

Journal of Family Psychology

Trajectories of Fathers' Psychological Distress Across the Early Parenting Period: Implications for Parenting

Rebecca Giallo, Amanda Cooklin, Stephanie Brown, Daniel Christensen, Dawn Kingston, Cindy H. Liu, Catherine Wade, and Jan M. Nicholson

Online First Publication, June 29, 2015. <http://dx.doi.org/10.1037/fam0000109>

CITATION

Giallo, R., Cooklin, A., Brown, S., Christensen, D., Kingston, D., Liu, C. H., Wade, C., & Nicholson, J. M. (2015, June 29). Trajectories of Fathers' Psychological Distress Across the Early Parenting Period: Implications for Parenting. *Journal of Family Psychology*. Advance online publication. <http://dx.doi.org/10.1037/fam0000109>

Trajectories of Fathers' Psychological Distress Across the Early Parenting Period: Implications for Parenting

Rebecca Giallo

Murdoch Childrens Research Institute, Parkville,
Victoria, Australia

Amanda Cooklin

LaTrobe University

Stephanie Brown

Murdoch Childrens Research Institute, Parkville,
Victoria, Australia

Daniel Christensen

Telethon Kids, Perth, Australia

Dawn Kingston

University of Alberta

Cindy H. Liu

Harvard Medical School

Catherine Wade

Parenting Research Centre, East Melbourne, Victoria, Australia

Jan M. Nicholson

LaTrobe University

Fathers' parenting behavior is a likely key mechanism underlying the consistent associations between paternal mental health difficulties and poor emotional-behavioral outcomes for children. This study investigates the association between fathers' mental health trajectories and key parenting behaviors (warmth, hostility, consistency) spanning the first 8–9 years postpartum. Secondary analyses of 5 waves of data from 2,662 fathers participating in the Longitudinal Study of Australian Children were conducted. Latent growth class analysis was used to identify distinct trajectories of fathers' distress (Kessler-6; Kessler et al., 2003), and latent growth models estimated parenting warmth, hostility, and consistency. Multiple group analyses were conducted to describe and compare the course of parenting behaviors for fathers assigned to the distress trajectories identified. Two distinct classes of fathers were identified based on the trajectories of distress: minimal distress (92%) and persistent and increasing distress (8%). The latter group reported significantly lower parenting warmth when their children were 8–9 years and lower consistency and higher hostility across all study intervals. The postnatal and early parenting period is a critical time for the development of parenting behaviors that are important for children's development. Engagement and support for fathers around well-being and parenting is vital for promoting optimal family and child developmental outcomes.

Keywords: father mental health, psychological distress, parenting

Fathers' postnatal mental health difficulties have been consistently associated with adverse emotional and behavioral outcomes for children from infancy to adolescence (Fletcher, Feeman, Garfield, & Vimpani, 2011; Giallo, Cooklin, Wade, D'Esposito, &

Nicholson, 2014; Paulson & Bazemore, 2010; Ramchandani et al., 2008). One possible key mechanism by which fathers' poor mental health can have negative effects on children is through parenting behaviors that are important for promoting children's health, well-being, and development (Goodman & Gotlib, 1999). There is growing interest in these mechanisms for fathers specifically, given research indicating that rates of postnatal mental health difficulties for fathers are comparable to mothers (Giallo et al., 2012; Paulson & Bazemore, 2010) and that fathers make a significant and unique contribution to their children's lives, over and above that of mothers (Giallo et al., 2014). With few exceptions (Giallo et al., 2014), research to date has primarily focused on cross-sectional associations between fathers' postnatal mental health and parenting behavior (Wilson & Durbin, 2010). No studies have sought to understand how fathers' mental health difficulties across the postnatal and early parenting periods may influence the development and course of fathers' parenting behaviors over time. This is surprising as the postnatal period is a time when

Rebecca Giallo, Murdoch Childrens Research Institute, Parkville, Victoria, Australia; Amanda Cooklin, Judith Lumley Centre, LaTrobe University; Stephanie Brown, Murdoch Childrens Research Institute; Daniel Christensen, Telethon Kids, Perth, Australia; Dawn Kingston, Faculty of Nursing, University of Alberta; Cindy H. Liu, Department of Psychiatry, Harvard Medical School; Catherine Wade, Parenting Research Centre, East Melbourne, Victoria, Australia; Jan M. Nicholson, Judith Lumley Centre, LaTrobe University.

Correspondence concerning this article should be addressed to Rebecca Giallo, Murdoch Childrens Research Institute, W5, Royal Children's Hospital, 50 Flemington Road, Parkville, Victoria 3052, Australia. E-mail: rebecca.giallo@mcri.edu.au

parenting behaviors are developing and being shaped by experiences and context. This study addresses this notable gap in the research by investigating the longitudinal associations between fathers' mental health and important dimensions of parenting including warmth, hostility, and consistency from the first postnatal year until their children were 8–9 years of age.

Fathers' Mental Health Difficulties in the Postnatal Period and Beyond

Research consistently indicates that approximately one in 10 fathers experience poor mental health in the postnatal period. A meta-analysis of 43 studies estimated that 10% of fathers report depression in the postnatal period (Paulson & Bazemore, 2010). More recently, a study of over 3,000 fathers participating in the Longitudinal Study of Australian Children (LSAC) found that 1.9% reported clinical levels of psychological distress indicative of a probable diagnosis of mental health disorder on the Kessler-6 (Kessler et al., 2003), and a further 7.8% reported elevated levels of distress (Giallo et al., 2012). Although scant, evidence suggests that mental health difficulties persist and worsen beyond the first postnatal year for some fathers (Dave, Petersen, Sherr, & Nazareth, 2010; Giallo, D'Esposito, Cooklin, Christensen, & Nicholson, 2014). In another LSAC study of 2,000 fathers, 8% reported postnatal depressive symptoms that increased markedly across the early childhood period (Giallo et al., 2014). These findings underscore the need to better understand the chronicity of fathers' mental health difficulties and the impact on their daily functioning, parenting, families, and children beyond the postnatal period.

Parenting Behavior and Fathers' Mental Health

It is well established that parenting is a complex set of child rearing activities and parent–child interactions, which are strong determinants of children's well-being and development. Key parenting behaviors associated with better social, emotional, and behavioral outcomes for children include high warmth and consistency and low hostility (Bayer et al., 2011; Berk, 2001; Chang, Schwartz, Dodge, & McBride-Chang, 2003; Chao & Willms, 2002). Parenting warmth is characterized by displays of affection and an awareness of the child's needs and is associated with more prosocial behavior and increased capacity for children to form protective relationships (Berk, 2001; Bradley & Caldwell, 1995; Chao & Willms, 2002; Dallaire & Weinraub, 2005; Landry, Smith, & Swank, 2006). Parenting hostility refers to negativity and frustration directed toward the child and use of physical discipline (Zubrick, Lucas, Westrupp, & Nicholson, 2014) and is associated with increased externalizing and internalizing behavior, poorer academic achievement, less prosocial behavior and worse physical health (Low & Stocker, 2005; Repetti, Taylor, & Seaman, 2002; Romano, Tremblay, Boulerice, & Swisher, 2005). Parenting consistency involves the setting and consistent application of age-appropriate rules and expectations (Zubrick et al., 2014). Consistency contributes to fewer behavior problems in children and promotes prosocial conduct (Cussen, Sciberras, Ukoumunne, & Efron, 2012). Such parenting behaviors are learned and shaped over time by a range of factors. For instance, Belsky's (Belsky, 1984) widely accepted ecological model of parenting proposes that such behaviors are shaped by the interacting influences of child

characteristics (e.g., age, gender, temperament), parent factors (e.g., personality, mental health), and broader sociocontextual factors (e.g., quality of the couple relationships, social support).

