Introduction: Family structure and dynamics have become increasingly complex. Along with increasing rates of cohabitation, partnership dissolution and single parent households; we have seen a rise in serial partnering, multi-partner fertility (MPF) and non-full siblings. Previous research has examined the intergenerational transmission of divorce and separation risk (Amato 1996; Salvatore et al, 2018). However, less is known about the transmission of MPF. Moreover, there is limited evidence as to the pathways through which these associations operate, or whether these relationships differ by gender. This paper makes an important contribution to the literature by examining, using a rich prospective dataset from a UK birth cohort and stratifying by gender, the intergenerational transmission of both partnership dissolution and MPF and the mediators behind any association.

Background: There is robust evidence on the transmission of family dynamics risk across generations. (Heatherington, 2003; Amato and Patterson, 2017; Dush et al, 2018). Theoretical standpoints underpinning these intergenerational transmissions can be broken down into three interrelated perspectives. We used data from a detailed UK birth cohort study that permitted the examination of seven mediating variables to better understand the relative importance of theses perspectives.

Socialisation theory assumes that family dynamics are socially inherited due to children learning the behaviours of their parents through observation (Diekmann & Englehardt, 1999). The theory emphasises the lack of social control, role-model learning, family stress and parental attitudinal changes following a separation. Growing up in a single parent household may deprive a child of the opportunity for the day-to-day observation of the performance of a partner and may lead to the development of pessimistic views about relationships (Wolfinger, 2000). It may also lead to poor interpersonal skills that make maintaining a relationship in adulthood more problematic. Further, parental separation can result in changes to parental attitudes with regards to family life, employment and marriage that may be transmitted across generations (Amato, 1996).

Parental separation can also lead to challenges associated to **resource depletion**. There is often a decline in economic resources following separation. There may be less direct investment in a child, in turn decreasing family socioeconomic status, depressing child cognition and detrimentally impacting educational attainment, income and job status in adulthood (Radl et al, 2017). Lower educational and economic resources are also associated with increased family structural change in adulthood (Martin, 2006; Matysiak et al, 2013). Resource depletion is also related to socialisation theory - following parental separation maternal employment will often increase, and thereby fostering non-traditional gender role attitudes.
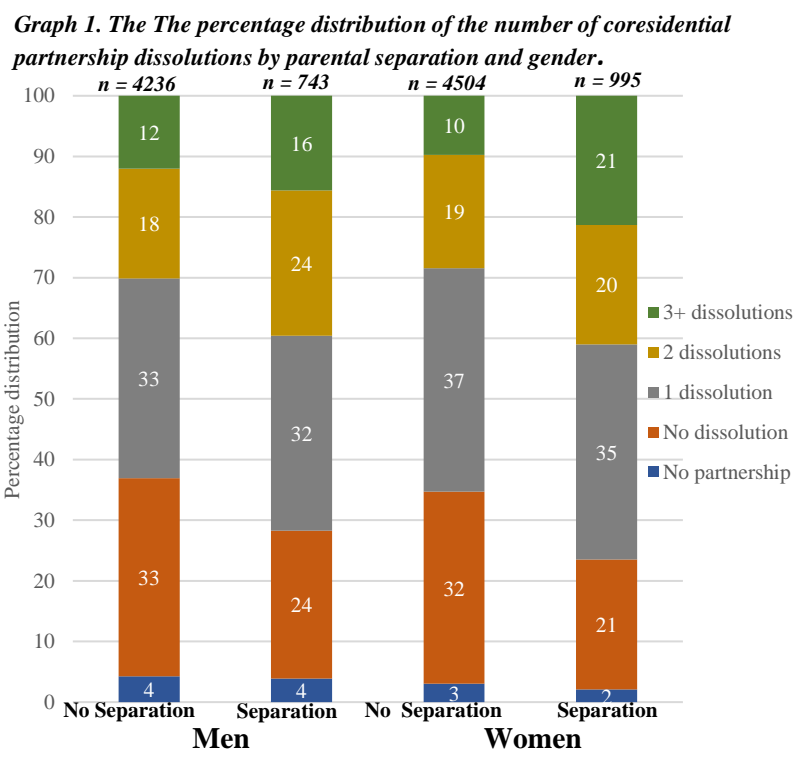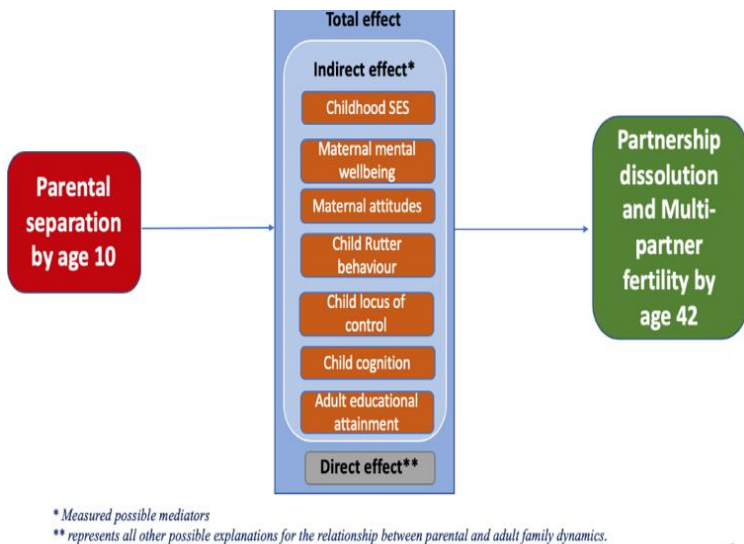
Parental separation can be detrimental to the development of offspring **interpersonal skills**. Children exposed to separation reported less play and less participation in extracurricular or enrichment programmes (Wallerstein & Lewis, 2004). They are often exposed to more conflict and parents who were irritable, punitive under stress, less firm and inconsistent (Hetherington, 2003). This could lead to the development of behaviours that interfere with the maintenance of intimate relationships including: jealousy, domineering, aggression, poor communication, self-critical, hostility and suspicion (Cartwright 2006; Webster & Herzog, 1995). Further, the **stress** association to parental separation may detrimentally impact parental mental wellbeing. Poor mental wellbeing known to be transmitted across generation (Hancock et al, 2013). Living within a household with a parent experiencing poor maternal mental wellbeing may contribute to the development of impaired interpersonal skills in offspring.

