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Resilient Child Development Trajectories over 10 Years—A Comparison of Mothers', Fathers', and Adolescents' Perspectives

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Abstract

Background: Given the need to consider different assessors' perspectives in research on child and adolescent developmental psychopathology and the underrepresentation of fathers in that area, this 10-year longitudinal study examines adolescents with resilient and maladaptive development from the perspectives of their mothers and fathers as well as the adolescents themselves. **Objective:** The central aim of this study is to compare the results depending on the assessor's perspective. **Methods:** The study sample consists of $N = 343$ children who were examined first in kindergarten (age $M = 4$ years) and then 10 years later in adolescence. **Results:** At measurement time pre, 24% of the children belonged to the group with early childhood developmental risks; 61% of these showed resilient development over 10 years from the mothers' perspective; 68% were resilient from the fathers' perspective, and 62% from the adolescents' own perspective. The agreement between mother and father ratings was good ($\kappa = 0.63$), whereas agreement between adolescents and their parents was low (mother: $\kappa = 0.30$, father: $\kappa = 0.33$). Across the three raters' perspectives, differences between the resilient and maladaptive adolescents were found in 60% of the longitudinal prognostic characteristics, demonstrating at least small effects. The results differed depending on the perspective of the rater. **Conclusions:** To avoid a rater bias in developmental psychopathology research, different perspectives are needed, especially those of the mother, father and, as far as possible, also those of the children or adolescents.

Keywords

Resilience, Risk and Protective Factors, Maternal and Paternal Perspectives, Longitudinal and Cross-Sectional Study

1. Introduction

The rationale for choosing this study is the assumption that the involvement and comparison of different assessors' perspectives can contribute to a better understanding of the onset and course of a child's psychopathology.

The current 10-year longitudinal investigation focuses on the identification of early resilience protective factors by comparing resilient and maladjusted adolescents' development. The central aim of this study is to examine whether these factors differ depending on whether the assessments are based on those of the mothers, the fathers or the adolescents themselves. Such inquiry is needed given the underrepresentation of fathers in research on child and adolescent developmental psychopathology (Costigan & Cox, 2001; Davison, Charles, Khandpur, & Nelson, 2017; Parent, Forehand, Pomerantz, Peisch, & Seehuus, 2017; Schulz, Hahlweg & Supke, 2022), along with the need to consider different assessors' perspectives in such research (Duhig, Renk, Epstein, & Phares, 2000; Laucht, 2003). In addition, there are few studies, especially in German-speaking countries, that have collected data from mothers and fathers simultaneously. Even when a study design explicitly included participation from both mother and father, only about 70% of fathers participated (Costigan & Cox, 2001; Mathiesen, Sanson & Karevold, 2018).

The father's perspective is important because they often have a different view of their children than their mothers. Fathers interact with, perceive, and relate to their children differently than mothers (Lamb, 2010; Laucht, 2003; Schoppe-Sullivan & Fagan, 2020; van Lissa, Keizer, van Lier, Meeus, & Branje, 2019). Mother-child relationships are said to be supportive "attachment relationships" because mothers show more nurturing behavior and more frequently have conversations with their children about emotionally charged and intimate topics. Fathers and their children, on the other hand, are said to have "activation relationships". They challenge their children to regulate emotions autonomously by providing less explicit structure (van Lissa et al., 2019). Children and adolescents describe their relationship with their mother as more loving, closer, and less distant compared to their father (Huber & Walter, 2015). At the same time, however, adolescents also report that conflicts more often involve their mother than their father (Branje, 2018; Huber & Walter, 2015; Laursen, Coy & Collins, 1998). Furthermore, mothers prove to be more overprotective compared to fathers (Titze & Lehmkuhl, 2010).

When reports from both mothers and fathers are available, they often are discrepant. A meta-analysis of 60 studies by Duhig et al. (2000), for example, reported a mean correlation of $r = 0.61$. (Van der Valk, van den Oord, Verhulst, & Boomsma, 2001) evaluated a sample of 3501 Dutch 3-year-old twin pairs whose parents separately completed the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001) comparing two models. The "Rater Bias" model is based on the assumption that both parents assess exactly the same behaviors in their child implying that only one parent is necessary to fully assess the psychopathology of a child. The "Psychometric" model, however, assumes that each parent also as-

sesses a unique aspect of the child's behavior. The "Psychometric" model fitted the data of both the Internalizing and Externalizing CBCL-scales significantly better than the "Rater Bias" model. It can be concluded that each parent provided unique information from his or her own perspective in addition to the shared views.

This pattern of findings is likely due to the fact that fathers are often less willing than mothers to participate in research projects (Connell & Goodman, 2002; Hahlweg & Schulz, 2018; Wlodarczyk et al., 2017), and in the event the couple separates, the children remain with the biological mother in the majority of cases. Socio-cultural norms represent a further barrier, since mothers continue to ascribe greater responsibility to the development of children, which is why research interest in this area also continues to tend to focus on the mother (Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000). At present, however, this interpretation is only slightly tenable, as fathers are becoming increasingly active in child rearing, at least in Germany (Juncke, Braukmann & Heimer, 2018); thus, it is all the more important to investigate the somewhat neglected role of fathers in research addressing the development of maladaptive behaviour patterns of their children, as well as research addressing the parent-child relationship (Laucht, 2003). Otherwise, there is a risk of biased results and conclusions when only the maternal perspective is considered. Including the father's perspective can contribute to a much better understanding of the development of mental disorders in children and adolescents.