Although the relationship between mental health difficulties and parenting behavior among mothers has received much attention (Lovejoy, Graczyk, O'Hare, & Neuman, 2000), this has been a relatively neglected area of research among fathers. In a recent meta-analysis of 28 studies investigating the role of fathers' mental health on concurrent parenting behavior, small but significant negative effects of fathers' mental health difficulties on decreased parenting warmth, sensitivity, and responsiveness, and increased hostility and disengagement were found (Wilson & Durbin, 2010). Furthermore, this review highlighted that although several studies explored this relationship across childhood, few focused specifically on the postnatal period or early parenting period. It also noted that the vast majority of studies were cross-sectional.

Thus, little is known about the potential long-term effects of fathers' postnatal mental health on their parent–child relationships and parenting behaviors. This is perhaps surprising, given that the postpartum period is a time when parenting behavior and parenting styles are forming and may be particularly sensitive to the effects of distress such as low mood, irritability, low self-esteem, stress, exhaustion and impaired memory, concentration and decision-making abilities. To the best of our knowledge, only two studies have examined the relationship between fathers' postnatal mental health and later parenting behavior. In a U.S.-based sample of 4,109 fathers, depressive symptoms at 9 months postpartum were associated with decreased engagement in reading and learning activities when their children were 2 years of age (Paulson, Keefe, & Leiferman, 2009). In a second study of 2,025 LSAC fathers, postnatal distress was associated with increased hostility in parent–child interactions when their children were aged 4–5 years (Giallo et al., 2014). Taken together, these findings suggest that postnatal distress may have an enduring influence on parenting behavior. However, it is important to note that these studies did not examine changes in parenting behavior over time. From a clinical perspective, this is important to consider in that it may influence the timing and choice of intervention. Furthermore, to date, no studies have sought to understand how fathers' mental health difficulties in the postnatal or early parenting period may influence the course of parenting behavior over time.

Aims of the Study

To address gaps in our knowledge about the potential long-term impact of fathers' mental health on parenting behavior, this study explored the longitudinal relationships between fathers' psychological distress and parenting warmth, hostility, and consistency across early childhood. These parenting behaviors were chosen as they are strongly associated with children's social, emotional, and behavioral functioning (Bayer et al., 2011; Berk, 2001; Bradley & Caldwell, 1995; Chao & Willms, 2002; Dallaire & Weinraub, 2005; Landry et al., 2006). Specifically, the aims of the study were twofold: first, to identify distinct patterns or trajectories of psychological distress for fathers across the early childhood period; second, to describe the course of parenting warmth, hostility, and consistency across the early parenting period for fathers with distinct patterns or trajectories of distress identified in the first aim.

Method

Study Design

Data were drawn from Waves 1–5 of Growing Up in Australia: The LSAC infant cohort. The study was approved by the Australian Institute of Family Studies (AIFS) Ethics Committee, and detailed information about the study design and recruitment procedures are provided elsewhere (Soloff, Lawrence, & Johnstone, 2005). Briefly, a two-stage sample design was used, where approximately 10% of all postcodes were selected, and then a number of children proportional to population size were randomly selected from each postcode using the Medicare database. In 2007 (Wave 1), 5,107 infants aged 3–12 months and their families were recruited into the study, yielding a 54% response rate.

Data were collected biennially, and where possible, mothers, fathers, and other caregivers completed self-report questionnaires and face-to-face interviews (Soloff et al., 2005). Compared with the Australian population, children from non-English speaking families, single parents, and those living in rental properties were slightly underrepresented. Follow-up occurred at every 2 years. At Wave 2, there were 4,606 2- to 3-year-olds (90% retention from Wave 1), 4,386 4- to 5-year-olds at Wave 3 (86% retention from Wave 1), and 4,242 6- to 7-year-olds at Wave 4 (83% retention from Wave 1), and 4,085 8- to 9-year-olds at Wave 5 (80% retention from Wave 1). Retention was lower for children with less highly educated parents, from Indigenous and non-English speaking backgrounds, and for those living in rental properties.

Sample Characteristics

The sample for this study consisted of biological fathers who were living with their children as either the primary or secondary caregiver across all waves and had data available on the measures of interest across at least three of the five waves. Of the 5,107 families recruited into the study, 321 male caregivers were not biological or adoptive fathers, and 627 did not reside with their children across all waves. There were missing data at three or more waves for 1,497 fathers, and this may have been because of no father residing in the family home at that wave or the father choosing not to participate in the study. The final sample consisted of 2,662 fathers and their demographic characteristics at Wave 1 are presented in Table 1. The majority of fathers were born in Australia, spoke English at home, had an educational level of Year 12 or above, and had paid employment. There were some significant differences between fathers in the final sample and those excluded from the analyses ($p < .001$). Compared with fathers in the final sample, excluded fathers were more likely to be younger, not have completed high school, and be from non-English speaking and Aboriginal Torres Strait Islander backgrounds.

Measures

Psychological distress was measured by the Kessler-6 (K6; Kessler et al., 2003) at all five waves. Six items assessed the extent to which fathers' reported distress symptoms such as feeling nervous, hopeless, restless, or fidgety, extremely sad, and worthless in the last 4 weeks. Items were rated on a 5-point scale ranging from 0 (*none of the time*) to 5 (*all or most of the time*) and summed

Table 1

Demographic Characteristics for the Final Sample at Wave 1
($N = 2,662$)

Demographic characteristic	n (%)
Father characteristics	
Age in years ^a	34.5 (5.6)
Born in Australia	2,088 (78.4%)
Main language spoken at home: English	2,399 (90.1%)
Aboriginal or Torres Strait Islander	25 (1.0%)
Education level: Year 12+	1,716 (64.5%)
Employment status	
Unemployed—not in the labor force	125 (4.7%)
Work part-time (1–29 hr/week)	116 (4.4%)
Work full-time (30+ hr/week)	2,421 (90.9%)
Socioeconomic position	
Low	658 (24.7%)
Moderate	1,339 (50.3%)
High	665 (25.0%)
Infant and family characteristics	
Study child gender: male	1,361 (51.1%)
Child age	
Wave 1 (in months) ^a	8.77 (2.49)
Wave 2 (in years) ^a	2.27 (0.44)
Wave 3 (in years) ^a	4.22 (0.42)
Wave 4 (in years) ^a	6.31 (0.46)
Wave 5 (in years) ^a	8.37 (0.48)
Number of children in household ^a	1.90 (0.97)

^a M (SD).

with higher scores indicating higher distress. This scale has excellent psychometric properties and is used to screen for mood disorders using the *Diagnostic and Statistical Manual of Mental Disorders* (fourth ed.; *DSM-IV*; American Psychiatric Association, 1994) criteria with high specificity (0.96) and robust total classification accuracy (0.92; Kessler et al., 2003). Two cutpoints were used to describe the level of severity of distress. The symptomatic cutpoint was defined as a score of 8 or more, indicating significant symptoms. The more stringent clinical cutpoint was defined as a score of 13 or more, indicating probable clinical diagnosis of a mental health condition. Continuous scale scores were used in the modeling analyses. Internal consistency for the current sample as measured by Cronbach's alpha ranged from .80 (Wave 4) to .88 (Wave 1).