Aims: i) To understand the association between parental separation, experiencing MPF and the number of coresidential partnership dissolutions in adulthood. ii) To examine the role of mediators in underpinning any association. iii) To understand different patterns of association by gender.

Data and methods: The 1970 British Cohort Study (BCS70) has followed 17,096 participants born in a single week of 1970, collating information at eleven time points. Information was collected from parents at birth and in childhood with cohort members provided information in later childhood and into adulthood. This paper utilized data from birth, age five, age ten, and age forty-two sweeps. The analytical sample was comprised of 9088 participants representing 53.2% of the original birth cohort. Multinomial logistic regression will examine how parental separation is associated to coresidential dissolution and MPF in adulthood. Firstly, adjusting for parental controls, parental separation will be regressed against coresidential dissolutions as captured in a categorical response (no dissolution, one dissolution, two dissolutions and three or more dissolutions), with no dissolution selected as the baseline category for the outcome; and against experiencing MPF by age 42 as captured in a categorical response (childless, children with one partner, children with two different partners and children with three or more different partners), with children with one partner selected as the baseline category for the outcome. To assess the relevance of the proposed mediators, the mediator will be added independently into the models, bearing in mind the need to control for changing variance (Karlson et al. 2012).

As Figure 1 proposes we hypothesise that part of the total effect of parental separation on coresidential partnership dissolution and MPF operates through seven mediating variables referred to as the indirect effect. The remaining part of the total effect, not explained by these mediators represents all other possible explanations, referred to as the direct effect. We will use a method developed by Karlson, Holm and Breen (KHB) (2012). KHB analysis permits the breakdown of the total effect of parental separation whilst simultaneously investigating the respective contribution of each mediators. KHB was necessary as the mediators were not independent of each other and thus avoids replicating the contributions of each mediator. KHB analysis also adjusts for rescaling issue that may have arisen if we were to compare across the non-linear nested logistic regression models.