The importance of perspective will be examined using resilience in development as an example; more specifically, the current study seeks to identify factors earlier in the child's development that serves to protect the child or promote resilience in later adolescent development. Resilience in this context means that children develop good mental health despite growing up with significant early childhood risks and stresses and show successful adaptation at later time points (Sisto et al., 2019). Research now assumes that resilience is not so much a stable personality trait, but rather a process or outcome of the interaction between an individual and their environment; therefore, its acquisition depends on both person-related characteristics and characteristics of the environment. Resilience traits manifest in different domains, are modifiable, and vary across the life course (Chmitorz et al., 2018; Klika & Herrenkohl, 2013).

In order for an individual's development to be considered resilient, two conditions must be met: First, the individual must have been exposed to risks in the past that threatened their development in a meaningful way (Cohen, Murphy & Prather, 2019; Wright, Masten & Narayan, 2013). Second, the individual positively adapts to their environment at the present time, e.g., has a higher level of functioning than a comparison group of individuals who have been equally highly stressed in the past (Sisto et al., 2019; Cosco et al., 2017). This operational definition of resilience serves as the basis of the current investigation.

Risk factors rarely occur in isolation; rather, highly stressed children are usually exposed to multiple risks. The higher an individual's risk burden, the

greater the likelihood of a negative developmental outcome, e.g., psychological disorders. Protective factors, on the other hand, reduce the likelihood of mental disorders occurring and promote the development of coping skills and a positive developmental trajectory. Protective factors buffer the effect of risk factors yet, in principle, are also independently significant (Fritz, de Graaff, Caisley, van Harmelen, & Wilkinson, 2018).

A seminal study in resilience research is the Hawaiian Kauai study by Werner (1993). A major finding of the study was that 72 out of a total of 200 children in a high-risk group developed into successful young adults who exhibited positive and responsible attitudes toward life and were subsequently labeled resilient. A number of longitudinal resilience studies have also been conducted in the German-speaking world. For example, more resilient adolescents in a study in residential institutions (Lösel, Bliesener & Köferl, 1990) showed higher intelligence, a more successful coping style, more positive self-related cognitions, and higher self-efficacy beliefs than less resilient adolescents from the same institutions.

According to a study by Hohm et al. (2017), various characteristics promote positive development over time: In infancy, balanced and positive infant temperament and positive maternal interaction behaviors were found to be resilience building factors. Also, a mother's supportive and nurturing behavior as well as the child's cognitive and language abilities were protective factors. In elementary school, a positive self-concept, good school performance, and meaningful leisure activities had a beneficial effect. In adolescence, positive parenting behavior, the ability to build sustainable friendships, and a positive self-concept were resilience-enhancing characteristics.

Empirically validated individual protective factors of resilience development include cognitive abilities (e.g., the ability to reappraise cognitively), emotion regulation (e.g., high-stress tolerance), characteristics of attachment organization and social interaction (e.g., low levels of insecure attachment), and aspects of personality (e.g., high self-esteem). Empirically validated family protective factors include aspects of family support (e.g., a positive family climate) and characteristics of parental support (e.g., positive parenting behaviors). In addition, a positive parent-child relationship is necessary for enduring resilient development. Relationship characteristics can have a stronger positive influence on development than socioeconomic or biological factors (Fritz et al., 2018; Hohm et al., 2017).

2. Research Questions

In summary, a number of investigations have identified factors that contribute to a child's resilience in the face of stressors; however, it is unclear how these findings are influenced by the source providing information about the youth being followed over time. Thus, the current investigation provides an opportunity to address resilience within the broader context of who is reporting on the youth's well-being and symptomatology. Resilient development (RD) is charac-

terized by individuals growing up with an increased number of risks in early childhood and yet showing successful adaptation in adolescence. Children who demonstrate maladaptive development grow up with the same developmental risks but are unable to cope with them in a positive manner. They exhibit low levels of functioning (LoF) in adolescence. The data are based on two measurement time points: 1) at kindergarten age between 3 and 6 years (Pre) and 2) in a follow-up after 10 years (FU10). The following questions emerge:

1) How many adolescents show resilient or maladaptive development? Are there differences between the resilience rates based on assessments by mothers, fathers, and the adolescents themselves?

2) Do differences between resilient and maladjusted adolescents show up as early as kindergarten age (pre)? Are these differences depending on whether the ratings come from mothers, fathers, and the adolescents themselves? (Longitudinal prediction)

To answer the 2nd question, the following characteristics were analyzed separately: Temperament: approach/exploration and restlessness/annoyance; cognitive abilities; self-control; internalizing and externalizing problems; gender, migration background; participation in Triple P (see Table 1).

Table 1. Mean and frequency comparisons between resilient and maladjusted adolescents with respect to selected variables at pre, subdivided by perspectives of mothers (M),Fathers (F), and Adolescents (A); Comparison of net effect-sizes of parents and adolescents perspectives.