Parenting warmth was assessed at all waves using six items from the Child Rearing Questionnaire (Paterson & Sanson, 1999). Fathers indicated how often they express warmth and affection toward the focus child in the study (e.g., "How often do you express affection by hugging, kissing and holding this child?") on a 5-point scale ranging from 1 (*never/almost never*) to 5 (*always/almost always*). Scores were summed, with higher scores indicating greater warmth. Cronbach's alpha ranged from .83 (Wave 1) to .88 (Wave 5).

Hostile parenting was measured at Waves 3–5, using four items from the Canadian National Longitudinal Survey of Children and Youth (Statistics Canada, 2000). Fathers rated how often they experience anger and irritability during interactions with focus child in the study (e.g., "How often are you angry when you punish this child?") on a 5-point scale ranging from 1 (*never/almost never*) to 5 (*all the time*). Items were summed with higher scores indicating greater anger and irritability during interactions with

their child. Cronbach's alpha ranged from .62 (Wave 5) to .69 (Wave 3).

Parenting consistency was measured at Waves 3–5 using five items from the Canadian National Longitudinal Survey of Children and Youth (Statistics Canada, 2000). Fathers rated how often they set and enforce clear expectations and limits for their focus child's behavior (e.g., "How often does your child get away with things that you feel should have been punished?") on a 5-point scale ranging from 1 (*never/almost never*) to 5 (*all the time*). Several items were reverse coded and summed with higher scores indicating higher consistency. Cronbach's alpha ranged from .67 (Wave 5) to .70 (Wave 3).

Demographic information pertaining to fathers' age, country of birth, Aboriginal and Torres Strait Islander status, language spoken at home, education level, employment status was collected. Socioeconomic position (SEP) was rated using a composite variable, ranking each family's relative SEP based on parental income, education, and occupational prestige (Blakemore, Strazdins, & Gibbings, 2009). Families with a standardized score at or below the 25th percentile were classified as low SEP, those above the 75th percentile were classified as high SEP, and the remaining families were classified as medium SEP. Child age and gender as well as number of children in the family were also reported on in the present study.

Data Analysis

Analyses were conducted in two steps, outlined below. In all analyses, missing data were imputed using the full information maximum likelihood option available in Mplus Version 7.0 (Muthén & Muthén, 1998–2013). Wave 1 sample weights were applied to make adjustments for the unequal probabilities of selection into the sample and for nonresponse at Wave 1.

Step 1: Determining trajectories of fathers' distress across the childhood. First, a latent growth model to describe the course of fathers' distress for the overall sample across five time points when the study child was aged 3–12 months, 2–3 years, 4–5 years, 6–7 years, and 8–9 years was estimated using Mplus Version 7 (Muthén & Muthén, 1998–2013). This involved creating latent factors to represent the initial or baseline levels of the variable (i.e., the intercept) and the trajectory or change in that variable over time (i.e., the slope). The intercept factor was created with a fixed loading of 1.0 at each wave, whereas the slope factor was created with fixed values to each time point (e.g., loadings of 0, 1.0, 2.0, and 3.0 for Waves 1, 2, 3 and 4, respectively). The model was estimated using robust maximum likelihood estimation and assessed using the chi-square test and other practical fit indices including Tucker–Lewis index (TLI), the comparative fit index (CFI), and root-mean-square error of approximation (RMSEA). Indices for the TLI and CFI should exceed .90 for an acceptable fit (Bentler, 1990), and values close to or below .05 for the RMSEA were considered acceptable (Hu & Bentler, 1999). The model was tested for cases with complete data and then retested with all cases where missing data were handled using the default full information maximum likelihood option in Mplus Version 7.0 (Muthén & Muthén, 1998–2013).

Next, LGCA was conducted to identify distinct trajectories of fathers' distress across the early parenting period. This involves identifying the smallest number of classes starting with a parsimonious one-class model and fitting successive models with increasing numbers of classes. Model solutions were evaluated using several criteria including comparing likelihood-ratio statistic (LR^2), Bayesian information criterion (BIC), Akaike information criterion (AIC), and entropy across the successive models. Better fitting models have lower LR^2 , BIC, and AIC values, whereas entropy is an index for assessing the precision of assigning latent class membership. Higher probability values indicate greater precisions of classification. The Vuong-Lo-Mendall-Rubin Likelihood Ratio Test was also used to test for significant differences between the models. Class membership for all cases was saved and used in subsequent analyses.

Step 2: Describing the course of parenting behavior across the early parenting period for each distress trajectory. First, latent growth models for parenting warmth, hostility, and consistency were estimated using the same procedure described in Step 1. Next, multiple group analyses were conducted to describe and compare the course of parenting warmth, hostility, and consistency separately for fathers assigned to the trajectory classes identified in Step 1. For each analysis, a model with all parameters (variances, covariances, residuals) freely estimated between the groups (unconstrained model) was compared to a model with all parameters forced to be equal between the groups (constrained model). The Satorra–Bentler scaled chi-square difference test for the MLR estimation method as outlined on the Mplus¹ website was conducted to assess whether each of the trajectories significantly differed by group.

Results

Data Screening and Descriptive Statistics

On average, approximately 15% of data were missing across all study variables in the final sample. These were imputed using the full information maximum likelihood option available in Mplus Version 6.0 (Muthén & Muthén, 1998–2013). Descriptive statistics for the study variables are presented in Table 2. The proportions of fathers in the symptomatic or clinical range at each wave were 7.2% (Wave 1), 6.1% (Wave 2), 8.0% (Wave 3), 6.2% (Wave 4), and 6.5% (Wave 5).

Statistical and graphical measures of normality revealed that distributions for fathers' psychological distress and parenting hostility at each wave were generally positively skewed and negatively skewed for parenting warmth and consistency. Therefore, maximum likelihood parameter estimation with robust standard errors was used to adjust the fit indices and parameter estimates to account for nonnormality in all latent growth models (Muthén & Muthén, 1998–2013). Correlations among all study variables and potential covariates are presented in Table 3. Psychological distress and parenting behaviors were low to moderately correlated at most waves. Also of note, fathers of increasing age was associated with lower hostility at Waves 4 and 5 and lower consistency at all waves, whereas higher socioeconomic position was associated with high consistency.