Results: 16.2% of the cohort had experienced parental separation by age ten. Graph 1 indicates that for both men and women, those who experienced parental separation were more likely to report two or

Figure 1. The conceptual framework

* *Measured possible mediators*
** *represents all other possible explanations for the relationship between parental and adult family dynamics.*

Graph 1. The The percentage distribution of the number of coresidential partnership dissolutions by parental separation and gender.

more coresidential dissolutions, but were less likely to report one or no coresidential dissolutions. There was a substantial difference for women who had experienced parental separation and three or more coresidential dissolutions in adulthood (20.99%) compared to those who had not experiencing parental separation (9.84%). Further we found no significant association between parental separation and experiencing no partnership in adulthood, for that reason we chose to conduct our analysis on only those who had a coresidential partnership in adulthood.

The results of the nested multinomial logistic regression models for men and women are presented in Graphs 2 and 3. In unadjusted bivariate analysis parental separation was significantly associated to coresidential dissolution for both men and women. Adjusting for parental controls and mediating variables attenuated the significant association between parental separation and experiencing one or three or more dissolutions for men, but the significant association between parental separation and coresidential dissolution was maintained for women. Further, for women who had experienced parental separation the relative risk ratios in both unadjusted and adjusted analysis in the three or more-dissolution category were significantly higher than any other dissolution category.

Graph 4 and 5 present the results of the KHB analysis. Overall the share of the total effect due to the mediators was stronger for men than women. The mediators explained 21% and 17% of the association between parental separation and experiencing one dissolution compared to no dissolution for men and women respectively. They explain 14% and 24% of the total effect of the association to two dissolution and 42% and 9% of the total effect of the association to three or more dissolutions for men and women respectively. When we explored the effect of each individual mediators, we see the strongest mediators were related to child cognition and behaviour for men and maternal attitudes and mental wellbeing for women. Though, childhood socio-economic status was a strong mediator for both genders. However, there still remains some unmeasured heterogeneity that we were unable to capture within our models, especially for women in the three or more-dissolution category.

Discussions: Overall, early life exposures and characteristics matter, both experiencing parental separation and childhood mediators' effect coresidential dissolution risk in adulthood. In bivariate unadjusted analysis we found a significant association between experiencing parental separation and coresidential dissolution for both men and women. In adjusted analysis parental separation was associated to two coresidential dissolutions for men and one, two and three or more coresidential dissolutions for women. The effect of the seven mediating variables were stronger for men than women, although there remained some unmeasured heterogeneity. The strongest mediator for both genders was family SES linking back into the resource depletion theory. However, there was gender differences with regards to the remaining mediators. The strongest mediators for men were child cognition and behaviour relating more closely to the resource depletion and impaired interpersonal skills perspective. Whereas, the strongest mediators for women were maternal mental wellbeing and maternal gender role attitudes linking more closely to the socialisation perspective. Further, the KHB analysis suggested that for men, child cognition at age ten was a stronger mediator than highest education achievement by age 30. This is significant as it suggests that early childhood mediators are more important for predicting dissolution risk than early adulthood factors, especially for men. The next stage of the paper is to continue to explore more complex family dynamics - results for the transmission of multi-partner fertility will be ready shortly. We also want to understand why we see gender differences in both the total effect and the association with the mediating variables. Finally, we want to explore if alternative early adulthood variables for example age at first partnership can help explain some of the unmeasured heterogeneity within our models.

Graph 2. Relative risk ratios for men, for those who experienced a dissolution compared to not experiencing a dissolution and for those whose parents had separated.
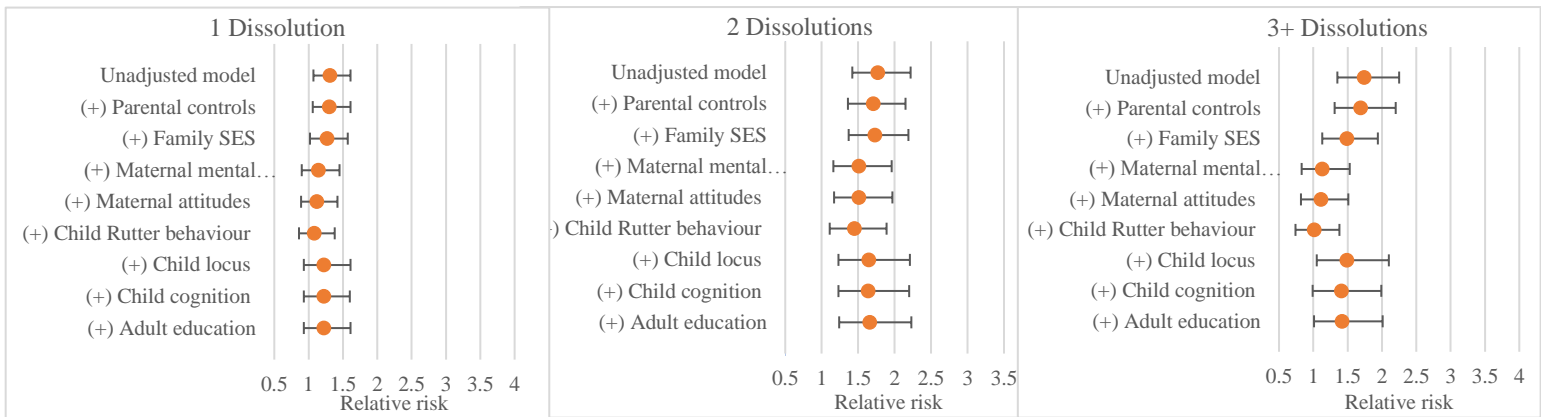

