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From Some to None? Fertility Expectation Dynamics of Permanently Childless Women

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Abstract

Permanent childlessness is increasingly acknowledged as an outcome of a dynamic, context-dependent process, but few studies have integrated a life course framework to investigate the complex pathways leading to childlessness. This study focuses on an understudied yet revealing dimension of why individuals remain childless: stated fertility expectations over the life course. Using data from the National Longitudinal Survey of Youth 1979 cohort, I use a combination of sequence analysis, data-driven clustering techniques, and multivariable regression models to identify and describe groups of permanently childless women who follow similar trajectories of stated fertility expectations. Results indicate that a little more than one-half (56 %) of eventually childless women fall into a cluster where childlessness is expected before age 30. Women in the remaining clusters (44 %) transition to expecting childlessness later in the life course but are differentiated by the types of trajectories that precede the emergence of a childless expectation. Results from multivariable regression show that several respondent characteristics, including race/ethnicity, education, and marital history, predict cluster membership. Taken together, these findings add to a growing body of literature that provides a more nuanced description of permanently childless women and motivates further research that integrates interdependencies between life course domains and fertility expectations and decision-making of those who remain childless.

Keywords

Childlessness; Fertility expectations; Life course; Sequence analysis

Introduction

Over the last 50 years, permanent childlessness (hereafter, *childlessness*) has become an important demographic phenomenon in the United States. Since the mid-1970s, when information on lifetime childlessness was first made available, the share of women aged 40–44 who never gave birth to a biological child doubled: from 10 % in 1976 to 20 % in 2005 (Livingston 2015). Although recent evidence indicated that childlessness may be declining (Livingston 2015), its relation to broader sociodemographic trends, such as delayed

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childbearing and increased opportunities for women outside the home, suggests that it will likely remain an important driver of U.S. fertility in the coming years.

Because childlessness has important implications at both the population and individual level, researchers have focused on identifying its causes and determinants. The most common narrative in the demographic literature is that women end up childless by choice (i.e., voluntarily childless or child-free) or as a consequence of biologic or other constraints (i.e., involuntarily childless) (Bloom and Pebley 1982). However, researchers are increasingly recognizing that the dichotomous voluntary/involuntary classification does not adequately reflect the dynamic, context-dependent processes leading to eventual childlessness (Letherby 2002; McQuillan et al. 2012; Mynarska et al. 2015). Indeed, as women move across their life courses, the choices they make and the behaviors they engage in take place against the backdrop of changing social structures, competing preferences, and age-related declines in fecundity.

Given limitations with the standard classification, the demographic literature has shown interest in providing a more nuanced picture of permanently childless women, with an emphasis on life course approaches (Hagestad and Call 2007; Keizer et al. 2008; Mynarska et al. 2015). Research focusing on the diversity of pathways to eventual childlessness, for example, has revealed complexities with respect to common life course measures, such as partnership, educational attainment, and labor force participation (Keizer et al. 2008; Mynarska et al. 2015).

Although childbearing preferences and decision-making likely interact with these life course processes, few studies have explored fertility expectation dynamics among women who end up childless. This is surprising given that the vast majority of permanently childless women expect a child at some point in their lives, as I shall show in this analysis. Thus, investigating fertility expectation dynamics may offer additional insights into the processes of remaining childless, enabling researchers to observe when a childless expectation first emerges, when it becomes permanent, and the types of sequences that precede or follow it. Such dynamics likely capture various influences on women’s fertility decision-making and may reflect how women reevaluate expectations for the future when they encounter critical junctures in their life courses.

This article provides new perspectives on the diversity of childless women by investigating the types of fertility expectation pathways that childless women report over the life course. Using a combination of sequence analysis, data-driven clustering techniques, and multivariable regression models, I analyze fertility expectation data from the National Longitudinal Survey of Youth 1979 (NLSY) cohort to identify and describe groups of women who share similar stated expectation trajectories. Using a sequential approach provides not only a more nuanced description of the composition of permanently childless women but also new insight into the various constraints or choices women make over the life course. As such, the analysis sheds light on considerations for future research related to childlessness determinants.

Theoretical Perspectives

Fertility intentions and expectations have received much attention in the demographic literature because they are key determinants of achieved fertility at the population and individual level (e.g., Quesnel-Vallée and Morgan 2003; Schoen et al. 1999). However, how well intentions and expectations predict later outcomes and reasons for observed discrepancies between intended or expected and realized fertility remain important topics of inquiry. Childlessness poses an interesting case study in this regard: many permanently childless women express an expectation or intention for a child at some point in their lives, yet it would be misleading to claim that they all miss the target (Lee 1980). Thus, looking more holistically at stated fertility expectations over the life course offers opportunities to understand this apparent paradox and to inform hypotheses about how women end up childless.

Before continuing, it is worth noting that the present analysis uses a measure of expected, rather than intended, fertility. These two related measures are often used synonymously in the literature (e.g., Hayford 2009; Iacovou and Tavares 2011) but have some conceptual differences. For example, Rackin and Bachrach (2016:531) defined *expectation* as a "representation of a future state that is perceived to be most likely" but considered an *intention* to be distinctly grounded in a commitment to act. However, because little research has investigated differences between expectations and intentions in childless women, and because expectations and intentions appear to operate similarly in empirical studies, I use the two terms interchangeably here.

Fertility expectation trajectories may offer important signals of the processes leading to eventual childlessness for several reasons. As a starting point, the age when a childless expectation first emerges serves as a useful anchor for thinking about different sources of influence in remaining childless. For example, childless expectations expressed at an early age, before individuals fully transition to adulthood, may signify ingrained disinterest in childbearing or a predilection for careers and lifestyles that are incompatible with children (Hakim 2002). In contrast, childless expectations expressed later in the life course may reflect contextual or exogenous influences. Indeed, most theories of fertility intentions, such as Ajzen and Klobas' (2013) application of the theory of planned behavior or Bachrach and Morgan's (2013) cognitive-social model, have employed a context-dependent framework, arguing that individuals update or form concrete intentions as they encounter critical life course junctures (such as partnership formation) or acquire new information (such as an infertility diagnosis).

The emergence of a childless expectation may also be influenced by the social construction of motherhood. We might expect, for example, few statements of expected childlessness at early ages, when women are more susceptible to the societal pressures of the "motherhood mandate" (Russo 1976:143). Indeed, the enduring normative context of childbearing places motherhood at the center of women's adult identities (McQuillan et al. 2008). However, as individuals move throughout the life course, a shift in value orientations away from children toward individual self-realization and leisure (van de Kaa 2001) may weaken the importance of motherhood, especially as women grow accustomed to a life without children

(Carmichael and Whittaker 2007). Similarly, the number of children women expect, particularly earlier in the life course, may be influenced by normative family size ideals or aspirations for the future (Bachrach and Morgan 2013). Changes in expected family size over women's reproductive careers, on the other hand, likely reflect the role of life experience, situational factors, or competing preferences (Gray et al. 2013).

Among women who switch to expecting childlessness later in the life course, we might also expect variation in the types of patterns that precede the emergence of a childless expectation. Many women end up childless after a series of "perpetual postponement[s]" in which women express a positive or ambivalent intention for children but delay childbearing and ultimately end up childless (Berrington 2004:10). The reasons for postponement are diverse (Mills et al. 2011) and may produce unique signatures in expectation trajectories. For example, a gradual decline in stated fertility expectations may signify growing disinterest in childbearing, whereas a consistent expectation for many children that persists to the late 30s and early 40s likely indicates the presence of a constraint.