¹ For more information go to www.statmodel.com/chidiff.shtml

Table 2
Descriptive Statistics for the Study Variables

Variable	Range	M	SD	Skewness
Psychological distress				
Wave 1	0–24	3.19	3.01	1.79
Wave 2	0–24	2.93	2.91	1.89
Wave 3	0–24	2.88	3.09	1.88
Wave 4	0–24	2.62	2.77	1.83
Wave 5	0–19	2.39	2.84	1.94
Parenting warmth				
Wave 1	10–30	25.27	3.14	–0.48
Wave 2	6–30	25.90	3.15	–0.64
Wave 3	10–30	25.43	3.34	–0.60
Wave 4	11–30	24.94	3.38	–0.46
Wave 5	6–30	24.44	3.63	–0.46
Parenting hostility				
Wave 3	5–21	9.82	2.62	0.78
Wave 4	5–22	9.83	2.58	0.73
Wave 5	5–20	9.76	2.59	0.76
Parenting consistency				
Wave 3	4–20	16.57	2.71	–0.80
Wave 4	4–20	16.61	2.64	–0.75
Wave 5	8–20	16.63	2.63	–0.65

Step 1: Trajectories of Fathers’ Psychological Distress Across the Childhood Period

For the overall sample, a two-factor latent growth model for fathers’ distress across the five waves was an acceptable fit to the data, $\chi^2(10, N = 2,662) = 21.43, p = .018, CFI = .99, TLI = .99, RMSEA = .021, 90\%$ confidence interval [CI] [.01, .03]. The mean of the intercept was positive and significantly different from zero ($\kappa = 3.12, p < .001$), and the mean of the slope was negative and significantly different from zero ($\kappa = -.18, p < .001$). This finding indicates that in the first postnatal year the average K6 score was 3.12, and that on average K6 scores decreased at a rate of .18 points each wave. There was significant negative correlation between the intercept and slope factors, $r = -0.25, p = .009$, indicating that higher average levels of symptoms at Wave 1 were associated with a slower rate of improvement in symptoms across time. Figure 1 depicts the estimated means for the overall sample. Examination of the variance component for the intercept ($\Phi = 4.69, p < .001$) and slope ($\Phi = 0.19, p < .001$) indicated significant individual differences in the initial postnatal levels of distress and change over time. Therefore, it was appropriate to identify distinct trajectories of distress across the early parenting period.

Latent growth mixture modeling analyses specifying one to four classes were conducted, and the goodness-of-fit indexes are presented in Table 4. Using a range of criteria, the two-class model was accepted as the most parsimonious model to best represent the patterns in the data. Although the fit indices decreased marginally as the number of classes increased, the entropy value decreased indicating less precision and clear delineation of classes (Celeux & Soromenho, 1996).

The entropy value for the two-class model was highest (.92), and the posterior probabilities were also reasonably high, nearing 1.0 for Class 1 (.94) and Class 2 (.98) suggesting very good precision in assigning individual cases to their appropriate class. Furthermore, the Vuong-Lo-Mendall-Rubin Likelihood Ratio Test showed a significant difference between the one-class and two-class models ($p < .001$) suggesting that the two-class model gives significant improve-

Table 3
Correlations Among All Study Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
1. Distress W1	—																			
2. Distress W2	.48***	—																		
3. Distress W3	.46***	.53***	—																	
4. Distress W4	.41***	.50***	.56***	—																
5. Distress W5	.42***	.45***	.51***	.60***	—															
6. Warmth W1	-.13***	-.07***	-.05***	-.02***	-.02***	—														
7. Warmth W2	-.06***	-.11***	-.06***	-.02***	-.02***	.51***	—													
8. Warmth W3	-.04***	-.08***	-.08***	-.05***	-.05***	.44***	.58***	—												
9. Warmth W4	-.04***	-.10***	-.09***	-.10***	-.07***	.40***	.54***	.63***	—											
10. Warmth W5	-.04***	-.09***	-.06***	-.06***	-.09***	.40***	.52***	.59***	.69***	—										
11. Hostility W3	.17***	.20***	.25***	.18***	.15***	.19***	.25***	.37***	.32***	.28***	—									
12. Hostility W4	.17***	.21***	.19***	.22***	.15***	.17***	.21***	.27***	.36***	.31***	.56***	—								
13. Hostility W5	.14***	.20***	.16***	.16***	.22***	.15***	.18***	.26***	.30***	.40***	.50***	.61***	—							
14. Consistency W3	-.15***	-.16***	-.18***	-.12***	-.17***	.02***	.07***	.08***	.08***	.06***	.31***	.20***	.20***	—						
15. Consistency W4	-.14***	-.15***	-.15***	-.17***	-.16***	.05***	.09***	.05***	.11***	.09***	.24***	.32***	.24***	.57***	—					
16. Consistency W5	-.14***	-.15***	-.14***	-.17***	-.20***	.03***	.05***	.05***	.09***	.13***	.23***	.24***	.24***	.56***	.63***	—				
17. Father age	.03	<.001	.02	-.02	-.02	-.06***	-.02	.03	.06***	.05***	-.04***	-.06***	-.05***	-.09***	-.11***	-.10***	—			
18. Socioeconomic position	.03	.01	-.03	-.02	-.02	-.08***	<.001	-.01	.02	.03	-.03	-.02	-.01	.11***	.11***	.11***	.15***	—		
19. No. of children at home	.01	.01	-.01	-.02	-.04	-.16***	-.11***	-.10***	-.02	-.05***	.01	-.04	-.06***	-.02	-.02	-.04	.20***	-.04***	—	

Note. W = wave.
* $p < .05$. ** $p < .01$. *** $p < .001$.

ment in model fit over the one-class model, and there were also no significant differences between the two- and three-class models.

Table 5 presents the results for the two-class model. The majority of fathers (92%) were assigned to Class 2 characterized by low average K6 scores (mean K6 score of 3.04) in the postnatal period (Wave 1 when children were aged 3–12 months), which remained consistently low across the early childhood period until children were aged 8–9 years, decreasing at a rate of 0.30 points each wave. Class 1 (8%), on the other hand, had higher K6 scores in the postnatal period (mean K6 score of 5.11), which increased at a rate of 1.14 points each wave. Class 1 was referred to as the persistent and increasing distress group, and Class 2 was referred to as the minimal distress group. Figure 1 depicts the estimated means across the waves for each class. Fathers in the persistent and increasing distress group were significantly more likely to speak a language other than English ($p < .001$), be unemployed ($p < .01$), and be of lower SEP ($p < .01$) than fathers in the minimal distress group.

Step 2: Course of Parenting Behavior Over Time for Each Distress Trajectory

Parenting warmth. For the overall sample, a two-factor latent growth model for parenting warmth was an acceptable fit to the data, $\chi^2(10, N = 2662) = 201.85, p < .001, CFI = .92, TLI = .92, RMSEA = .09, 90\% CI [.08, .10]$. Table 6 reports the parameter estimates for the latent growth model, and Figure 2a depicts the estimated means for the overall sample.