Graph 3. Relative risk ratios for women, for those who experienced a dissolution compared to not experiencing a dissolution and for those whose parents had separated.
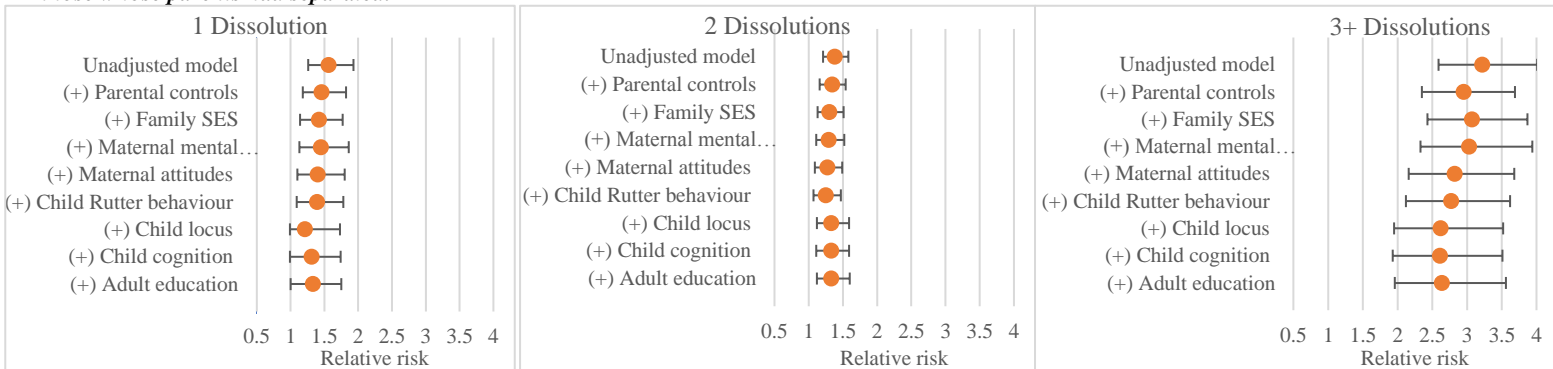

Graph 4. KHB analysis of association between parental separation and partnership dissolution in adulthood. Men.