Pre-characteristic	Perspective									Comparison (net effect strength)		
	M			F			A			Mother – Father	Mother – Adolescent	Father – Adolescent
	D	*p*	*d*	D	*p*	*d*	D	*p*	*d*	*d*M-*d*V	*d*M-*d*J	*d*V-*d*J
Temperament: Approach/exploration	↑	0.050	**−0.67**	↑	0.290	**−0.22**	↑	0.159	**−0.36**	**−0.45**	**−0.31**	0.14
Temperament: Restlessness/annoyance	↓	0.239	**0.26**	↓	0.122	**0.49**		0.629	−0.12	**−0.23**	**0.38**	**0.61**
Intelligence (K-ABC): cognitive abilities	↑	0.068	**−0.57**	↑	0.104	**−0.54**		0.414	−0.08	−0.03	**−0.49**	**−0.46**
Low self-control	↓	0.020	**0.66**	↓	**0.020**	**0.92**		0.378	−0.11	**−0.26**	**0.77**	**1.03**
Internalizing problems (CBCL)		0.394	0.06		0.313	0.14	↓	**0.006**	0.13	−0.08	**−0.07**	0.01
Externalizing problems (CBCL)	↓	0.141	**0.25**	↓	**0.022**	**0.56**	↓	**<0.001**	**0.21**	**−0.31**	0.04	**0.35**
gender (1 = girls, 2 = boys)		0.403	0.11		0.300	0.17		0.342	−0.14	−0.06	**0.25**	**0.31**
Migration (MH)	↑[a]	0.067	**−0.39**	↑[a]	0.124	**−0.32**		0.434	0.09	−0.07	**−0.48**	**−0.41**
Participation in Triple P	↑	0.227	**0.27**		0.227	**0.22**		0.227	**0.27**	0.05	0.00	−0.05

Note. $p < 0.05$ and $d = 02$ in bold; D = direction: ↓ = resilient adolescents RA: lower numbers then maladaptive adolescents MA; ↑ = RA: higher numbers then MA; ↑[a] = Effect in unexpected direction. Reading help: MA − RA: + = MA higher scores, − = RA higher scores.

Based on the state of research on protective factors of resilience development, significant differences between resilient and maladjusted adolescents are expected. However, no targeted hypotheses can be formulated regarding differences among the mothers', fathers', and adolescents' assessments (Fritz et al., 2018; Hohm et al., 2017; Lösel et al., 1990; Werner, 1993; see above).

3. Methods

3.1. Sample Recruitment and Participants

The data come from the multistage research program "Zukunft Familie" (ZF; Hahlweg & Schulz, 2018). This is a longitudinal study over 10 years to examine the effectiveness of the Positive Parenting Program Triple P (Sanders, 2012) and the prediction of emotional and behavioral problems in adolescence.

The sample consists of two subsamples that were recruited as follows, without making distinctions between the samples in the further course of the study: Subsample *ZF I*: 280 families were recruited in 2001/2002 in 17 randomly selected municipal day care centers in Braunschweig, a city in Lower Saxony, Germany. Based on a randomized assignment, nearly half (48.6%) of the families received a brief parenting intervention (Triple P) at baseline as part of the experimental condition (for details, see Hahlweg & Schulz, 2018). Parents allocated to the control group were not provided with any training and changes were naturally observed over the time of data collection. Subsample *ZF II*: Since children from families with low socioeconomic status were underrepresented in the ZF I sample, $N = 197$ additional families were recruited in 2003 from 15 randomly selected municipal daycare centers located in areas of the city of Braunschweig with many social problems.

At pre-assessment, $N = 477$ families were recruited. The mean age of children was 4 years ($SD = 1$ year). Ten years (F10) later, $N = 361$ families still participated in the follow-up (response rate: 76%). Children were on average 14 years old ($SD = 1$ year), with 46% being girls; 22% lived with single parents. 15% of the mothers had no or a lower secondary school diploma, 38% a secondary school diploma, and 47% a high school diploma (fathers: 20%/24%/56%); 46% of the families had a low, 24% a medium, and 30% a high socioeconomic status (Objective Social Structure Index OKS; the OKS was determined on the basis of objective data from the public administration (rate of unemployment, rate of social welfare recipients, rate of immigrants, quality of housing in the particular neighborhood) and represents a measure of the socio-demographic structure of the area of a daycare centre; Bäse, 1995); 19% had a migration background.

A dropout analysis revealed significant differences between participants and dropouts, such that the latter families were more often single-parent families ($p < 0.001$) and more often had a low socioeconomic status (mother's and father's school education, OKS, each $p < 0.001$). Due to this differential dropout, the representativeness of the FU10 sample is more limited compared to the pre-sample. For details on the methodological procedure and the sample see Hahlweg & Schulz

(2018).

3.2. Recruitment and Measures

This 10 year follow-up survey consisted of a combination of interviews and standardized questionnaires. The interviews with parents and adolescents were conducted in parallel but separately, mostly during a home visit. The interviewed parent (in 95% of families, the mother) and the adolescent were paid 40 € each for participating in the approximately 2.5-hour survey. Mothers and fathers were asked to answer the same questionnaires. No special efforts were made to motivate fathers to participate. Consent forms were signed by the parents and the adolescents.

***Pre* (*C* = *Child*, *A* = *adolescent*, *M* = *mother*, *F* = *father*):**

Sociodemography (*M*): Assessed by a semi-structured in-home interview: Age, gender, parents' education (primary, secondary, and high school), household income, relationship status (single parenting), and migration background. Objective Social Structure Index OKS, see above.

Mother's physical punishment (*M*): "no physical punishment" vs. "physical punishment".

Mother's substance abuse during pregnancy (*P*): Alcohol or nicotine abuse during pregnancy or nicotine consumption during lactation: at least one of these characteristics applied for a "yes" response. In the interview, we did not ask specifically about drug use during pregnancy but only in general about previous drug use. The two mothers who reported previous drug use also reported alcohol abuse during pregnancy.

