# The Role of Family Structure Transitions on Young Adult BMI: The Importance of Counting Cohabitation and Marital Separations

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**Objective**: To assess the relationship between the number of family structure transitions during childhood and adolescence on young adults' body mass index (BMI) at age 20. As part of this project we have considered numerous approaches for counting family structure transitions, with a particular focus on understanding the role of cohabitation and marital separations in predicting BMI during young adulthood.

**Background**: When calculating the *number of family structure transitions* many studies do not include the transition from *cohabiting to marriage* or *marital separations (e.g., marriage to separation, separation to reunite, separation to divorce)* as part of their instability measure, which may underestimate the number of transitions a child experiences. With a steady growth in the prevalence and duration of cohabiting unions, cohabitation has become more normative. It is estimated 18% of all births are born in a cohabiting union and 40% of all children spend some time in a cohabiting family by age 12 (Kennedy and Bumpass, 2008).

Further, including the transition from *separation to reunite* and *separation to divorce* in measures of family instability may be important as separation does not always culminate in a divorce, as was the case for 14% of the NSLY79 women's trajectories from 1979-2006 (Dorius, 2010). By not counting certain relationship transitions, the use of "traditional" measures of family instability may be under-estimating the number of transitions children experience and thus may limit our understanding of how family instability influences child well-being.

**Methods**: ***Participants***: Data for this study come from the National Longitudinal Survey of Youth 1979 (NLSY79) and the linked NLSY79 Children and Young Adults (CNLSY) data file. The CNLSY surveys the biological children of women in the NLSY79. The final analytic sample consisted of 3,669 young adults from the original child sample.

***Main Exposure***: The number of family structure transitions was created based on the mother's history of romantic union formations and dissolutions (e.g., married, cohabitating, single) experienced by the child from birth to age 18. The measure is child specific and only considers events the child directly encountered while in the mother's home. Three different methods were considered (See Figure 2):

- **Method 1** = All transitions are counted. Notably "cohabitation to marriage," and all transitions surrounding separations or relationship dissolutions (e.g., "cohabitation to single", "married to separate", and "separate to divorce") are considered.
- **Method 2** = Some of the transitions are counted. Notably "cohabitation to marriage" is not considered in this measure, however all transitions surrounding separations or relationship dissolutions are considered.
- **Method 3** = This is the most conservative count of family structure instability. Notably, "cohabitation to marriage" and marital separations are not considered (i.e. "separation to reunite" and "separation to divorce"). Only marital separations (i.e. "marriage to separate") which are NOT followed by any other transition with that current spouse/partner are considered in the measure.

***Main Outcome Measure***: BMI was measured by direct assessment at age 20.

***Analytic Plan***: Logistic regressions were used to estimate the relationship between family structure transitions and BMI. All regression models included a set of child, mother, and household covariates.

**Results**: **Figure 1** illustrates that the method of counting family structure transitions does influence the variable's distribution. **Figure 2** suggests that the construction of "family instability" is altered depending on which method was employed. Further analyses indicate that when certain transitions are not counted, family transition estimates are under-represented. Specifically:

- When ***cohabitation to marriage*** is not counted, **25%** of the sample is under-represented in count estimates of family transitions when using **Methods 2 and 3.**
- When ***marriage to separation*** is not counted, **27%** of the sample is under-represented in count estimates of family transitions when using **Method 3**.
  - (A total of **9%** of the sample experienced a **"marriage to separation" which was not followed by a divorce**; this is included in **Method 3**).
- When ***separation to reunite*** is not counted, **6%** of the sample is under-represented in count estimates of family transitions when using **Method 3**.
- When ***separation to divorce*** is not counted, **25%** of the sample is under-represented in count estimates of family transitions when using **Method 3**.

Last, results indicate that when cohabitation(s) and separation(s) are "counted" as transitions, there is a significant positive association between family structure transitions and BMI (**Table 1, Method 1**). Children who experienced 4 family structure transitions from birth to age 18 are at greater risk of being obese as young adults compared to children who experience no transitions.

**FIGURE 1 Percentage of Transitions by Method**

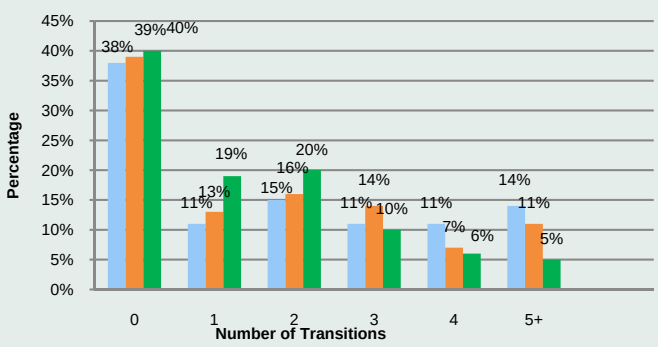
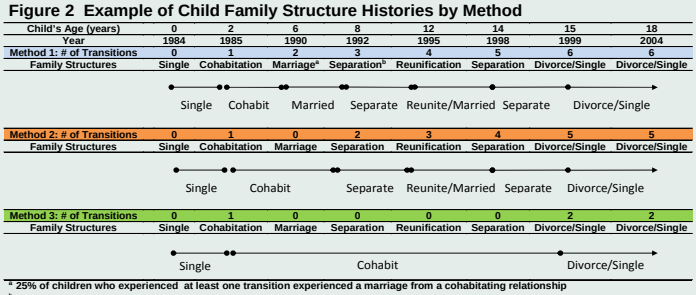