Multiple group analyses revealed significant differences in the course of parenting warmth between the distinct trajectories of distress while accounting for father age and socioeconomic position: unconstrained, $\chi^2(32) = 328.03, p < .001$; constrained, $\chi^2(48) = 387.09, p < .001$; model comparison, $\chi^2_{diff}(16) = 81.96, p < .001$. Figure 2b shows the course of parenting warmth (estimated means for each time point) for each distress trajectory, and Table 6 presents the parameter estimates for the latent growth factors. The results indicate that at Wave 1 (intercept) there was little difference in parenting warmth between the classes. However, over time there was a faster decline in parenting warmth for fathers in the persistent and increasing distress class, decreasing at a rate of .53 points per wave compared with .26 for fathers in the minimal distress class. There was significant

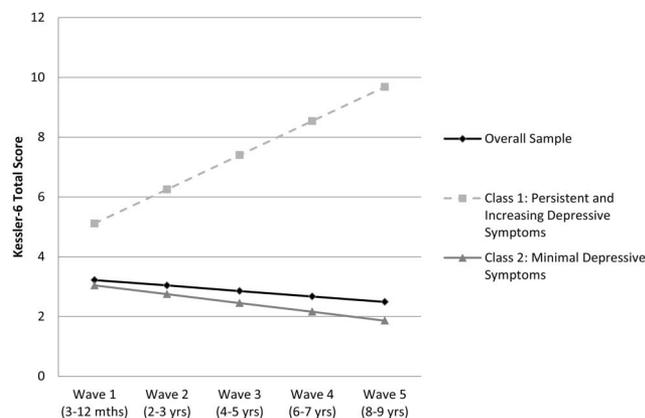


Figure 1. Trajectories of fathers' psychological distress across the early parenting period.

Table 4
Model Fit Indexes for Latent Classes of Psychological Distress Across the Early Parenting Period

Model	LR^2	BIC	AIC	Entropy
1 class	–28,754.78	57,564.78	57,523.57	—
2 class	–26,683.80	53,470.12	53,393.59	.92
3 class	–26,487.37	53,100.92	53,006.73	.85
4 class	–26,363.31	52,876.48	52,764.63	.86

Note. LR^2 = likelihood ratio statistic; BIC = Bayesian information criterion; AIC = Akaike information criterion.

variability in parenting warmth scores at Wave 1 and change over time for both classes.

Parenting hostility. For the overall sample, a two-factor latent growth model for parenting hostility across three waves was an excellent fit to the data, $\chi^2(1, N = 2,662) = 0.68, p = .408, CFI = 1.00, TLI = 1.00, RMSEA = .00, 90\% CI [.00, .05]$. Table 6 reports the parameter estimates for the latent growth model, and Figure 2b depicts the estimated means for the overall sample.

Multiple group analyses revealed significant differences in parenting hostility between the distinct trajectories of distress while controlling for father age and socioeconomic position: unconstrained, $\chi^2(11) = 43.54, p < .001$; constrained, $\chi^2(18) = 62.85, p < .001$; model comparison, $\chi^2_{diff}(7) = 19.35, p = .007$. Figure 2b shows the parenting hostility trajectories (estimated means for each time point) for each class, and Table 6 presents the parameter estimates. The results indicated that hostility levels were higher for fathers in the persistent and increasing distress class than fathers in the minimal distress class at all waves. The rate of change (slope) was not significantly different from zero for both classes, indicating that levels of hostility do not to change over time.

Parenting consistency. For the overall sample, a two-factor latent growth model for parenting consistency across three waves was an excellent fit to the data, $\chi^2(1, N = 2,662) = 9.93, p = .019, CFI = 1.00, TLI = 1.00, RMSEA = .03, 90\% CI [.01, .05]$. Table 6 reports the parameter estimates for the latent growth model, and Figure 2c depicts the estimated means for the overall sample.

Multiple group analyses revealed that the differences in parenting consistency between the distinct trajectories of distress while accounting for father age and socioeconomic status was not significant: unconstrained, $\chi^2(11) = 20.9470, p = .034$; constrained: $\chi^2(18) = 31.16, p = .028$; model comparison, $\chi^2_{diff}(7) = 9.89, p = .194$. Figure 2c shows the parenting consistency trajectories (estimated means for each time point) for each class, and Table 6 presents the parameter estimates. The results indicate that at Wave 3 (intercept) and across the remaining waves levels of consistency were lower for fathers in the persistent and increasing distress class compared with scores for fathers in the minimal distress class. The rate of change (slope) was not significantly different from zero for both classes, indicating that levels of consistency do not to change over time. Significant variability in parenting consistency scores at Wave 3 was observed for both classes, but not for change over time.

Discussion

This is the first study to examine the longitudinal associations between fathers' distress and parenting behavior across the early

Table 5
Results of the Latent Growth Mixture Modeling for a Two-Class Model of Psychological Distress

Parameter	Class 1	Class 2
	Persistent and increasing distress	Minimal distress
Class membership count and proportion	209 (7.8%)	2453 (92.1%)
Class assignment probabilities	0.88	0.99
Estimated means		
Wave 1 (aged 3–12 months)	5.11	3.04
Wave 2 (aged 2–3 years)	6.25	2.75
Wave 3 (aged 4–5 years)	7.40	2.45
Wave 4 (aged 6–7 years)	8.54	2.16
Wave 5 (aged 8–9 years)	9.68	1.86
Mean intercept	5.11 (SE = 0.51)***	3.04 (SE = 0.08)***
Mean slope	1.14 (SE = 0.22)***	-0.30 (SE = 0.02)***
Intercept variance	4.31 (SE = 0.39)***	4.31 (SE = 0.39)***
Slope variance	0.06 (SE = 0.04)	0.06 (SE = 0.04)
Intercept-slope covariance	-0.45 (SE = 0.10)***	-0.45 (SE = 0.10)***

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

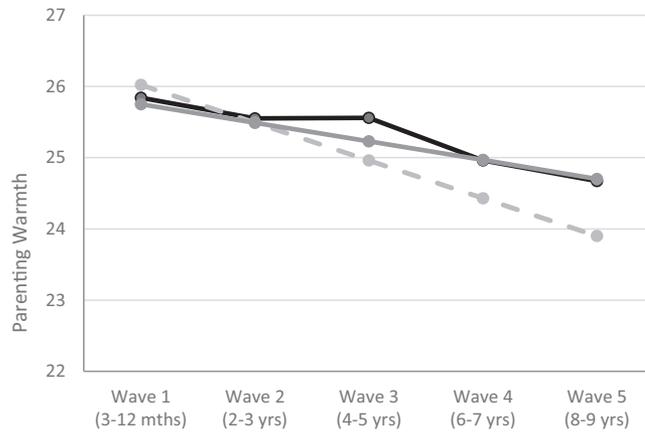
parenting period in a large contemporary Australian population-based sample. Consistent with research by Giallo et al. (2014), two groups of fathers with markedly different trajectories of distress from the first postnatal year to when their children were 8–9 years were identified.