Children's temperament (*M*): *A*ssessed by the mother in the interview using 9 items. The items are based on the Dimensions of Temperament Survey (DOTS-R) by Windle and Lerner (1986). Two scales: "Approach/exploration", e.g. "Child got used to new people quickly", internal consistency: α: 0.70; "Restlessness/annoyance", 5 items, e.g., "Child could only stay calm for a very short time", α: 0.72 (Lichtsinn, 2013).

Children's intelligence (*C*): Cognitive abilities, Kaufman Assessment Battery for Children (K-ABC), α: 0.87 (Melchers & Preuß, 2001).

Children's Self-control (*M*): Child Self-Control Scale, 26 items, e.g., "Child gets angry quickly", "Child cannot sit still, is restless or overactive", α: 0.91 (Nickel, 2012).

Children's mental health problems (*M*): Child Behavior Check List (CBCL 1.5 - 5), externalizing and internalizing problems, 100 items, α: 0.90/0.86 (Arbeitsgruppe Deutsche Child Behavior Checklist, 2000).

Mother's psychopathology (*M*): German version of the Depression-Anxiety-Stress-Scale (DASS; total score), 42 Items, α: 0.96 (Köppe, 2001).

***Level of Functioning* (*LoF*), *10-year follow-up* (*FU10*):**

Adolescent's mental health problems (M, F, A): Strength and Difficulties Questionnaire SDQ, total score, α: 0.96 (Klasen, Woerner, Rothenberger, & Goodman, 2003).

3.3. Selection of Risk Factors and Determination of the Risk Index

In line with the existing literature on risk factors for child and adolescent mental health (Devenish, Hooley, & Mellor, 2017; Esser & Schmidt, 2017; Ravens-Sieberer, Wille, Bettge, & Erhart, 2007; Reinelt, Schipper, & Petermann, 2016; Schaefer et al., 2017; Taraban & Shaw, 2018), the following eight prevalent factors were selected as risk factors (each dichotomized):

1) Low educational level of the mother (either a secondary school diploma or no school diploma and/or no completed vocational training),

2) Single parent,

3) High psychopathological stress of the mother (conspicuous scores on at least one of the three DASS scales),

4) Maternal substance use (alcohol use and/or smoking during pregnancy and/or while breastfeeding),

5) Physical punishment by the mother ("no physical punishment" vs. "physical punishment"),

6) Low socioeconomic status (low social structure index, OKS),

7) Monthly family income (<2.500 DM),

8) Early childhood behavior problems (CBCL 1½ - 5, cut-off: at least one standard deviation above the sample mean).

The reason why the values of the mothers and not those of the fathers were taken for the risk factors is that complete data sets are available for the mothers, whereas about 30% of the questionnaires are missing for the fathers.

Following the Mannheim Risk study (Esser & Schmidt, 2017) and the BELLA study (Ravens-Sieberer et al., 2007), a cumulative risk index was formed from the eight risk factors described above. An index of ≥4 was considered a high-risk child.

3.4. Determination of the Level of Functioning at FU10

Successful adaptation can be defined by the level of mental health or the absence of mental health problems (Cosco et al., 2017; Reinelt, Samdan, Kiel, & Petermann, 2019). In this study, an individual's mental health was used as an indicator of successful adaptation to their current circumstances and was assessed using the Child Strengths and Difficulties Questionnaire (Klasen et al., 2003) on FU10. The determination of the functional level was assessed separately for mothers, fathers, and adolescents. To ensure that no mental health problems were actually present, only those adolescents were considered "mentally healthy" who were rated as "normal" on the parent or adolescent assessment. The adolescents with "abnormal" and "borderline" total scores were combined into the group of those with unsuccessful adjustment.

The same risk index was always used to answer the second question; the level of functioning and adaptation was assessed from the mother's, father's and adolescent's perspectives. Since only the level of functioning and adaptation varies depending on the assessor's perspective, differences can be clearly linked to the

different assessor's perspectives. If different assessors were also used to determine the risk index, differences in the results could not be clearly interpreted.

3.5. Statistical Analysis

Due to missing data with regard to the risk index at pre and the level of functioning on the part of the mothers (SDQ, FU10), $N = 18$ families were excluded from further analysis, resulting in a sample of $N = 343$.

Only $N = 242$ fathers and $N = 339$ adolescents provided information on the level of functioning. Since the different assessor perspectives of mothers, fathers and adolescents on the strengths and weaknesses of the adolescent (SDQ) were to be compared, equal subsample sizes were sought. To replace the missing data from fathers and adolescents, multiple imputation ($m = 20$) was performed (Graham, Olchowski, & Gilreath, 2007). The mean of the adolescents' SDQ scores pooled from the imputations remained unchanged ($M = 9.43$) after imputation of the three missing values, and the mean of the fathers' SDQ scores increased from $M = 6.26$ to $M = 7.07$ after imputation of the 100 missing values. If we had not done imputations - and this is evidenced by the mean values - we would have had a very selective sample of mostly two-parent families and external validity would have been very limited.

The data were analyzed in three stages:

1) The frequencies of the developmental trajectories were determined descriptively, and Cohen's Kappa (κ) was used to describe the bivariate interrater-reliability (or agreement) between the different outcome assessors' perspectives (mother, father, adolescent; *question 1*).