**Figure 2 Example of Child Family Structure Histories by Method**




[a] 25% of children who experienced at least one transition experienced a marriage from a cohabitating relationship
[b] 36% of children who experienced at least one transition experienced marital separations (9% were not followed by divorce or marital reunification)

**TABLE 1 Logistic Regression Models Predicting the Association between Family Structure Transitions and BMI**

| # of Transitions | Obese vs. Not Obese (n = 1821) | Obese vs. Overweight (n = 1355) | Overweight vs. Healthy BMI (n = 1100) | Obese/Over-weight vs. Healthy BMI (n = 1821) |
|---|---|---|---|---|
| **Method 1: Cohabitation before Marriage and Marital Separations "Count", AOR (95% CI)** | | | | |
| 0 | 1.00 [Reference] | 1.00 [Reference] | 1.00 [Reference] | 1.00 [Reference] |
| 1 | 1.07(0.84, 1.35) | 1.07(0.82, 1.39) | 1.05(0.75, 1.46) | 1.07(0.80, 1.44) |
| 2 | 1.10(0.89, 1.36) | 1.13(0.89, 1.44) | 0.97(0.72, 1.30) | 1.03(0.79, 1.33) |
| 3 | 0.84(0.66, 1.06) | 0.86(0.66, 1.11) | 0.94(0.69, 1.28) | 0.86(0.66, 1.13) |
| **4** | **1.42(1.12, 1.81)**** | **1.64(1.24, 2.17)**** | 0.73(0.52, 1.03)$^{+}$ | 0.97(0.73, 1.29) |
| 5+ | 0.95(0.76, 1.18) | 0.95(0.74, 1.21) | 1.01(0.75, 1.36) | 0.97(0.74, 1.26) |
| **Method 2: Marital Separations "Count" (Cohabitation before Marriage Not Included), AOR (95% CI)** | | | | |
| 0 | 1.00 [Reference] | 1.00 [Reference] | 1.00 [Reference] | 1.00 [Reference] |
| 1 | 1.06(0.85, 1.33) | 1.04(0.81, 1.33) | 1.08(0.79, 1.49) | 1.10(0.83, 1.45) |
| 2 | 0.98(0.80, 1.21) | 1.01(0.80, 1.28) | 0.94(0.71, 1.24) | 0.94(0.74, 1.20) |
| 3 | 1.09 (0.88, 1.35) | 1.17 0.92, 1.49) | 0.85(0.64, 1.13) | 0.92(0.72, 1.18) |
| **4** | 1.14(0.86, 1.50) | 1.34 0.96, 1.85) | **0.68(0.47, 1.00)*** | 0.80(0.56, 1.10) |
| 5+ | 0.96(0.76, 1.28) | 0.92(0.71, 1.20) | 1.16(0.47, 1.00) | 1.09(0.82, 1.46) |
| **Method 3: Non-terminal Marital Separations and Cohabitation before Marriage Not Included, AOR (95% CI)** | | | | |
| 0 | 1.00 [Reference] | 1.00 [Reference] | 1.00 [Reference] | 1.00 [Reference] |
| 1 | 1.09(0.90, 1.33) | 1.09(0.88, 1.36) | 1.00(0.77, 1.32) | 1.05(0.83, 1.34) |
| 2 | 1.08(0.89, 1.30) | 1.15(0.93, 1.43) | 0.85(0.66, 1.10) | 0.92(0.73, 1.15) |
| 3 | 0.85(0.67, 1.09) | 0.90(0.68, 1.19) | 0.87(0.63, 1.19) | 0.82(0.62, 1.09) |
| 4 | 1.04(0.77, 1.41) | 1.06(0.76, 1.50) | 0.97(0.65, 1.46) | 0.99(0.69, 1.42) |
| 5+ | 1.19(0.87, 1.62) | 1.15(0.81, 1.63) | 1.15(0.74, 1.78) | 1.18(0.78, 1.75) |

Abbreviations: BMI = Body Mass Index, AOR = Adjusted Odds Ratio
Models include various child, mother, and household level characteristics. $^{**}p < .01$; $^{*}p < .05$; $^{+}p < .10$.

**Conclusions:** The study underscores the importance of counting cohabitations and marital separations when measuring the number of family structures transitions children experience from birth to age 18. By not counting "cohabitation to marriage" and "marital separations" as viable family structure transitions, we are not correctly identifying changes in the family environment that influence long-term weight gain. Future research is needed to explore how various methods of counting family structure transitions that children directly encounter during childhood and adolescence influences long-term health in young adulthood.

Portions of this presentation was taken from a working paper by Hernandez, Pressler, Dorius, and Mitchell which can be found at http://ncfmr.bgsu.edu/page78702.html or contact Daphne Hernandez daphneh@psu.edu

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