Effect	1 Dissolution OR (95% CI)	2 Dissolution OR (95% CI)	3+ Dissolution OR (95% CI)
Total effect	1.30 (0.99 - 1.69)	**1.81 (1.37 – 2.40)**	**2.40 (1.94 – 2.97)**
Indirect effect (through mediators)	1.06 (0.98 – 1.14)	**1.09 (1.00 – 1.19)**	**1.17 (1.09 – 1.25)**
Direct effect (not through mediation)	1.23 (0.93 – 1.61)	**1.66 (1.24 – 2.22)**	**2.05 (1.64 – 2.56)**
Share (%) of total effect due to mediators:	21.07	14.40	42.46
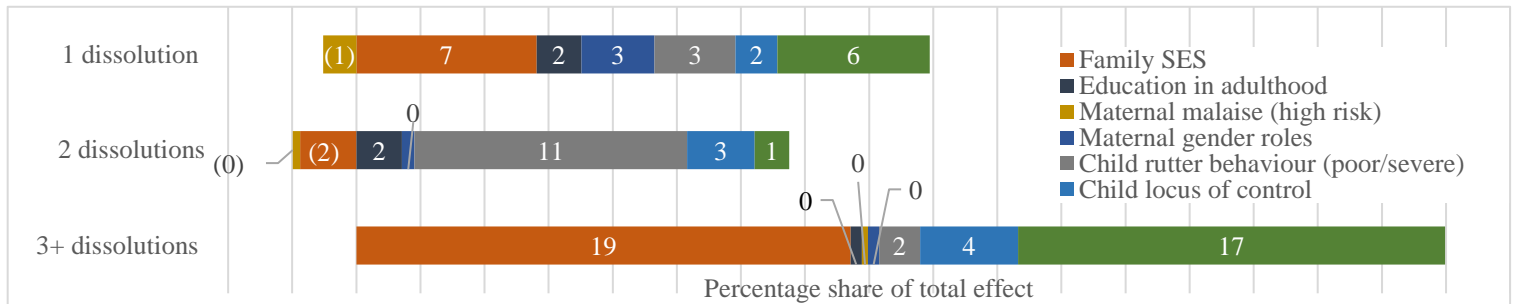
Graph 5. KHB analysis of association between parental separation and partnership dissolution in adulthood. Women.

Effect	1 Dissolution OR (95% CI)	2 Dissolution OR (95% CI)	3+ Dissolution OR (95% CI)
Total effect	1.46 (1.15 - 1.84)	**1.55 (1.10 – 1.89)**	**2.94 (2.21 – 3.91)**
Indirect effect (through mediators)	1.07 (1.03 – 1.14)	**1.09 (1.01 – 1.17)**	**1.11 (1.01 – 1.22)**
Direct effect (not through mediation)	1.37 (1.08 – 1.74)	**1.32 (1.01 – 1.75)**	**2.64 (1.96 – 3.56)**
Share (%) of total effect due to mediators:	17.39	23.77	9.32
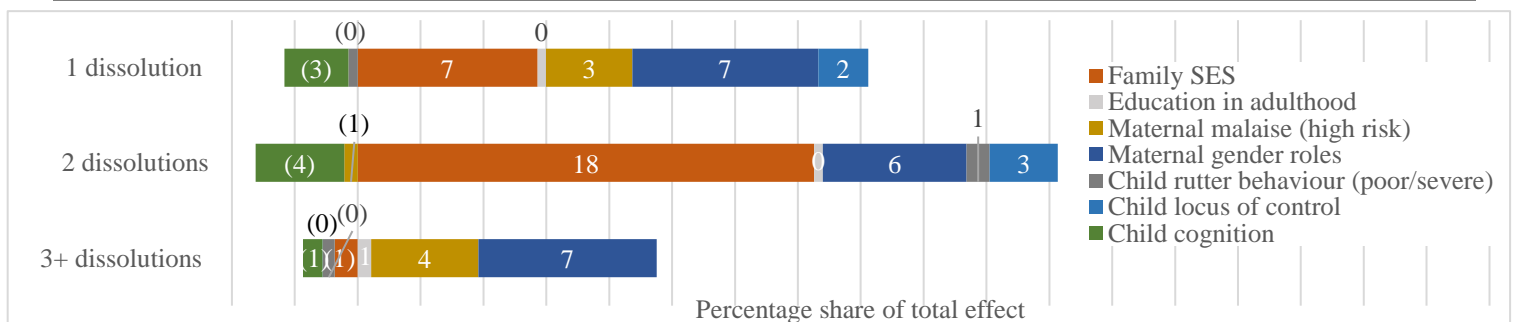
References:

Amato, P. R. (1996). Explaining the intergenerational transmission of divorce. *Journal of Marriage and the Family*,58(3), 628-640.

Amato, P. R., & Booth, A. (1991). Consequences of parental divorce and marital unhappiness for adult well-being. *Social Forces, 69*(3), 895-914.

Amato, P. R., & DeBoer, D. D. (2001). The transmission of marital instability across generations: Relationship skills or commitment to marriage? *Journal of Marriage and Family, 63*(4), 1038-1051

Amato PR, & Patterson SE. (2017) The intergenerational transmission of union instability in early adulthood. *Journal of Marriage and Family*, 79(3), 723-738

Biblarz, T., & Gottainer, G. (2000). Family Structure and Children's Success: A Comparison of Widowed and Divorced Single-Mother Families. *Journal of Marriage and Family, 62*(2), 533-548.