Last, variation in childless expectation trajectories may reflect McAllister and Clarke's (1998) research showing that the choice to become childless falls on a continuum that ranges from absolute certainty to prolonged ambivalence. For instance, a consistent childless expectation over the life course may represent an important signal of one's commitment to a life without children (Houseknecht 1979; Settle and Brumley 2014). Conversely, changes in fertility expectations over the life course may reflect the notion that expectations are a moving target, constantly shaped and revised by lived experience (Hayford 2009; Quesnel-Vallée and Morgan 2003) and often imbued with uncertainty (Johnson-Hanks et al. 2011).

Prior Research

Few studies have specifically focused on fertility expectation dynamics among permanently childless women over the life course. However, research from several countries, including the United States, has shown that the intention or expectation to remain childless increases with age (Berrington 2004; Fiori et al. 2017; Maximova and Quesnel-Vallée 2009). Additionally, statements of expected childlessness are far from static. Using data from the National Survey of Families and Households, Heaton and colleagues investigated the persistence or change in childless intentions between two survey waves spanning a six-year period (Heaton et al. 1999). Of those who intended childlessness at Wave 1, more than one-half (62 %) switched to either intending children at Wave 2 or had a child between waves; the remaining 38 % maintained a childless expectation. In contrast, among childless individuals intending children at Wave 1, 16 % switched to intending childlessness by Wave 2. Iacovou and Tavares (2011), using data from the United Kingdom, found even greater stability in childless intentions, with 86 % of women consistently expecting no children over a five-or six-year period.

Other studies have shed light on how expectations change over the life course more broadly. The most comprehensive of these, conducted by Hayford (2009) and using the same data analyzed here, employed latent class growth models to identify common fertility expectation trajectories among all women. Of the four distinct groups that emerged in her analysis, the

smallest group (only 4 % of women) followed a trajectory that includes childless expectations. This pattern is characterized by statements of low fertility earlier in the life course, followed by a gradual decline to expecting no children by the early 30s. Although Hayford expanded her analysis to potentially uncover other types of childless groups, she found no support for a distinct consistent childless trajectory. However, the inclusion of mothers in the sample likely obscured granularity within the small group of childless women. Moreover, trajectories in her analysis are modeled monotonically and do not allow for the inclusion of nonnumeric responses, such as “don’t know,” which may be more common among women who end up childless. The analysis presented in this article digs deeper into the unique experiences of these childless women.

Approach

The current study has two aims. The first is to generate a data-driven typology characterizing groups of permanently childless women who share similar fertility expectation pathways. To accomplish this task, I use sequence and cluster analyses, techniques that are increasingly used in the social sciences to enable synthesis of a large number of possible trajectories (Abbott 1995; Billari 2001).[1] These methods allow the investigator not only to look holistically at the sequential characteristics of individual lives but also to distill individual-level variation into meaningful, shared life course patterns. Thus, the resulting typology can be used to inform future research on childlessness.

The second aim is to explore how a set of individual-level characteristics that have been linked with childlessness or childbearing expectations in prior literature are associated with cluster membership. In general, these predictors fall into two groups: time-invariant demographic/background characteristics, and measures related to life course processes. Using time-varying factors precludes making causal claims, but I include them here to provide new perspectives on life course pathway interdependency and directions for future research.

Data and Methods

Data for this study are from the National Longitudinal Survey of Youth 1979, a panel survey of 12,686 males and females in the United States. Initial interviews were conducted in 1979, when participants were aged 14 to 22; subsequent interviews were conducted annually until 1994 and biennially thereafter. At the last wave used in analysis (i.e., 2012), almost all participants had completed childbearing (given their age range of 48 to 56).

Fertility expectations were measured at 19 time points across the survey, starting with the first wave in 1979, yearly from 1982 to 1986, and then biennially from 1988 to 2012. Respondents were asked, “Altogether, how many (more) children do you expect to have?,”[2]

[1]Although both sequence analysis and latent class growth models are used to describe life course dynamics, I choose to use sequence analysis, in part, to provide a more granular lens with which to view fertility expectation trajectories. In addition, prior research using real and simulated life course data has found that although both sequence analysis and latent class analysis techniques yield similar results in classifying life course trajectories, sequence analysis performs somewhat better when variations in sequences are linked with timing (Barban and Billari 2012), as is the case with the current study.

[2]The question does not distinguish between expecting to have biological or nonbiological children.

and they could provide both numeric and nonnumeric responses. At each wave, responses were recoded into a categorical variable with six possible states: 0, 1, 2, 3 or more, "don't know," and missing. The last category, missing, is treated as a unique status that corresponds to refusals and survey nonresponse. Expectation states are assigned to two-year age groups (e.g., 21-to 22-year-olds) based on the age of the respondent at the time of the survey.

Each woman's sequence begins at age 21, when almost all women in the sample provided at least one fertility expectation measurement.[3] All sequences end at age 45. Thus, each woman has an equal sequence length of 18, in which each position in the sequence is one of six possible states.

To limit my study population to permanently childless women, I identify women in the sample who were last observed at age 45 or older and who never reported a live birth (n = 657). Of these women, 21 % are missing at least one fertility expectation measure, which is coded as missing as described earlier. Those who are missing responses for more than one-half of the eight waves spanning ages 25 to 39, a key observation period, are excluded (n = 12), resulting in a final sample size of 645 childless women.

Sequence Analysis

Sequence analysis is used to (1) provide an aggregate description of fertility expectation pathways, and (2) identify groups that share similar sequence patterns. Briefly, the procedure to accomplish these aims is as follows.

First, I define an 18-element sequence of fertility expectations for each woman in the sample.

Second, using the Hamming distance matching algorithm, I construct a dissimilarity matrix that quantifies the distance between each pair of sequences. A *dissimilarity matrix* is made up of pairwise distances or "costs" that provide an indication of the types of operations that are needed to convert one sequence into another, with higher values indicating more dissimilarity or distance between pairs. These operations include substitutions (i.e., substituting one state for another at the same position within a sequence) and insertions or deletions (i.e., inserting or deleting states or subsequences to align sequences with one another). In contrast to other matching algorithms, the Hamming distance algorithm uses only substitutions. As a result, the Hamming distance calculation is preferred for preserving contemporaneous relationships because insertions and deletions may "warp" time (Lesnard 2010).

Before generating the dissimilarity matrix, I create a substitution cost matrix that defines costs associated with substituting one state for another. The three most common ways to set costs are (1) implementing a uniform cost for all substitutions, (2) using transition rate–based (i.e., data-driven) costs, and (3) generating theory-derived costs. I use a uniform cost matrix rather than a theory-derived matrix to avoid the assumption that some fertility expectation statuses are more similar than others. I do, however, conduct a sensitivity

[3]Just over 10 % of the sample have a missing state at this age because they entered the study after 21.

analysis using transition rate–based costs. Results are largely similar across cost-setting schemes.

In the last step, I apply a *k*-medoid clustering algorithm to the dissimilarity matrix to identify homogenous groups of women who follow similar patterns. The algorithm iteratively searches for *k* representative sequences from the sample, or *medoids*, and seeks to minimize the total distance to other objects in the cluster. The identified medoids, therefore, are the individual sequences that are least distant from all other sequences in each cluster (Aassve et al. 2007). I choose the *k*-medoid clustering algorithm over a hierarchical clustering algorithm such as Ward's because it performed better across cluster-quality metrics (see Fig. A1 in the online appendix). I select the number of clusters by using a combination of data-based quality measures and by considering the construct validity of each cluster. Based on these criteria, I obtain a five-cluster solution. (More details of cluster selection, including a description of quality statistics of cluster solutions, can be found in the online appendix.)

I conduct all analyses using the TraMineR and WeightedCluster packages in R (Gabadinho et al. 2011; Studer 2013); the latter accounts for complex sampling design of the survey.

Multivariable Models

Multivariable models are used to explore how characteristics previously linked with childlessness or childbearing expectations are associated with the cluster-driven typology generated using sequence analysis. These predictors fall into five categories: demographic characteristics, childhood family context, sex role orientation, life course characteristics, and health status; each is discussed in turn.

