non-)kinship Foster Care domain



B.7: Placement with(out) siblings domain



B.8: Number of out-of-home placements



B.9: Prior out-of-home episodes

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