2) To address *question 2*, using only the group of at-risk children (n = 81), first mean comparisons (t-tests) and frequency analyses (Chi^2-tests) between the groups of resilient and maladaptive development were carried out from the perspective of the individual assessors (mother, father, adolescent), and effect sizes were calculated (d, ϕ).

3) For the mother-father, mother-adolescent, and father-adolescent comparisons, the direction of group differences and the effect sizes of all factors were compared. Bivariate net effect sizes (difference of effect sizes; Pössel, Schneider, & Seemann, 2006) were calculated (*questions 2*).

Due to the small sample sizes of the groups of resilient (RD) and maladaptive development (MD) and the associated low power, primarily effect sizes were interpreted; the results of the significance tests are only considered as a supplement. In studies over longer time periods with dropouts, effects are expected to be small at best ($d = 0.20$). In order to be able to demonstrate such effects significantly, large samples are required (Hiscock et al., 2008). Although the initial sample of $N = 477$ families was quite large, the sample was reduced in several ways: 1) not all families participated in the FU10 survey; 2) there were missing values from variables needed to determine the risk index ($N = 343$); and 3) only 23.6% of the children belonged to the risk group and thus to the group currently

of interest ($N = 81$). In addition, for some variables, data were only collected for the pre-survey in the ZF I study (temperament, intelligence, self-control).

A post-hoc power analysis (Faul, Erdfelder, Lang, & Buch, 2007) of mother assessment: $N1 = 49$, $N2 = 32$ ($N1$ = RD, $N2$ = MD), father assessment: $N1 = 55$, $N2 = 26$, adolescent assessment: N1 = 50, $N2 = 31$; t-test, one-sided, $d = 0.20$, α-error = 5%) yielded a maximum power of 0.22 (mother/adolescent assessment) and 0.21 (father assessment), respectively, well below the acceptable power of 0.80. However, this study is concerned primarily with the theoretical and practical significance of the results rather than statistical significance (Fröhlich, Emrich, Pieter, & Stark, 2009). Interpretation of effect sizes is guided by standard guidelines: $d = 0.20$ small effect, $d = 0.50$ medium effect, $d = 0.80$ large effect; $\phi > 0.10$ as small, $\phi > 0.30$ as medium, $\phi > 0.50$ as large effect (Cohen, 1988).

4. Results

4.1. Resilience Rates

Among the children, 23.6% ($N = 81$) belonged to the risk group MD with four or more risk factors. Depending on the assessor's perspective, the proportions of adolescents with RD and MD over 10 years differed. According to the mothers' assessment, 60.5% of these adolescents belonged to the RD group, from the fathers' perspective 67.9%, and from the adolescents' perspective 61.7%. The agreement between mother and father is good with $\kappa = 0.63$, whereas those between adolescents and mother ($\kappa = 0.30$) and adolescents and father ($\kappa = 0.33$) are low (see Table 2).

4.2. Longitudinal Analysis

To identify protective factors, we investigated whether differences exist between adolescents with RD and MD trajectories as early as kindergarten age. These analyses were conducted separately for mothers', fathers', and adolescents' perspectives (see Appendix). Furthermore, results from mothers', fathers', and

Table 2. Comparison (Kappa) of Mothers' (M), Fathers' (F), and Adolescents' (A) Assessmen.

	M		F		A	
	N	%	N	%	N	%
RD	49	60.5	55	67.9	50	61.7
MD	32	39.5	26	32.1	31	38.3
M − F	$\kappa = 0.63^{\#\#}$, z = 5.71, $p < 0.001$***					
M − A	$\kappa = 0.30^{\#}$, z = 2.69, $p = 0.007$**					
F − A	$\kappa = 0.33^{\#}$, z = 2.96, $p = 0.003$*					

Note. RD = resilient development, MD = maladaptive development. *** $p < 0.001$, ** $p < 0.01$. * $p < 0.05$; $^{\#}$ = low agreement, $^{\#\#}$ = high agreement.

adolescents' perspectives were compared by calculating net effect sizes (difference of effect sizes; see Table 1).

From the mothers' and fathers' perspectives, mean or frequency differences between RD and MD adolescents with at least a small effect size can be found in seven of the nine examined characteristics; from the adolescents' point of view, differences existed in three characteristics. That is, resilience is better predicted using pre-characteristics based on parent assessments than on adolescent assessments. The differences between the three perspectives are not differences in direction but in the magnitude of the effect sizes.

Compared to MD-adolescents 10 years later, RD-adolescents at pre were more active in terms of temperament (mothers/fathers/adolescents' perspective) and less restless (m/f); their intelligence was approximately eight IQ points higher (m/f), had a higher degree of self-control (m/f), and showed fewer externalizing behavioral problems (m/f/a). Furthermore, they more often had an immigrant background (m/f), and their parents participated more often in the Triple P Program (m/f/a). In contrast, there were no differences in internalizing problems or gender. However, with the exception of self-control (m/f each $p = 0.020$), the differences were not statistically significant ($p > 0.05$).