The vast majority of fathers (92%) had a pattern of minimal distress over time, whereas 8% reported persistent and increasing distress across the early parenting period. These fathers were more likely to be unemployed and be from non-English speaking and low socioeco-

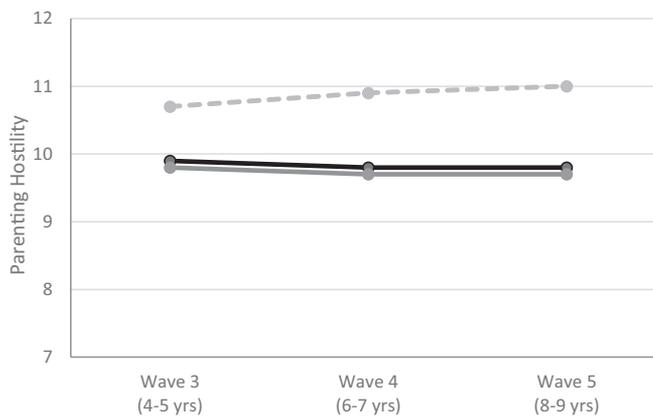
Table 6
Parameter Estimates of the Latent Growth Models for Parenting Behavior by Latent Class

Variable	Overall sample	Class 1	Class 2
		Persistent and increasing distress	Minimal distress
Parenting warmth			
Mean intercept	25.80 (SE = 0.06)***	26.02 (SE = 0.22)***	25.75 (SE = 0.06)***
Mean slope	-0.28 (SE = 0.02)***	-0.53 (SE = 0.08)***	-0.26 (SE = 0.02)***
Intercept variance	4.84 (SE = 0.27)***	4.91 (SE = 1.10)***	4.98 (SE = 0.27)***
Slope variance	0.34 (SE = 0.03)***	0.63 (SE = 0.15)**	0.31 (SE = 0.03)***
Intercept-slope covariance	-0.04 (SE = 0.08)	-0.33 (SE = 0.38)	-0.03 (SE = 0.07)
SEP → intercept	—	-0.01 (SE = 0.03)	-0.03 (SE = 0.01)
SEP → slope	—	0.23 (SE = 10)*	0.19 (SE = 0.07)**
Father age → intercept	—	-0.28 (SE = 0.26)	-0.15 (SE = 0.07)*
Father age → slope	—	-0.61 (SE = 0.70)	-1.76 (SE = 0.39)***
Parenting hostility			
Mean intercept	9.87 (SE = 0.06)***	10.73 (SE = 0.20)***	9.79 (SE = 0.05)***
Mean slope	-0.03 (SE = 0.03)	0.14 (SE = 0.11)	-0.04 (SE = 0.03)
Intercept variance	4.14 (SE = 0.29)***	5.49 (SE = 0.92)***	4.08 (SE = 0.23)***
Slope variance	0.49 (SE = 0.15)*	0.56 (SE = 0.31)	0.39 (SE = 0.09)***
Intercept-slope covariance	-0.34 (SE = 0.17)	-0.07 (SE = 0.49)	-0.41 (SE = 0.11)***
SEP → intercept	—	0.02 (SE = 0.04)	-0.01 (SE = 0.01)
SEP → slope	—	-0.24 (SE = 0.22)	0.09 (SE = 0.08)
Father age → intercept	—	-0.11 (SE = 0.25)	-0.19 (SE = 0.07)**
Father age → slope	—	-0.70 (SE = 1.48)	-0.50 (SE = 0.51)
Parenting consistency			
Mean intercept	16.44 (SE = 0.06)***	15.18 (SE = 0.23)***	16.55 (SE = 0.06)***
Mean slope	-0.03 (SE = 0.03)	-0.02 (SE = 0.12)	0.04 (SE = 0.03)
Intercept variance	4.70 (SE = 0.27)***	6.39 (SE = 0.74)***	4.42 (SE = 0.29)***
Slope variance	0.17 (SE = 0.08)*	0.41 (SE = 0.31)	0.15 (SE = 0.08)
Intercept-slope covariance	-0.25 (SE = 0.12)*	-0.58 (SE = 0.47)	-0.23 (SE = 0.12)
SEP → intercept	—	0.07 (SE = 0.03)*	0.07 (SE = 0.01)***
SEP → slope	—	0.10 (SE = 0.24)	0.10 (SE = 0.20)
Father age → intercept	—	-0.15 (SE = 0.22)	-0.42 (SE = 0.08)***
Father age → slope	—	1.67 (SE = 2.36)	-0.95 (SE = 1.25)

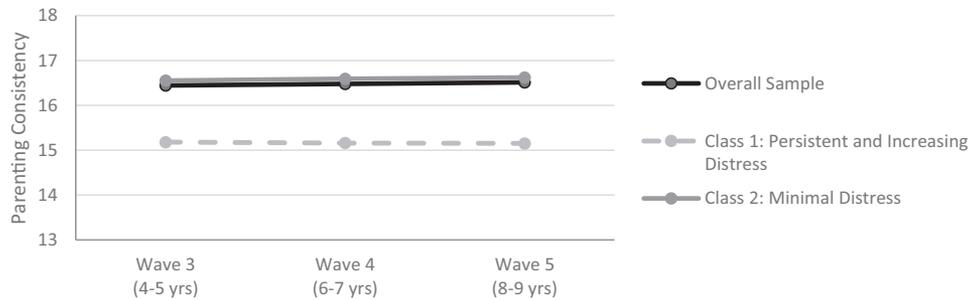
Note. SEP = socioeconomic position.
* $p < .05$. ** $p < .01$. *** $p < .001$.



(a) Parenting Warmth



(b) Parenting Hostility



(c) Parenting Consistency

Figure 2. The course of parenting warmth, hostility, and consistency for fathers with a pattern of (a) persistent and increasing distress and (b) minimal distress.

conomic backgrounds. Although the vast majority of fathers experience good mental health in the early parenting period, some fathers, particularly those experiencing social and economic disadvantage, are at risk of worsening mental health. This is also a critical time when fathers' parenting behaviors are forming and shaping and may be sensitive to the effects of psychological distress symptoms such as

low mood, irritability, and fatigue. Indeed, in this study we found marked differences in the course of parenting behavior across the early parenting period between fathers displaying minimal distress and those with persistent and increasing distress.

Parenting warmth for the overall sample was observed to decrease across the early parenting period. As children got older,

fathers tended to report fewer warm, close, and enjoyable parent-child interactions, and less frequent displays of affection toward their children. Although this is generally consistent with previously reported trends for all parents (Child Trends, 2002), this study found a faster decline in warmth for fathers with persistent and increasing distress than for fathers with minimal distress. The difference between the groups was greatest during middle childhood (Wave 5) when fathers' distress was highest and in the symptomatic range of the Kessler-6. These findings suggest that low to moderate distress might not affect the display of warm, engaged, and responsive parenting behavior in the early parenting period, but that as distress worsens over time and reaches clinically significant levels, fathers' capacity to be engaged, sensitive, warm, and affectionate with their children may be compromised. This builds on cross-sectional research documenting relationships between fathers' mental health difficulties and decreased warmth, sensitivity, and responsiveness in interactions with their children (Wilson & Durbin, 2010).