Much prior research has indicated that both childlessness and fertility expectations vary by race/ethnicity and foreign-born status (Abma and Martinez 2006; Hartnett 2014; Hayford 2009; Heaton et al. 1999; Livingston 2015). Voluntarily childless women, for example, are disproportionately white (Abma and Martinez 2006). I code race/ethnicity as non-Hispanic white, non-Hispanic black, and Hispanic; foreign-born status is coded as a binary indicator.

There are several well-documented relationships between women's education and eventual childlessness (Abma and Martinez 2006, Baudin et al. 2015). The pursuit of higher education, for example, has been linked with delayed childbearing (Ní Bhrolcháin and Beaujouan 2012), stronger attachment to the labor market (Juhn and Potter 2006), and changes in attitudes (Cunningham 2008), all of which may interact with expectations of childlessness. I code education as the respondent's highest grade completed measured at age 30 (less than high school, high school diploma, some college, four-year degree, graduate degree). I select age 30 because most of the sample will have completed education by that age.

Other demographic factors, such as religious upbringing, may influence fertility expectations, especially earlier in the life course. For example, those raised in fundamentalist Christian traditions may hold more traditional values around childbearing (Hayford and Morgan 2008). Contextual characteristics may also play a role. For example, Heaton et al.

(1989) found that adolescents who grow up in rural areas are more likely to be exposed to environments that encourage early childbearing and marriage. To investigate how these factors relate to cluster membership, I create a measure of childhood religious affiliation (Protestant, fundamentalist Christian, Catholic, and other) and an indicator for whether the respondent was raised in a rural area.

Childhood family context may also be associated with fertility expectation pathways of childless women. Trent (1994), using the same data analyzed here, found that those living with both biological parents at age 14 were less likely to expect childlessness in late adolescence compared with those living in other family types. Likewise, Hayford (2009), also using the same data, showed that sibship size is positively correlated with expecting larger family sizes throughout the life course. To investigate these relationships with cluster membership, I use a measure of family structure at age 14 (lived with both parents, lived with mother only, other family types) and a continuous measure of number of siblings.

Background factors related to women's sex role orientation may also differentiate between childless expectation pathways. I use three measures for this domain. The first is a binary indicator corresponding to whether the respondent reported that she expected to work at age 35 at the baseline interview. The second is a three-part categorical variable that was generated using five Likert scale items measuring gender attitudes at the baseline interview.[4] I follow the coding scheme used in Greenstein's (1995) analysis of gender ideology in the same sample analyzed here: traditional, moderate, and nontraditional. The third is a binary measure indicating whether the respondent's mother worked when the respondent was 14 years old. I use a measure of maternal employment because working mothers may influence their daughters to adopt an achievement orientation (Houseknecht 1979), which predisposes women to pursue successes outside the home.

Prior research has suggested that several life course processes should interact with fertility expectation pathways of permanently childless women. Marital history may be particularly salient for three reasons. First, a well-established relationship exists between childlessness and nonmarriage at both the macro and individual level (Abma and Martinez 2006, Hayford 2013). Second, postponement of marriage might constrain fertility because of reduced fecundity of those marrying at later ages (Schmidt et al. 2012). And third, those experiencing marital disruption may abandon prior expectations for children, especially later in the life course (Iacovou and Tavares 2011).

Partnership dynamics are captured using two variables. The first describes whether the respondent was ever married and, if so, at what age the marriage occurred, given that late marriage serves as a possible proxy for higher risk of subfecundity (Mills et al. 2011). The resulting measure is a three-part categorical variable: married at or before age 30, married after age 30, and never married. The second measure is an indicator for ever experiencing divorce or widowhood.

[4]The five Likert scale items are (1) "A woman's place is in the home, not in the office or shop;" (2) "A wife who carries out her full family responsibilities doesn't have time for outside employment;" (3) "The employment of wives leads to more juvenile delinquency;" (4) "Women are much happier if they stay at home and take care of their children;" and (5) "It is much better for everyone concerned if the man is the achiever outside the home and the woman takes care of the home and family."

Women's attachment to the labor force and employment status may also differentiate between fertility expectation pathways. For example, women who opt out of the labor force in favor of traditional gender roles may be more likely to maintain an expectation for children throughout much of the life course compared with women who engage in full-time work. Job loss or lack of employment stability may also be associated fertility expectations trajectories; Steele et al. (2014), for instance, found that precarious employment is associated with women remaining childless until age 35. To investigate potential relationships among labor force participation, unemployment, and cluster membership, I create two crude summary measures that indicate whether the respondent was either unemployed or was not in the labor force at two or more survey waves between ages 25 and 35.[5]

Women's expectations for children may also adapt to changing circumstances in family structures. Among women who end up childless, for example, the presence of stepchildren or adopted children in a household may serve as a substitute for biological motherhood (McQuillan et al. 2015; Park and Hill 2014; Stewart 2002). The analysis, therefore, includes a set of indicator variables denoting whether respondents ever lived with stepchildren or adopted a child.

Last, the voluntary/involuntary childless classification commonly used in the literature has suggested that fertility expectation pathways will also differ according to the presence of fertility problems. Unfortunately, the NLSY does not include direct measures of subfecundity, such as a diagnosis of infertility. However, because subfecundity is a key determinant of eventual childlessness, it is worthwhile to consider a proxy measure of fecundity. For this purpose, I choose a summary health score that assesses the overall physical health of respondents when they were in their 40s for two reasons. First, a growing literature has shown that lifestyle factors, such as smoking, nutrition, weight, and environmental exposures, can affect fecundity (Sharma et al. 2013). Second, these same lifestyle factors may also influence overall health and well-being at midlife. The summary health measure I use is the physical component summary (PCS) score from the SF-12, a shortened 12-question version of the more familiar SF-36 (Ware et al. 1996). The PCS score is based on questions regarding pain, frequency of illness, physical functioning, and self-rated health, whereby higher scores indicate better health. For ease of interpretation, the PCS score is modeled as a continuous variable expressed in standardized units (i.e., z scores).

In the final sample, 19 % of women (n = 119) are missing information on at least one covariate, with most of these women missing information on the summary employment measures (n = 57). Because the patterns of missingness meet the missing at random assumption, I use multiple imputation by chained equations to impute missing values (Royston and White 2011). All models use survey weights to account for complex sampling design.

[5]The employment status recode used to generate employment summary scores was not available after 1998, when participants were aged 34–41; thus, the age range used ends at age 35.

Results

Sequence Analysis

Figure 1 displays the frequency distribution of stated fertility expectations for each two-year age group, starting with age 21 and ending at age 45. To facilitate interpretation, missing states are excluded. Most (85 %) women stated that they expected at least one child at age 21. In contrast, 15 % of women stated a childless expectation, and only two women (<1 %) provided a “don’t know” response. Of those expecting at least one child at age 21, the majority (55 %) expected two children, followed by 32 % expecting three or more children, and the smallest group (13 %) expecting one child.

At the aggregate level, the two-child expectation norm is pervasive throughout the early reproductive life course but begins to decline by the late 20s and early 30s. The expectation for three or more children, however, declines substantially over the 20s, falling from 27 % at age 21 to 7 % by age 31. The expectation for one child remains relatively stable across reproductive ages. Expectations of childlessness show a gradual upward shift across age, with the largest relative increase occurring between ages 27 and 29. By age 33, the majority of permanently childless women stated a childless expectation. Interestingly, however, at age 45, a nontrivial minority either expressed an expectation for at least one child (8 %) or provided a “don’t know” response (2 %).

To more fully describe unobserved variation in the aggregate pattern, I now present results from the sequence and cluster analysis. Figure 2 displays the medoids and weighted proportions for each of the five clusters identified. Each medoid can be thought of as the most representative sequence of a given cluster. For descriptive purposes, I assign clusters a label based on key features of each cluster.