A direct comparison of mothers' and fathers' perspectives (net effect sizes; Table 1) reveals significant differences in four characteristics: for mothers, the temperament dimension approach/exploration had greater predictive power compared to fathers' assessments ($d = -0.45$), as well as the temperament dimension restlessness/annoyance ($d = -0.23$), self-control ($d = -0.26$), and externalizing problems ($d = -0.31$). The adolescent perspective, on the other hand, showed differences in six of the nine characteristics, each compared to mother and father: temperament dimension restlessness/annoyance (m: $d = 0.38$, f: $d = 0.61$), intelligence (m: $d = -0.49$, f: $d = -0.46$), self-control (m: $d = 0.77$, f: $d = 1.03$), gender (m: $d = 0.25$, f: $d = 0.31$) and immigrant background (m: $d = -0.48$, f: $d = -0.41$) were of greater importance; for the mother, additionally, the temperament dimension approach/avoidance ($d = -0.31$) and for the father additionally externalizing problems ($d = 0.35$) compared to adolescents' evaluations.

5. Discussion

In this study, children with early childhood developmental risks were examined. At kindergarten age, 23.6% of the children had four or more risk factors and, thus, belonged to the risk group. The resilience rate depends on two factors: first, on how many risk factors must be present for a child to belong to the risk group and, second, on the cut-off for the occurrence of a mismatch. A wide range of at-risk children can be found in the literature: 28.8% in the Kauai study (Werner, 1993) and only 5.1% in the BELLA study (risk index = 4; Ravens-Sieberer et al., 2007). Only at-risk children were studied in the Bielefeld Invulnerability Study (Lösel et al., 1990) and the Mannheim Risk Children Study (Hohm et al., 2017).

Regarding the first question.The primary aim of this study was not to investigate whether resilient and maladaptive adolescents differ in pre- and FU10 characteristics but rather to investigate differences in the results depending on who provided the assessment (i.e., mothers, fathers or the adolescents themselves). The proportion of resilient children is estimated to be higher among fathers compared to mothers and adolescents themselves (67.9% vs. 60.5% and 61.7%, respectively). A likely reason for the higher rate of resilient children as assessed by fathers stems from the fact (see above: Determination of the level of functioning at FU10) that fathers assess mental health more positively than mothers and adolescents themselves. Rater agreement between parents is high ($\kappa = 0.63$), but low between parents and their children.

Regardless of the assessor's perspective, the proportion of children in the present study with resilient development is quite high (60.5%, 61.7%, 67.9%). By comparison, the proportion in the Kauai study was 35.8% (Werner, 1993), and in the Bielefeld invulnerability study 45.2% (Lösel et al., 1990).

Regarding the second question. Particularly important are the findings regarding the prognostic factors. Overall, 60% (17 of 27) of the prognostic characteristics show effect-sizes with at least small effects across the three evaluator perspectives. Depending on the assessor's perspective, however, these are to a large extent different characteristic; in particular, there are large differences between parents and their children. Mother and father differ on 6 characteristics (25%), mother and adolescent differ on 15 characteristics (62.5%), and father and adolescent differ on 14 characteristics (58.3%). For example, while self-monitoring clearly differentiates between resilient and maladjusted adolescents from the fathers' perspective, this differentiation is much less for mothers and not present at all for adolescents. As a second example, intelligence corresponds with resilience from the mothers' and the fathers' perspectives, yet not at all from the adolescents' perspective. In a different vein, externalizing disorders in childhood are prognostically relevant for mothers, fathers and adolescents alike.

Overall, it should be noted that the findings differ significantly depending on the evaluator's perspective. While the differences between fathers and mothers are comparatively small, the differences between parents and adolescents are large. Depending on whom one asks, the results regarding risk and protective factors turn out differently. However, the differences between the three perspectives are not apparent in direction (sign), but are present in the magnitude of the effect sizes.

More consistent findings across raters are seen in the following prognostic features: The results indicate that resilient (RD) adolescents have an active temperament already in early childhood, show higher cognitive achievement levels, more self-control, and less externalizing problems than maladjusted (MD) adolescents. This pattern confirms the findings of other studies (Fritz et al., 2018; Kouider, Koglin, & Petermann, 2014). In particular, the results on temperament, self-control, and externalizing behavior problems were in line with expectations. The evidence for higher cognitive performance levels of resilient children is con-

sistent with findings from the Kauai Study, the Bielefeld Invulnerability Study, and the Mannheim Risk Child Study, according to which intelligence correlates positively with individual resilience (Hohm et al., 2017; Lösel et al., 1990; Werner, 1993; Luthar, 2006).

Fritz et al. (2018) differentiated aspects of cognitive and academic performance in more detail in their review of protective factors of RD. Specific aspects of intelligence such as high cognitive flexibility, the ability to cognitively restructure, and a low tendency to brood represent protective traits. The effect found here may indicate that higher intelligence contributes to the formation of these various competencies, which in turn strengthens resilience to psychological abnormalities.

The finding that RD adolescents more often had a migration background was rather unexpected, as affected families more often also have other risk factors and often perform worse compared to adolescents without a migration background in other studies (Kouider et al., 2014; Stevens & Vollebergh, 2008). At this point, further studies are needed to replicate this finding.

It was encouraging to see that the parents of resilient adolescents had participated more frequently in the Triple P Program (Sanders, 2012). This could indicate that parents can support the development of resilience in their children by participating in evidence-based parent training. Since there are almost no longitudinal studies on the effectiveness of parent training with comparably long follow-up periods, this finding should also be replicated in further studies.

Implications for the research. As desirable as the participation of fathers and a separate evaluation of mothers' and fathers' data may be, it must also be kept in mind that additional recruitment efforts are also associated with costs. Costs must be positively related to benefits, especially if there is no clear difference in outcomes between mothers and fathers (Pleck, 2010); thus, careful consideration must be given to whether the additional effort is justified (Teitler, Reichman, & Sprachman, 2003).