In contrast to warmth, parenting hostility and consistency were relatively stable across the early parenting period for the overall sample and also for both groups of fathers. Hostility was significantly higher at all waves for fathers with persistent and increasing distress compared with those with minimal distress, whereas the differences in consistency were approaching significance. This suggests that fathers with moderate and increasing distress from the first postnatal year are at increased risk of enduring patterns of parent-child interactions characterized by anger, frustration, and irritability and may be less likely to deliver consequences and more likely to give in when faced with difficult parenting situations. Fathers may find it harder to respond to challenging parenting situations such as managing children's difficult behavior in a calm, consistent, and positive way when experiencing symptoms of distress such as low mood, exhaustion, and irritability. This is also in line with cross-sectional research reporting that fathers' mental health difficulties are associated with hostile parenting behaviors (Wilson & Durbin, 2010) and build on a study documenting a relationship between fathers' postnatal distress and increased hostility when their children were aged 4-5 years (Giallo et al., 2014).

Limitations and Future Directions

There are several limitations to note. First, this study did not examine other contextual factors that may shape parenting behavior across the early childhood period such as couple relationship functioning, stressful life events, social support, and participation in employment. Our aim was to take a first look at fathers' mental health, a key determinant of parenting behavior, using this longitudinal methodological and statistical approach. Having established the feasibility of this approach, we seek to later extend this to examine a broad range of contextual factors that are likely to shape parenting behavior across time.

Second, the findings are based on fathers' self-report of mental health and parenting behavior and therefore may be subject to self-report bias. Fathers with enduring and increasing distress may hold very negative perceptions about their own parenting experiences and behavior compared with fathers who experience few or transient distress over time. Arguably and contrary to this, it is possible that fathers experiencing distress might also have more

insight into their difficulties and parenting behavior. This may be addressed in future by including observational measures of parenting behavior and child report data. Third, the reliability estimates for parenting hostility and consistency were low at key time points, such as Wave 5, and may indicate some lack of consistency in measurement of the parenting constructs over time.

Third, although in this study, we used data across multiple waves to examine fathers' distress and parenting behavior over time, causality cannot be inferred. Future research is needed to better understand the mutual influences of psychological distress and parenting behavior over time. Fourth, because of nonresponse and attrition over time, some groups of fathers such as those from lower socioeconomic, non-English speaking, and Aboriginal and Torres Strait Islander backgrounds are underrepresented, limiting generalizability of the findings to these groups. The findings of our study, along with other research (D'Esposito, Giallo, Stewart, Mensah, & Nicholson, 2011) indicates that these underrepresented groups are at heightened risk of mental health difficulties.

Finally, only fathers who were residing with their children during the study period were included in this study, and the findings may not generalize to fathers not living with their children. Research shows that fathers who are not living with their children are at risk of poorer mental health than fathers who are (Giallo et al., 2012; Lucas, & Nicholson, & Erbas, 2013); therefore, future research is needed to better understand how mental health difficulties and parenting change over time for these fathers to inform how they can be better supported. With these limitations in mind, the following implications of the study are presented.

Implications and Conclusions

The findings of this study reinforce the notion that the postnatal and early parenting period is a critical time for the development of parenting behaviors that are important for children's health, well-being, and development. For a small group of fathers, early mental health difficulties may set them along a trajectory toward a parenting style that is characterized as unresponsive, hostile, and inconsistent compared to wider community norms. The findings underscore the importance of policy and early intervention efforts focused on promoting fathers' mental health and parenting skills development in the postnatal period. To adequately provide early identification and mental health support for fathers, there is an urgent need for more inclusive early childhood services that place equal value and focus on fathers, mothers, and other caregivers for children. Although this may require redesigning services to engage fathers that overcome structural barriers such as long employment hours, this is an important step toward promoting the development of parenting behavior important for positive outcomes for children. Without intervention and support, these fathers may develop an enduring and well-established pattern of parenting behavior characterized by low warmth and consistency and high hostility that can be difficult to change, particularly as children develop and aspects of the parent-child relationship become established.

Our findings also have important implications for health professionals providing support to men, who are fathers, experiencing long-term mental health difficulties. These fathers may not only benefit from interventions to address mental health concerns but may also require support for parenting. Adult-focused mental health services may not always view parenting support as part of

their remit, however, their role as trusted supporter or knowledgeable referrer should not be underestimated. They are in a strong position to assist fathers to obtain the parenting support they need to effectively manage the daily stresses of child rearing and to establish positive interaction styles with their children. Providing fathers with positive alternative skills and strategies to manage challenging parent–child interactions alongside opportunities for managing irritability, stress, and frustration is likely to confer valuable resources for fathers for their parenting role. Not only is this important for fathers' themselves but it is vital to supporting and promoting family and child health and well-being.