The most common cluster, the Early Switchers, make up 32 % of the sample. Women belonging to this cluster tended to state an expectation for children early in the life course (most commonly two children) but switched to a childless expectation in their mid-to late 20s. In contrast, women belonging to the second largest group (24 %), the Consistent Childless, maintained a persistent childless expectation during the entire observation period. Taken together, a little more than one-half of eventually childless women (56 %) fall into a cluster where childlessness is expected before age 30.

Trajectories in the third largest cluster (20 %), the Late Switchers, are characterized by a stable two-child expectation throughout the 20s and early 30s, followed by a switch to expecting childlessness in the late 30s. The remaining two clusters, High to None (13 %) and Gradual (11 %), are marked by patterns of decline prior to the emergence of a childless expectation. Women in the High to None group typically started off expecting large families and then revised their expectations downward in the late 20s and again in the mid-30s. As shown in the medoid, however, the downward pattern of the High to None group does not include a one-child expectation. Conversely, trajectories in the Gradual cluster typically include a persistent one-child expectation that emerges in the mid-20s, followed by a switch to expecting childlessness in the mid-30s. Thus, while the remaining three clusters share similarities in when individuals transitioned to expecting childlessness, they are

differentiated by the types of trajectories that preceded the emergence of a childless expectation.

Figure 3 plots full sequences for the entire sample by cluster membership. Here, we see not only support for the medoids described in Fig. 2 but also additional variation in expectation trajectories in each grouping. In the Late Switchers and High to None groups, for example, some women maintained an expectation for children well into the early 40s. Likewise, some women in the Consistent Childless group expressed an expectation for a child at some point in their lives, especially earlier in the life course.

Plotting all sequences also sheds light on the commonality of a "don't know" response, which was not present in any of the medoids. Although statements of "don't know" (in black) are generally rare in this sample, there are differences between clusters. Further analysis indicates that women in the High to None group were the most likely to report a "don't know" response, with just over one-quarter of women (26 %) stating "don't know" at least once. Conversely, "don't know" responses were least common in the Consistent Childless cluster (6 %). These results support Morgan's (1982) assertion that "don't know" responses should be considered distinct from numeric responses.

Multivariable Models

In this section, I examine how women's demographic characteristics, childhood family context, sex role orientation, life course characteristics, and health status are associated with cluster membership. Table 1 provides the *N*s and weighted descriptive statistics for the full sample as well as for each of the five clusters. Chi-square and ANOVA tests are used to assess significant differences across clusters for each characteristic; between-cluster differences are assessed using a modified Bonferroni approach for multiple comparisons (Šidák 1967).

At the bivariate level, four demographic measures—race/ethnicity, education, rural status, and religious upbringing—are significantly different across clusters. Among life course measures, adoption is significantly related to cluster membership, and marital disruption is marginally associated. None of the other measures significantly differentiate between clusters at the bivariate level.

To build on the relationships observed in Table 1, I conduct separate binary logistic regression models predicting cluster membership using all available measures described in the Methods section (Table 2).[6] Each model separately estimates the likelihood of belonging to a cluster compared with the likelihood of belonging to any other cluster.

At the multivariable level, race/ethnicity significantly predicts cluster membership, with black women having lower odds of belonging to the Consistent Childless group but higher odds of belonging to the High to None group, compared with their white counterparts. In

[6]I choose binary logistic regression, rather than multinomial logistic regression, to facilitate interpretation of predictors across a large number of groups. This approach yields substantively similar results to the more detailed multinomial results but offers a more straightforward interpretation of relationships between individual-level characteristics and cluster membership.

contrast, there are no differences by cluster membership between Hispanic and white women, nor by foreign-born status.

Respondents' education level (measured at age 30) is also significantly correlated with cluster membership. Compared with women with a high school diploma, women with a college or graduate degree have significantly higher odds of belonging to the High to None cluster (ORs = 4.30 and 6.09, respectively), whereas those with less than a high school education have significantly lower odds (OR = 0.08). Those with a bachelor's degree also have marginally lower odds of belonging to the Early Switchers group compared with those with a high school diploma.

Background factors, such as rural/urban residence and religion, predict cluster membership as well. Women raised in rural areas have higher odds of belonging to the Early Switchers group but lower odds of belonging to the Late Switchers group. Moreover, compared with Protestants, fundamentalist Christians have higher odds of belonging to the Consistent Childless cluster but lower odds of membership to the Early Switchers or High to None groups. In contrast, Catholic women have significantly higher odds of belonging to the High to None group, whereas those in the "other" religious group have lower odds of belonging to the Early Switchers cluster.

Measures of family structure, sibship size, maternal employment, and respondents' employment expectations do not significantly predict cluster membership. Conversely, gender attitudes measured in late adolescence (i.e., 1979) are significantly related to expectation pathways. Compared with those holding nontraditional attitudes, those holding traditional attitudes have higher odds of belonging to the High to None group but lower odds of membership to the Consistent Childless cluster.

Among life course characteristics, marital history, marital disruption, labor force participation, and adoption significantly predicted cluster membership. Compared with women who were married before age 30, never married women have higher odds of belonging to the High to None cluster but lower odds of belonging to the Late Switchers group. Notably, there are no significant differences between women who married before 30 and those who married later. Women who experienced marital disruption also have lower odds of belonging to the Late Switchers group but have higher odds of belonging to the Gradual group.

Last, women who were not in the labor force at two or more surveys waves have higher odds of belonging to the Consistent Childless group but lower odds of belonging to the Late Switchers cluster. Women who ever adopted have significantly lower odds of belonging to the Consistent Childless cluster. There are no relationships between health status at age 40 and cluster membership.

Discussion

This article uses sequence and cluster analysis to provide a novel description of the composition of permanently childless women and to offer new insights into the processes of remaining childless. The analysis uncovers five fertility expectation trajectories of

permanently childless women and suggests diversity in the way childless women evaluate their future life courses. These five clusters are selected by using a combination of data-based quality measures and by considering the construct validity of each cluster. Consequently, the resulting data-driven typology sheds light on several informative dimensions of trajectories that may further elucidate determinants of eventual childlessness in the United States.

The first of these dimensions pertains to when expectations for children are revised downward. For example, the medoids shown in Fig. 2 reveal how revisions in fertility expectation pathways occur at roughly the same periods in the life course. For three groups — Early Switchers, High to None, and Gradual—women revise their fertility expectations in their mid-to late 20s, suggesting that life course junctures that occur in early adulthood, such as partnership or transitioning to the labor market, may be linked to this adjustment. The second transition reflected in the medoids occurs later in the life course. Here we see that the Late Switchers, High to None, and Gradual groups all transition to expecting childlessness after age 35. Although the current study design precludes causal explanations for these transitions, their existence lends support for numerous mechanisms, including the presence of biological or partnership constraints or adaptation to childless lifestyles.

The second dimension relates to the types of fertility expectation patterns that precede a childless expectation. A nontrivial proportion of childless women (13 %), for example, expect very high fertility in the beginning of the observation period but switch to expecting childlessness in the mid-to late 30s (i.e., High to None cluster). To my knowledge, few studies have identified this subgroup of childless women, even though multivariable analyses show that several demographic and life course factors significantly predict membership to this group. This finding partly echoes prior work showing that fertility expectations stated earlier in the life course are more influenced by background factors (Rackin and Bachrach 2016), but it is unclear whether expecting large families from an early age offers an important signal of women’s commitment to childbearing or importance of motherhood over the life course among women who remain childless. Accordingly, future work should integrate more proximal and attitudinal explanations into studies on childless expectations to further elucidate the specific context behind the concept of expected fertility that I am limited to in the survey.