6. Limitations

1) Families from the lower social strata, who are expected to have a higher risk burden, were underrepresented. Furthermore, there were differences between the dropouts and the participating families at FU10. The adolescents from participating families were less likely to have single parents, and their social status was slightly higher. Furthermore, this sample was examined in the context of an intervention study. Consequently, the representativeness of the sample studied here is limited.

2) Although it is a large baseline sample, the samples of youth with RD and MD compared here are small so meaningful significance testing was not possible in some cases due to low statistical power. Therefore, the interpretation focuses primarily on effect sizes and is predominantly exploratory.

3) To assess resilience, mental health problems or the mental health of ado-

lescents were considered to evaluate successful adaptation. In terms of domain-specific resilience, additional risk behaviors and explicitly non-deficit-oriented criteria such as child competencies should be considered in future studies.

4) Only the pre and FU10 measurement time points were considered. Therefore, no conclusions about the stability of development over time are possible. Research results show that resilience is characterized by high temporal instability (Klika & Herrenkohl, 2013). A renewed investigation at a later point in time is therefore recommended and could provide information on the further development of resilient children and the stability of the effects found.

5) For 100 fathers no SDQ-data were available (29%); these had to be replaced by means of multiple imputations. Otherwise, we would have analyzed a very selective sample of mostly two-parent families.

6) The associations between risk/protective factors and resilience from the mother's perspective might be strongest compared to the father's and adolescent's perspective, because some pre-data were provided only by the mothers. However, the interviews were conducted 10 years later. The results show that the differences between the mothers' and fathers' perspectives are small, so this bias should be small.

7) The children at risk were identified through the use of a cumulative risk index. This procedure does not take into account the interdependence of the selected risk factors, the relevant combinations and the distribution characteristics. Alternatively, various empirical classification methods can be used to identify types of at-risk children with different risk profiles (e.g., latent class analysis, LCA, e.g., Lorenz, Ulrich, Kindler, & Liel, 2020).

7. Conclusion

In order to avoid an assessor bias in developmental psychopathology research, different perspectives are necessary, especially those of the mother, father and, as far as possible, also those of the children or adolescents. This is an important methodological consideration for future research. In terms of substantive findings, the results of this study provide evidence that children with resilient and maladaptive development in kindergarten age differ in personal characteristics such as temperament and externalizing problems, and from parents' perspectives, also in terms of self-control and intelligence. It is necessary to prevent stress in families and developmental risks in children, to recognize those at an early stage, and intervene in a targeted manner. Resilience can be developed and strengthened through targeted support as early as kindergarten age. This can be done, for example, through parent training with low-threshold access for families with an increased risk burden. In particular, cognitive-behavioral parenting skills programs have been shown to be effective in this setting (Furlong et al., 2012; Weiss, Schmucker, & Lösel, 2015). Evidence-based programs include the Triple P Program reviewed here (Sanders, 2012). In addition, the range of pre-

vention programs, training and, if necessary, psychotherapy for children who show psychological conspicuities (especially externalizing ones) at early stages of development should be expanded.

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Ethics Approval and Consent to Participate

The Human Subjects Protection Board of the German Association of Psychology (DGPs) approved all procedures (WS 12_2010). Informed consent was obtained from all individual participants included in the study. All methods were performed in accordance with the Declaration of Helsinki.

Availability of Data and Materials

The datasets generated and/or analyzed during the current study are not publicly available as they contain sensitive material. Furthermore, it is a longitudinal study with several assessment points, so the data could possibly be used to draw conclusions about individuals. The questionnaires used can be found in the corresponding references.

Conflicts of Interest

Kurt Hahlweg is a member of the Triple P International Scientific Advisory Committee. The authors have no relevant financial or non-financial interests to disclose.

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Appendix

Table A1. Differences between Resilient (RD, n = 49) and Maladaptive Development (MD, n = 32) to Pre - From the mother's perspective (t-tests, Chi^2-Test, one-tailed).

Pre-characteristic	RD			MD					
	n	*M*	*SD*	*n*	*M*	*SD*	*p* *t*-Test	*dCohen*	95%-KI (*dCohen*)
Temperament: Approach/exploration	18	13.67	2.11	16	11.81	3.37	0.050	−0.67**	(−1.36; −0.02)
Temperament: Restlessness/annoyance	18	10.94	4.53	16	12.06	4.14	0.239	0.26*	(−0.42; −0.94)
Intelligence (K-ABC): cognitive abilities	17	99.06	13.75	15	91.67	12.12	0.068	−0.57**	(−1.28; −0.14)
Low self-control	18	18.28	13.16	16	26.69	12.21	0.020	0.66**	(−0.03; 1.35)
Internalizing problems (CBCL)	48	57.31	7.51	32	57.84	10.01	0.394	0.06	(−0.39; 0.51)
Externalizing problems (CBCL)	48	54.65	10.17	32	57.03	8.83	0.141	0.25*	(−0.20; 0.70)
Pre-characteristic	**RD**			**MD**					
	N	***N* in %**		***N***	***N* in %**		***p*** Chi^2	**ϕ/*d*Cohen**	**95%-KI (ϕ)**
Gender	49			32			0.403	0.05/0.11	(−0.18; 0.29)
girls	21	42.9		12	37.5				
boys	28	57.1		20	62.5				
Migration (MH)	49			32			0.067	−0.19*/−0.39*	(−0.39; 0.01)
without MH	31	63.3		26	81.3				
with MH	18	36.7		6	18.7				
Triple P	49			32					
T+	37	75.5		21	65.6		0.227	0.14*/0.27*	(−0.09; 0.34)
T−	4	8.2		5	15.6				
CG	8	16.3		6	18.8				

N = sample size; *M* = mean; *SD* = standard deviation; *p* = significance value; d_{Cohen} = effect size; 95% *CI* (d_{Cohen}) = 95% confidence interval for d_{Cohen}; ϕ = effect size Phi; 95% CI (ϕ) = 95% confidence interval for ϕ; * = small effect; ** = medium effect, *** = large effect (after Cohen, 1988).