Butler, N., Despotidou, S. and Shepherd, P. (1997) 1970 British Cohort Study (BCS70) Ten-year Follow-up (formerly known as the Child Health and Education Study, CHES)

Cartwright, C. (2006). You want to know how it affected me? Young adults' perceptions of the impact of parental divorce. *Journal of Divorce & Remarriage*, 44(3-4), 125-143.

Diekmann, A. & Engelhardt, H. (1999). The social inheritance of divorce: Effects of parent's family type in postwar Germany. *American Sociological Review*, 64(6), 783-79

Dronkers, J., & Härkönen, J. (2008). The intergenerational transmission of divorce in cross-national perspective: Results from the Fertility and Family Surveys. *Population studies;*62(3), 273-288.

Gadalla, Tahany. (2009). Impact of Marital Dissolution on Men's and Women's Incomes: A Longitudinal Study. *Journal of Divorce & Remarriage*. 50. 55-65.

Gammage, P. (1975). Socialisation, schooling and locus of control. Bristol University: PhD Thesis.

Glenn, N. D., & Kramer, K. B. (1987). The marriages and divorces of the children of divorce. *Journal of Marriage and the Family*, 49(4), 811-825

Hancock KJ, Mitrou F, Shipley M, Lawrence D, Zubrick SR. (2013) A three generation study of the mental health relationships between grandparents, parents and children. *BMC Psychiatry*.(13):299.

Hetherington, E. M. (2003). Intimate pathways: Changing patterns in close personal relationships across time. *Family relations*, 52(4), 318-331.

Karlson, K. B., Holm, A., & Breen, R. (2012). Comparing regression coefficients between same-sample nested models using logit and probit: A new method. *Sociological Methodology*, 42(1), 286-313.

Kohler, Ulrich & Karlson, Kristian & Holm, Anders. (2011). Comparing Coefficients of Nested Nonlinear Probability Models. *Stata Journal*. 11.

Laumann-Billings, L., & Emery, R. E. (2000). Distress among young adults from divorced families. *Journal of Family Psychology, 14*(4), 671-687.

Martin, M.A. (2006) Family structure and income inequality in families with children, 1976 to 2000 *Demography* 43(3): 421-445

Matysiak, Anna, Marta Styrc, and Daniele Vignoli. (2013). The Educational Gradient in Marital Disruption: A Meta-Analysis of European Research Findings. *Population Studies* 68(2):197–215.

McLanahan, S., & Bumpass, L. (1988). Intergenerational consequences of family disruption. *American Journal of Sociology, 94*(1), 130-152.

Mostafa T, Wiggins RD. (2015) The impact of attrition and non-response in birth cohort studies: a need to incorporate missingness strategies. *Longitudinal Life Course*;6(2):131–46.

Ploubidis GB, Sullivan A, Brown M, Goodman A. (2017) Psychological distress in mid-life: evidence from the 1958 and 1970 British birth cohorts. *Psychological Medicine*;47(2):291–303.

Radl, J., Salazar, L., & Cebolla-Boado, H. (2017). Does living in a fatherless household compromise educational success? A Comparative Study of Cognitive and Non-Cognitive Skills. *European Journal of Population,* 33(2), 217-242.

Salvatore, J. E., Larsson Lönn, S., Sundquist, J., Sundquist, K., & Kendler, K. S. (2018). Genetics, the rearing environment, and the intergenerational transmission of divorce: a Swedish national adoption study. *Psychological science*, 29(3), 370-378

Silvestri, S. (1992). Treating adult children of divorce: A model based on redecision therapy. *Transactional Analysis Journal*, 22(3), 164-173.

Wallerstein, J. S., & Lewis, J. M. (2004). The Unexpected Legacy of Divorce: Report of a 25-Year Study. *Psychoanalytic psychology*, 21(3), 353.

Webster, P. S., & Herzog, A. R. (1995). Effects of parental divorce and memories of family problems on relationships between adult children and their parents. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 50(1), S24-S34

Wolfinger, N. H. (1999). Trends in the intergenerational transmission of divorce, *Demography* 36: 415-420

Wolfinger, N. H. (2000). Beyond the intergenerational transmission of divorce: Do people replicate the patterns of marital instability they grew up with*? Journal of Family Issues*, 21(8), 1061-1086.