The analyses also demonstrate that among those who switch to expecting childlessness later in the life course, some women show a gradual downward adjustment of expectations. Others maintain a consistent two-child expectation prior to expecting childlessness, suggesting that the processes underlying these patterns are distinct. Future work should more fully integrate interdependencies between life course domains and fertility expectations and decision-making to shed light on into how such processes operate.

Black, but not Hispanic, childless women, have higher odds of belonging to the High to None cluster compared with their white counterparts—a finding that may relate to women’s different social schemas regarding childbearing. Indeed, prior research has found that black women in this cohort are more likely to intend larger families from a young age (Hayford 2009), suggesting that those who remain childless are a select group. Thus, the extent to

which constraints, uncertainty, or shifting lifestyle priorities drive childlessness in black women and how these influences may differ by race/ethnicity also remain areas of future research.

Several counterintuitive results emerge in the multivariable analysis. For instance, childless women raised in rural areas have higher odds of belonging to the Early Switchers group despite greater exposure to social norms concerning early childbearing (Heaton et al. 1989). Likewise, women raised in fundamentalist Christian traditions, who hold more traditional values around childbearing (Hayford and Morgan 2008), have higher odds of belonging to the Consistent Childless group. Although these significant results could arise from random chance, they also might reflect an abandonment of childbearing among women who fail to become young mothers in settings where early childbearing is expected. I also find that women who were not in labor force at two or more survey waves between ages 25 and 35 have higher odds of belonging to the Consistent Childless cluster. Although this finding could be attributed to women who are out of the labor force for health reasons, additional analyses show that very few women are out of the labor force because they are unable to work.

This study adds to the growing body of literature examining the dynamic and uncertain nature of fertility intentions and expectations (Hayford 2009; Jones 2017; Trinitapoli and Yeatman 2018). Few studies have focused exclusively on childless women, and even fewer have used sequence analysis to demonstrate underlying patterns in detailed, visual displays using a data-driven approach. The current analysis also better captures dynamics over the life course than prior research because trajectories are analyzed over a longer time horizon and with greater granularity than studies that are limited to investigating changes between a limited number of survey waves, often only several years apart.

This study, however, is not without limitations. First and foremost, the NLSY does not include direct measures of experienced subfecundity that would allow me to further distinguish between expectation pathways and facilitate direct comparisons with a standard voluntary/involuntary dichotomy. It is unclear, for example, whether women belonging to the three late childless expectation clusters experienced similar levels of subfecundity or whether women’s reactions to experienced subfecundity mirror those of competing explanations in relation to childlessness expectation patterns. Despite this limitation, results show that a variety of factors—not just biology—are associated with different pathways among women expecting childlessness later in the life course.

The NLSY also has limited information on child desires or preferences over the life course (rather than expectations), as well as measures related to the importance of motherhood, that would provide additional insight into the meaning behind childless expectations and pathways. Such measures could distinguish between childless expectations that reflect choice and childless expectations that conflict with underlying desires for children (Gray et al. 2013; Shreffler et al. 2016). In a sensitivity analysis, I investigate how fertility desires, which were measured only in early survey waves, might influence cluster membership. I find that these measures yield little substantial leverage, perhaps because of the high correlation between desired and expected fertility reported by women in my sample.

Nevertheless, the extent to which fertility desires change over the life course among childless women remains an open question, although prior research has suggested that like fertility expectations, fertility preferences are also unstable (Heiland et al. 2008).

Another limitation of the current study is that life course characteristics are crudely measured and do not capture potentially meaningful trajectories that may be associated with expectation pathways. More granular measures of employment status over the life course may be particularly salient: previous research has shown that precarious work contexts are linked with postponed childbearing in an Australian cohort (Steele et al. 2014). Future research could employ event-history modeling to assess how changes in other life course domains influence changes in expectation pathways.

Given distinct gendered pathways in remaining childless (Keizer et al. 2008), it is unclear whether the clusters identified here would be similar for childless men. For example, prior research has suggested that partnership, socioeconomic position, and labor market participation may differentially influence men's intentions for children and likelihood of remaining childless (Fiori et al. 2017; Keizer et al. 2008). Nevertheless, limited research has indicated that childless intentions are largely comparable between men and women of the same age (Fiori et al. 2017; Miettinen 2010). Using a gendered perspective to compare men's and women's fertility expectation dynamics over the life course offers a promising avenue for further research.

This study capitalizes on the recent completion of childbearing in the NLSY79 cohort to provide new perspectives on the diversity of childless women. Although the fertility expectations of this cohort have been studied extensively, few have presented these expectations as sequences over the reproductive life span, and even fewer have considered how these trajectories might differ among permanently childless women. However, one important limitation of this study is that results may not be generalizable to other cohorts or contexts. Indeed, the shortcomings associated with cohort studies—namely, that they require long periods of observation to link life course processes with completed childbearing—appear unavoidable. Nevertheless, this study offers new insights and considerations for future research on childlessness in contemporary societies.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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References

Abbott A (1995). Sequence analysis: New methods for old ideas. Annual Review of Sociology, 21, 93–113.

Abma JC, & Martinez GM (2006). Childlessness among older women in the United States: Trends and profiles. Journal of Marriage and Family, 68, 1045–1056.

Ajzen I, & Klobas J (2013). Fertility intentions: An approach based on the theory of planned behavior. Demographic Research, 29(article 8), 203–232. 10.4054/DemRes.2013.29.8

Aassve A, Billari FC, & Piccarreta R (2007). Strings of adulthood: A sequence analysis of young British women's work-family trajectories. European Journal of Population, 23, 369–388.

Bachrach CA, & Morgan SP (2013). A cognitive-social model of fertility intentions. Population and Development Review, 39, 459–485. [PubMed: 25132695]

Barban N, & Billari FC (2012). Classifying life course trajectories: A comparison of latent class and sequence analysis. Journal of the Royal Statistical Society, Series C: Applied Statistics, 61, 765–784.

Baudin T, de la Croix D, & Gobbi PE (2015). Fertility and childlessness in the United States. American Economic Review, 105, 1852–1882. [PubMed: 29543416]

Berrington A (2004). Perpetual postponers? Women's, men's, and couple's fertility intentions and subsequent fertility behaviour. Population Trends, 117, 9–19.

Billari FC (2001). Sequence analysis in demographic research. Canadian Studies in Population, 28, 439–458. 10.25336/P6G30C

Bloom DE, & Pebley AR (1982). Voluntary childlessness: A review of the evidence and implications. Population Research and Policy Review, 1, 203–224.

Carmichael GA, & Whittaker A (2007). Choice and circumstance: Qualitative insights into contemporary childlessness in Australia. European Journal of Population, 23, 111–143.

Cunningham M (2008). Changing attitudes toward the male breadwinner, female homemaker family model: Influences of women's employment and education over the lifecourse. Social Forces, 87, 299–323.

Fiori F, Rinesi F, & Graham E (2017). Choosing to remain childless? A comparative study of fertility intentions among women and men in Italy and Britain. European Journal of Population, 33, 319–350. [PubMed: 28725098]

Gabadinho A, Ritschard G, Müller NS, & Studer M (2011). Analyzing and visualizing state sequences in R with TraMineR. Journal of Statistical Software, 40(4), 1–37. 10.18637/jss.v040.i04

Gray E, Evans A, & Reimondos A (2013). Childbearing desires of childless men and women: When are goals adjusted? Advances in Life Course Research, 18, 141–149. [PubMed: 24796265]

Greenstein TN (1995). Gender ideology, marital disruption, and the employment of married women. Journal of Marriage and the Family, 57, 31–42.

Hagestad GO, & Call VRA (2007). Pathways to childlessness. Journal of Family Issues, 28, 1338–1361.

Hakim C (2002). A new approach to explaining fertility patterns: Preference theory. Population and Development Review, 29, 349–373.