Table A2. Differences between Resilient (RD, n = 55) and Maladaptive Development (MD, n = 26) to Pre - From the father's perspective (t-tests, Chi^2-Test, one-tailed).

Pre-characteristic	RD			MD					
	n	*M*	*SD*	*n*	*M*	*SD*	*p* *t*-Test	*dCohen*	95%-KI (*dCohen*)
Temperament: Approach/exploration	20	13.06	2.46	14	12.43	3.44	0.290	−0.22*	(−0.90; 0.47)

Continued

Temperament: Restlessness/annoyance	20	10.61	4.52	14	12.69	3.74	0.122	0.49*	(−0.20; 1.19)
Intelligence (K-ABC): cognitive abilities	19	98.45	13.67	13	91.44	11.94	0.104	−0.54**	(−1.26; 0.18)
Low self-control	20	17.67	12.65	14	28.74	11.26	0.020	0.92***	(0.20; 1.63)
Internalizing problems (CBCL)	54	57.14	7.78	26	58.33	10.02	0.313	0.14	(−0.33; 0.61)
Externalizing problems (CBCL)	54	53.92	9.02	26	59.15	10.18	0.022	0.56**	(0.08; 1.03)

Pre-characteristic	RD		MD				
	N	*N* in %	*N*	*N* in %	*p* Chi²	ϕ/*dCohen*	95%-KI (ϕ)
Gender	55		26		0.300	0.09/0.17	(−0.14; 0.30)
girls	24	43.6	9	34.6			
boys	31	56.4	17	65.4			
Migration (MH)	55		26		0.124	−0.16*/−0.32*	(−0.36; 0.06)
without MH	36	65.5	21	80.8			
with MH	19	34.6	5	19.2			
Triple P	55		26				
T+	41	74.5	17	65.4	0.227	0.11*/0.22*	(−0.11; 0.32)
T−	5	9.1	4	15.4			
CG	9	16.4	5	19.2			

N = sample size; *M* = mean; *SD* = standard deviation; *p* = significance value; d_{Cohen} = effect size; 95% *CI* (d_{Cohen}) = 95% confidence interval for d_{Cohen}; ϕ = effect size Phi; 95% CI (ϕ) = 95% confidence interval for ϕ; * = small effect; ** = medium effect, *** = large effect (after Cohen, 1988).

Table A3. Differences between Resilient (RD, n = 50) and Maladaptive Development (MD, n = 31) to Pre - From the adolescent's perspective (t-tests, Chi²-Test, one-tailed).

Pre-characteristic	RD			MD					
	N	*M*	*SD*	*N*	*M*	*SD*	*p* *t*-Test	*dCohen*	95%-KI (*dCohen*)
Temperament: Approach/exploration	21	13.19	2.50	13	12.15	3.44	0.159	−0.36*	(−1.06; 0.34)
Temperament: Restlessness/annoyance	21	11.67	4.53	13	11.15	4.12	0.629	−0.12	(−0.81; 0.57)
Intelligence (K-ABC): cognitive abilities	20	96.00	13.35	12	94.92	13.89	0.414	−0.08	(−0.80; 0.64)
Low self-control	21	21.67	14.14	13	23.15	12.12	0.378	−0.11	(−0.58; 0.80)

Continued

Internalizing problems (CBCL)	49	57.11	7.21	31	58.17	10.14	0.006	0.13	(−0.33; 0.58)
Externalizing problems (CBCL)	49	54.83	9.05	31	56.80	10.35	<0.001	0.21*	(−0.25; 0.66)

Pre-characteristic	**RD**		**MD**				
	N	***N* in %**	***N***	***N* in %**	***p*** **Chi²**	**ϕ/*dCohen***	**95%-KI (ϕ)**
Gender	50		31		0.342	−0.07/−0.14	(−0.29; 0.15)
girls	19	38.0	14	45.2			
boys	31	62.0	17	54.8			
Migration (MH)	50		31		0.434	0.05/0.09	(−0.18; 0.26)
without MH	36	72.0	21	67.7			
with MH	14	28.0	10	32.3			
Triple P	50		31				
T+	37	74.0	21	80.8	0.227	0.14*/0.27*	(−0.09; 0.34)
T−	4	8.0	5	16.1			
CG	9	18.0	5	16.1			

N = sample size; *M* = mean; *SD* = standard deviation; *p* = significance value; d_{Cohen} = effect size; 95% *CI* (d_{Cohen}) = 95% confidence interval for d_{Cohen}; ϕ = effect size Phi; 95% CI (ϕ) = 95% confidence interval for ϕ; * = small effect; ** = medium effect, *** = large effect (after Cohen, 1988).