References

- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Bayer, J. K., Ukoumunne, O. C., Lucas, N., Wake, M., Scalzo, K., & Nicholson, J. M. (2011). Risk factors for childhood mental health symptoms: National longitudinal study of Australian children. *Pediatrics*, *128*, e865–e879. <http://dx.doi.org/10.1542/peds.2011-0491>
- Belsky, J. (1984). The determinants of parenting: A process model. *Child Development*, *55*, 83–96. <http://dx.doi.org/10.2307/1129836>
- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, *107*, 238–246. <http://dx.doi.org/10.1037/0033-2909.107.2.238>
- Berk, L. (2001). Emotional and social development in middle childhood. In L. Berk (Ed.), *Development through the lifespan* (2nd ed., pp. 318–347). Needham Heights, MA: Allyn & Bacon.
- Blakemore, T., Strazdins, L., & Gibbings, J. (2009). Measuring family socioeconomic position. *Australian Social Policy*, *8*, 121–168.
- Bradley, R., & Caldwell, B. (1995). Caregiving and the regulation of child growth and development: Describing proximal aspects of caregiving systems. *Developmental Review*, *15*, 38–85. <http://dx.doi.org/10.1006/dev.1995.1002>
- Celeux, G., & Soromenho, G. (1996). An entropy criterion for assessing the number of clusters in a mixture model. *Journal of Classification*, *13*, 195–212. <http://dx.doi.org/10.1007/BF01246098>
- Chang, L., Schwartz, D., Dodge, K. A., & McBride-Chang, C. (2003). Harsh parenting in relation to child emotion regulation and aggression. *Journal of Family Psychology*, *17*, 598–606. <http://dx.doi.org/10.1037/0893-3200.17.4.598>
- Chao, R., & Willms, J. (2002). The effects of parenting practices on children's outcomes. In D. Lillms (Ed.), *Vulnerable children*. Edmonton, Alberta, Canada: University of Alberta Press.
- Child Trends. (2002). *Charting parenthood: A statistical portrait of fathers and mothers in America*. Washington, DC: Author.
- Cussen, A., Sciberras, E., Ukoumunne, O. C., & Efron, D. (2012). Relationship between symptoms of attention-deficit/hyperactivity disorder and family functioning: A community-based study. *European Journal of Pediatrics*, *171*, 271–280. <http://dx.doi.org/10.1007/s00431-011-1524-4>
- Dallaire, D. H., & Weinraub, M. (2005). Predicting children's separation anxiety at age 6: The contributions of infant-mother attachment security, maternal sensitivity, and maternal separation anxiety. *Attachment & Human Development*, *7*, 393–408. <http://dx.doi.org/10.1080/14616730500365894>
- Davé, S., Petersen, I., Sherr, L., & Nazareth, I. (2010). Incidence of maternal and paternal depression in primary care: A cohort study using a primary care database. *Archives of Pediatrics & Adolescent Medicine*, *164*, 1038–1044.
- D'Esposito, F., Giallo, R., Stewart, P., Mensah, F., & Nicholson, J. M. (2011, November). *True blue baby blues: Prevalence and persistence of mental health difficulties in Indigenous Australian fathers with infants and young children*. Paper presented at the Growing Up in Australia and Footprints in Time: LSAC and LSIC Research Conference, Melbourne, Australia.
- Fletcher, R. J., Feeman, E., Garfield, C., & Vimpani, G. (2011). The effects of early paternal depression on children's development. *The Medical Journal of Australia*, *195*, 685–689. <http://dx.doi.org/10.5694/mja11.10192>
- Giallo, R., Cooklin, A., Wade, C., D'Esposito, F., & Nicholson, J. (2014). Fathers' postnatal mental health and child well-being at age five: The mediating role of parenting behavior. *Journal of Family Issues*, *35*, 1543–1562.
- Giallo, R., D'Esposito, F., Christensen, D., Mensah, F., Cooklin, A., Wade, C., . . . Nicholson, J. M. (2012). Father mental health during the early parenting period: Results of an Australian population based longitudinal study. *Social Psychiatry and Psychiatric Epidemiology*, *47*, 1907–1916. <http://dx.doi.org/10.1007/s00127-012-0510-0>
- Giallo, R., D'Esposito, F., Cooklin, A., Christensen, D., & Nicholson, J. M. (2014). Factors associated with trajectories of psychological distress for Australian fathers across the early parenting period. *Social Psychiatry and Psychiatric Epidemiology*, *49*, 1961–1971. <http://dx.doi.org/10.1007/s00127-014-0834-z>
- Goodman, S. H., & Gotlib, I. H. (1999). Risk for psychopathology in the children of depressed mothers: A developmental model for understanding mechanisms of transmission. *Psychological Review*, *106*, 458–490. <http://dx.doi.org/10.1037/0033-295X.106.3.458>
- Hu, L., & Bentler, P. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*, 1–55. <http://dx.doi.org/10.1080/10705519909540118>
- Kessler, R. C., Barker, P. R., Colpe, L. J., Epstein, J. F., Gfroerer, J. C., Hiripi, E., . . . Zaslavsky, A. M. (2003). Screening for serious mental illness in the general population. *Archives of General Psychiatry*, *60*, 184–189. <http://dx.doi.org/10.1001/archpsyc.60.2.184>
- Landry, S., Smith, K., & Swank, P. (2006). Responsive parenting: Establishing early foundations for social, communication, and independent problem-solving skills. *Developmental Psychology*, *42*, 627–642. <http://dx.doi.org/10.1037/0012-1649.42.4.627>[http://dx.doi.org/10.1037/0012-1649.42.4.627.suppl\(Supplemental\)](http://dx.doi.org/10.1037/0012-1649.42.4.627.suppl(Supplemental))
- Lovejoy, M. C., Graczyk, P. A., O'Hare, E., & Neuman, G. (2000). Maternal depression and parenting behavior: A meta-analytic review. *Clinical Psychology Review*, *20*, 561–592. [http://dx.doi.org/10.1016/S0272-7358\(98\)00100-7](http://dx.doi.org/10.1016/S0272-7358(98)00100-7)
- Low, S. M., & Stocker, C. (2005). Family functioning and children's adjustment: Associations among parents' depressed mood, marital hostility, parent-child hostility, and children's adjustment. *Journal of Family Psychology*, *19*, 394–403. <http://dx.doi.org/10.1037/0893-3200.19.3.394>
- Lucas, N., Nicholson, J. M., & Erbas, B. (2013). Child mental health after parental separation: The impact of resident/non-resident parenting, parent mental health, conflict and socioeconomics. *Journal of Family Studies*, *19*, 53–69. <http://dx.doi.org/10.5172/jfs.2013.19.1.53>
- Muthén, L., & Muthén, B. (1998–2013). *Mplus user's guide*. Los Angeles, CA: Muthén & Muthén.
- Paterson, G., & Sanson, A. (1999). The association between behavioural adjustment to temperament, parenting and family characteristics among 5-year-old children. *Social Development*, *8*, 293–309. <http://dx.doi.org/10.1111/1467-9507.00097>
- Paulson, J. F., & Bazemore, S. D. (2010). Prenatal and postpartum depression in fathers and its association with maternal depression: A meta-analysis. *JAMA: Journal of the American Medical Association*, *303*, 1961–1969. <http://dx.doi.org/10.1001/jama.2010.605>
- Paulson, J. F., Keefe, H. A., & Leiferman, J. A. (2009). Early parental depression and child language development. *Journal of Child Psychology and Psychiatry*, *50*, 254–262. <http://dx.doi.org/10.1111/j.1469-7610.2008.01973.x>

- Ramchandani, P. G., Stein, A., O'Connor, T. G., Heron, J., Murray, L., & Evans, J. (2008). Depression in men in the postnatal period and later child psychopathology: A population cohort study. *Journal of the American Academy of Child & Adolescent Psychiatry, 47*, 390–398.
- Repetti, R. L., Taylor, S. E., & Seeman, T. E. (2002). Risky families: Family social environments and the mental and physical health of offspring. *Psychological Bulletin, 128*, 330–366. <http://dx.doi.org/10.1037/0033-2909.128.2.330>
- Romano, E., Tremblay, R., Boulerice, B., & Swisher, R. (2005). Multilevel correlates of childhood physical aggression and prosocial behavior. *Journal of Abnormal Child Psychology, 33*, 565–578. <http://dx.doi.org/10.1007/s10802-005-6738-3>
- Soloff, C., Lawrence, D., & Johnstone, R. (2005). *Sample design* (LSAC Technical Paper No. 1). Melbourne: Australian Institute of Family Studies, Commonwealth of Australia.
- Statistics Canada. (2000). *National Longitudinal Survey of Children and Youth (NLSCY) Cycle 3 survey instruments: Parent questionnaire*. Ottawa, Ontario, Canada: Statistics Canada.
- Wilson, S., & Durbin, C. E. (2010). Effects of paternal depression on fathers' parenting behaviors: A meta-analytic review. *Clinical Psychology Review, 30*, 167–180. <http://dx.doi.org/10.1016/j.cpr.2009.10.007>
- Zubrick, S. R., Lucas, N., Westrupp, E. M., & Nicholson, J. M. (2014). *Parenting measures in the Longitudinal Study of Australian Children: Construct validity and measurement quality, Waves 1 to 4*. Canberra: Australian Government, Department of Social Services.

Received November 24, 2014

Revision received April 26, 2015

Accepted May 4, 2015 ■