Hartnett CS (2014). White-Hispanic differences in meeting lifetime fertility intentions in the U.S. Demographic Research, 30(article 43), 1245–1276. 10.4054/DemRes.2014.30.43 [PubMed: 25346616]

Hayford SR (2009). The evolution of fertility expectations over the life course. Demography, 46, 765–783. [PubMed: 20084828]

Hayford SR (2013). Marriage (still) matters: The contribution of demographic change to trends in childlessness in the United States. Demography, 50, 1641–1661. [PubMed: 23595495]

Hayford SR, & Morgan SP (2008). Religiosity and fertility in the United States: The role of fertility intentions. Social Forces, 86, 1163–1188.

Heaton TB, Lichter DT, & Amoateng A (1989). The timing of family formation: Rural- urban differentials in first intercourse, childbirth, and marriage. Rural Sociology, 54, 1–16.

Heaton TB, Jacobson CK, & Holland K (1999). Persistence and change in decisions to remain childless. Journal of Marriage and the Family, 61, 531–539.

Heiland F, Prskawetz A, & Sanderson WC (2008). Are individuals' desired family sizes stable? Evidence from West German panel data. European Journal of Population, 24(article 129). 10.1007/s10680-008-9162-x

Houseknecht SK (1979). Timing of the decision to remain voluntarily childless: Evidence for continuous socialization. Psychology of Women Quarterly, 4, 81–96. [PubMed: 12336876]

Iacovou M, & Tavares LP (2011). Yearning, learning, and conceding: Reasons men and women change their childbearing intentions. Population and Development Review, 37, 89–123. [PubMed: 21735613]

Johnson-Hanks J, Bachrach C, Morgan SP, & Kohler H-P (2011). Understanding family change and variation: Toward a theory of conjunctural action New York, NY: Springer.

Jones RK (2017). Are uncertain fertility intentions a temporary or long-term outlook? Findings from a panel study. Women's Health Issues, 27, 21–28. [PubMed: 27838033]

Juhn C, & Potter S (2006). Changes in labor force participation in the United States. Journal of Economic Perspectives, 20(3), 27–46.

Keizer R, Dykstra PA, & Jansen MD (2008). Pathways into childlessness: Evidence of gendered life course dynamics. Journal of Biosocial Science, 40, 863–878. [PubMed: 18093349]

Lee RD (1980). Aiming at a moving target: Period fertility and changing reproductive goals. Population Studies, 34, 205–226. [PubMed: 22077121]

Lesnard L (2010). Setting cost in optimal matching to uncover contemporaneous socio-emporal patterns. Sociological Methods & Research, 38, 389–419.

Letherby G (2002). Childless and bereft?: Stereotypes and realities in relation to "voluntary" and "involuntary" childlessness and womanhood. Sociological Inquiry, 72, 7–20.

Livingston G (2015). Childlessness falls, family size grows among highly educated women (Pew Social & Demographic Trends Report) Washington, DC: Pew Research Center.

Maximova K, & Quesnel-Vallée A (2009). Mental health consequences of unintended childlessness and unplanned births: Gender differences and life course dynamics. Social Science & Medicine, 68, 850–857. [PubMed: 19097676]

McAllister F, & Clarke L (1998). Choosing childlessness London, UK: Family Policy Studies Centre.

McQuillan J, Greil AL, Shreffler KM, & Bedrous AV (2015). The importance of motherhood and fertility intentions among U.S. women. Sociological Perspectives, 58, 20–35.

McQuillan J, Greil AL, Scheffler KM, & Tichenor V (2008). The importance of motherhood among women in the contemporary United States. Gender & Society, 22, 477–496. [PubMed: 20407592]

McQuillan J, Greil AL, Shreffler KM, Wonch-Hill PA, Gentzler KC, & Hathcoat JD (2012). Does the reason matter? Variations in childless concerns among U.S. women. Journal of Marriage and Family, 74, 1166–1181.

Miettinen A (2010). Voluntary or involuntary childlessness? Socio-demographic factors and childlessness intentions among childless Finnish men and women aged 25–44. Finnish Yearbook of Population Research, 45, 5–24.

Mills M, Rindfuss RR, McDonald P, & te Velde E (2011). Why do people postpone parenthood? Reasons and social policy incentives. Human Reproduction Update, 17, 848–860. [PubMed: 21652599]

Morgan SP (1982). Parity-specific fertility intentions and uncertainty: The United States, 1970 to 1976. Demography, 19, 315–334. [PubMed: 7117630]

Mynarska M, Matysiak A, Rybińska A, Tocchioni V, & Vignoli D (2015). Diverse paths into childlessness over the life course. Advances in Life Course Research, 25, 35–48.

Ní Bhrolcháin M, & Beaujouan E (2012). Fertility postponement is largely due to rising educational enrolment. Population Studies, 66, 311–327. [PubMed: 22889178]

Park NK, & Hill PW (2014). Is adoption an option? The role of importance of motherhood and fertility help-seeking in considering adoption. Journal of Family Issues, 35, 601–626.

Quesnel-Vallée A, & Morgan SP (2003). Missing the target? Correspondence of fertility intentions and behavior in the U.S. Population Research and Policy Review, 22, 497–525.

Rackin HM, & Bachrach CA (2016). Assessing the predictive value of fertility expectations through a cognitive-social model. Population Research and Policy Review, 35, 527–551.

Royston P, & White IR (2011). Multiple imputation by chained equations (MICE): Implementation in Stata. Journal of Statistical Software, 45(4). 10.18637/jss.v045.i04

Russo NF (1976). The motherhood mandate. Journal of Social Issues, 32(3), 143–153.

Schmidt L, Sobotka T, Bentzen JG, & Nyboe Andersen A (2012). Demographic and medical consequences of the postponement of parenthood. Human Reproduction Update, 18, 29–43. [PubMed: 21989171]

Schoen R, Astone NM, Kim YJ, Nathanson CA, & Fields JM (1999). Do fertility intentions affect fertility behavior? Journal of Marriage and the Family, 61, 790–799.

Settle B, & Brumley K (2014). “It’s the choices you make that get you there”: Decision-making pathways of childfree women. Michigan Family Review, 18, 1–22. 10.3998/mfr.4919087.0018.102

Sharma R, Biedenharn KR, Fedor JM, & Agarwal A (2013). Lifestyle factors and reproductive health: Taking control of your fertility. Reproductive Biology and Endocrinology, 11(article 66). 10.1186/1477-7827-11-66

Shreffler KM, Tiemeyer S, Dorius C, Spierling T, Greil AL, & McQuillan J (2016). Infertility and fertility intentions, desires, and outcomes among US women. Demographic Research, 35(article 39), 1149–1168. 10.4054/DemRes.2016.35.39

Šidák Z (1967). Rectangular confidence regions for the means of multivariate normal distributions. Journal of the American Statistical Association, 62, 626–633.

Steele EJ, Giles LC, Davies MJ, & Moore VM (2014). Is precarious employment associated with women remaining childless until age 35 years? Results from an Australian birth cohort study. Human Reproduction, 29, 155–160. [PubMed: 24254416]

Stewart SD (2002). The effect of stepchildren on childbearing intentions and births. Demography, 39, 181–197. [PubMed: 11852836]

Studer M (2013). WeightedCluster library manual: A practical guide to creating typologies of trajectories in the social sciences with R (LIVES Working Papers No. 24) Lausanne, Switzerland: NCCR LIVES.

Trent K (1994). Family context and adolescents’ fertility expectations. Youth & Society, 26, 118–137. [PubMed: 12156359]

Trinitapoli J, & Yeatman S (2018). The flexibility of fertility preferences in a context of uncertainty. Population and Development Review, 44, 87–116. [PubMed: 29695890]

van de Kaa DJ (2001). Postmodern fertility preferences: From changing value orientation to new behavior. Population and Development Review, 27(Suppl.), 290–331.

Ware J, Kosinski M, & Keller SD (1996). A 12-item short-form health survey: Construction of scales and preliminary tests of reliability and validity. Medical Care, 34, 220–233. [PubMed: 8628042]

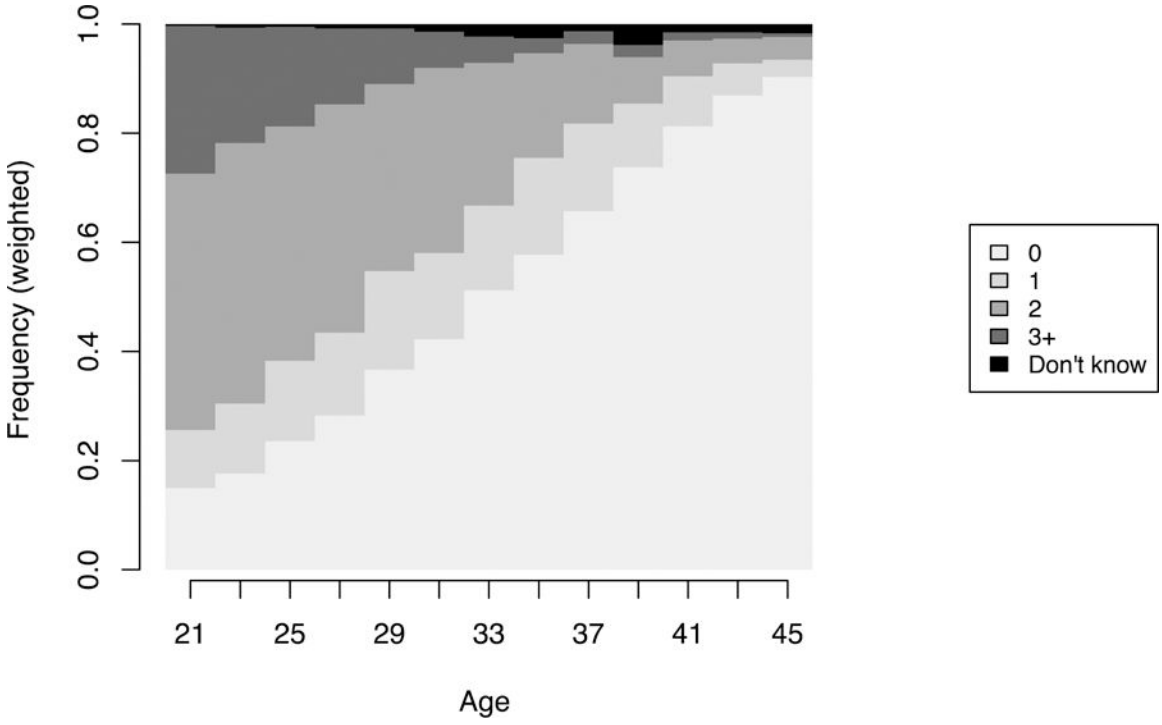

Fig. 1.

State distribution of fertility expectations over the reproductive life course for permanently childless women, n=645.

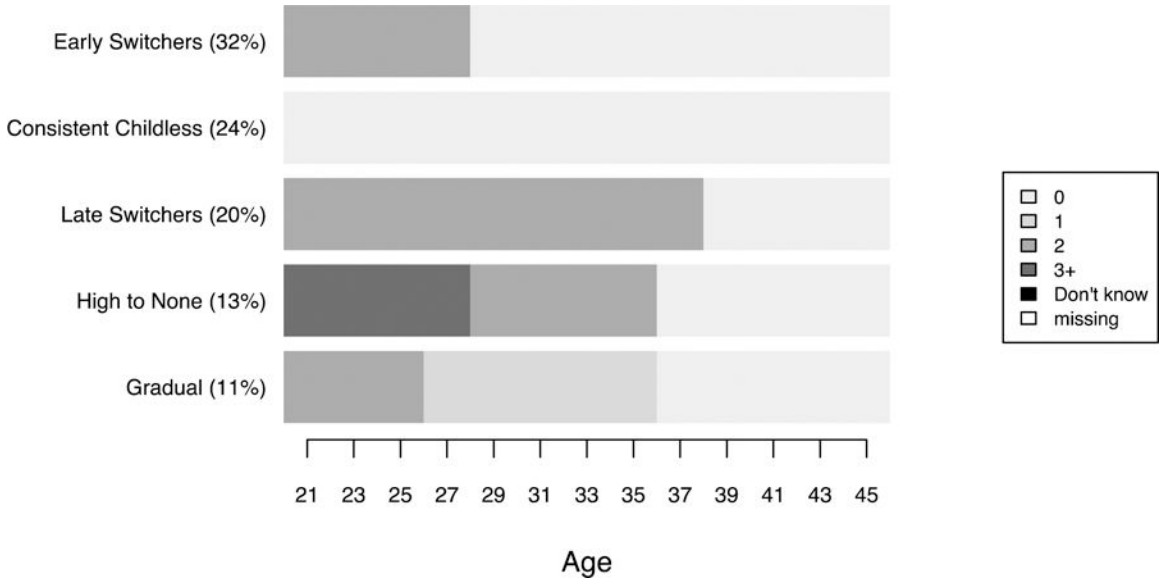

Fig. 2.
Medoids and weighted proportions for the 5 clusters identified in analysis, n=645.

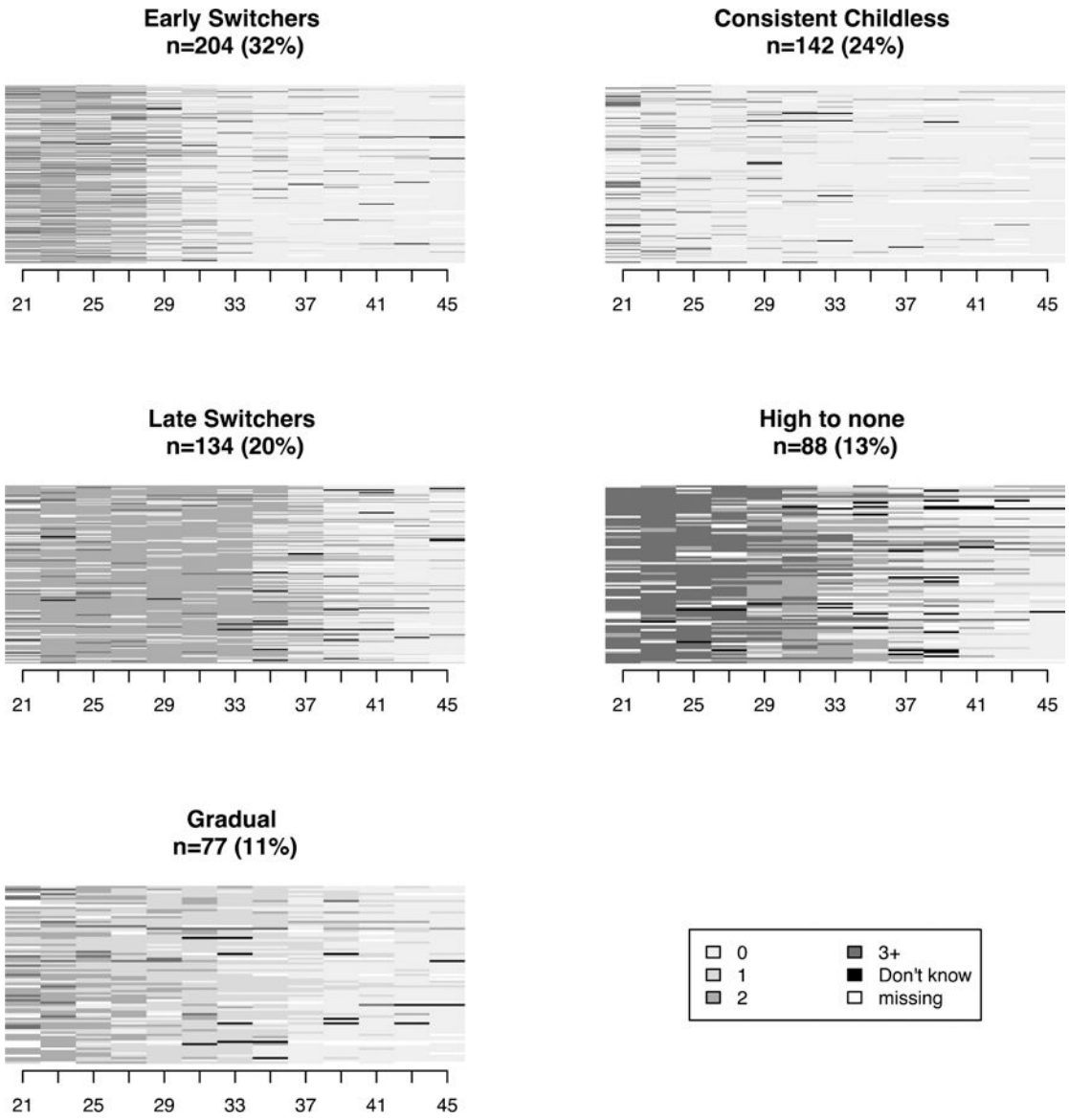

Fig. 3.
All sequences, by cluster, n=645.

Table 1

Descriptive statistics for the full sample and 5 clusters

	Full sample	Early Switchers	Consistent Childless	Late Switchers	High to None	Gradual	
Population share (%)	100	32	24	20	13	11	
Number of cases	645	204	142	134	88	77	
Demographic characteristics							
Race/ethnicity							*
White	0.83	0.83	0.89[a]	0.82	0.80	0.75[a]	
Black	0.13	0.13	0.08[a]	0.14	0.15	0.21[a]	
Hispanic	0.04	0.05	0.03[a]	0.05	0.05	0.04[a]	
Highest grade completed at age 30							*
Less than high school	0.05	0.07[a]	0.07[b]	0.05	0.00[a,b]	0.04	
High school	0.31	0.37[a]	0.32[b]	0.25	0.17[a,b]	0.35	
Some college	0.28	0.26[a]	0.32[b]	0.30	0.23[a,b]	0.28	
BA/BS	0.21	0.16[a]	0.16[b]	0.27	0.34[a,b]	0.18	
Graduate	0.15	0.14[a]	0.12[b]	0.13	0.27[a,b]	0.14	
Foreign-born	0.04	0.03	0.01	0.07	0.05	0.04	
R raised in a rural area	0.23	0.29[a]	0.26	0.13[a]	0.13	0.26	*
Religion R raised with							**
Protestant	0.34	0.43	0.32	0.30	0.28[a]	0.26[a]	
Fundamentalist Christian	0.20	0.18	0.26	0.19	0.08[a]	0.34[a]	
Catholic	0.26	0.25	0.22	0.26	0.39[a]	0.23[a]	
Other	0.19	0.14	0.19	0.25	0.25[a]	0.17[a]	
Childhood family context							
Family structure at age 14							
Lived with both parents	0.80	0.83	0.74	0.81	0.85	0.74	
Lived with mother only	0.11	0.08	0.16	0.08	0.10	0.14	
Other family type	0.09	0.09	0.10	0.10	0.06	0.12	
Number of siblings	2.87 (0.08)	2.95 (0.13)	2.79 (0.16)	2.67 (0.16)	3.19 (0.33)	2.80 (0.24)	
Sex role orientation							
Mother worked when R was 14	0.55	0.52	0.54	0.61	0.57	0.57	
Gender attitudes in 1979							

	Full sample	Early Switchers	Consistent Childless	Late Switchers	High to None	Gradual	
Traditional	0.18	0.19	0.13	0.29	0.26	0.13	
Moderate	0.36	0.42	0.32	0.31	0.33	0.36	
Non-traditional	0.47	0.39	0.56	0.49	0.41	0.51	
R expected to work at age 35	0.80	0.78	0.86	0.81	0.76	0.74	
Life course characteristics							
Marital history							
Married before age 30	0.42	0.42	0.42	0.48	0.25	0.52	
Married at or after age 30	0.26	0.24	0.28	0.29	0.30	0.21	
Never married	0.31	0.34	0.30	0.24	0.45	0.27	
Experienced marital disruption	0.40	0.41	0.42	0.33	0.31	0.54	†
Unemployed at two or more survey waves between ages 25 and 35	0.06	0.07	0.10	0.03	0.04	0.08	
Not in labor force at two or more survey waves between ages 25 and 35	0.12	0.13	0.18	0.07	0.11	0.09	
Ever reported step-children	0.16	0.15	0.18	0.11	0.15	0.25	
Ever adopted	0.06	0.05	0.02	0.11	0.06	0.11	*
Health status							
Physical component summary score (standardized)	0.05 (0.04)	0.08 (0.11)	0.12 (0.07)	−0.09 (0.09)	0.14 (0.09)	−0.10 (0.15)	

Note:

† p < 0.10

* p < 0.05

** p < 0.01

*** p < 0.001.

Proportions that share a superscript are significantly different from each other (i.e. p<.05) based on a modified Bonferroni approach for multiple comparisons (Šidák 1967). Respondents with missing values are removed when calculating descriptive statistics.

Table 2

Relationship between respondent characteristics and cluster membership (odds ratios)

	Consistent Childless	Early Switchers	Late Switchers	High to None	Gradual
Demographic characteristics					
Race/ethnicity (ref: White)					
Black	0.25***	1.33	1.27	2.19*	1.60
Hispanic	0.63	1.40	1.04	0.74	1.80
Highest grade completed at age 30 (ref: High school)					
Less than high school	1.44	1.22	1.41	0.08*	0.55
Some college	1.37	0.65	1.12	1.53	0.98
BA/BS	0.64	0.56†	1.19	4.30**	1.13
Graduate	0.61	0.61	0.88	6.09***	1.22
Foreign-born	0.37	0.79	1.89	1.04	1.23
R raised in a rural area	1.24	1.77*	0.34**	0.58	1.21
Religion R raised with (ref: Protestant)					
Fundamentalist Christian	2.20*	0.47**	1.00	0.45*	2.08
Catholic	0.85	0.62	1.10	2.78**	0.86
Other	1.24	0.44*	1.56	1.72	1.16
Childhood family context					
Family structure at age 14 (ref: Lived with both parents)					
Lived with mother only	1.51	0.65	0.72	1.24	1.41
Other family type	1.07	0.73	1.22	0.86	1.40
Number of siblings	0.96	1.02	0.96	1.12	0.95
Sex role orientation					
Mother worked when R was 14	0.78	0.94	1.06	1.12	1.23
Gender attitudes in 1979 (ref: Non-traditional)					
Traditional	0.46*	1.16	1.24	2.45*	0.48
Moderate	0.69	1.36	0.73	1.28	0.99

	Consistent Childless	Early Switchers	Late Switchers	High to None	Gradual
R expected to work at age 35	1.69	0.95	1.13	0.67	0.54
Life course characteristics					
Marital history (ref: Married before age 30)					
Married at or after age 30	1.30	1.09	0.64	1.45	0.94
Never married	1.25	1.28	0.27***	2.85*	1.58
Experienced marital disruption	1.16	1.31	0.36**	1.18	2.43*
Unemployed at two or more survey waves between ages 25 and 35	1.53	1.08	0.41	0.52	1.69
Not in labor force at two or more survey waves between ages 25 and 35	2.05*	1.12	0.37*	0.82	0.86
Ever reported step-children	1.21	0.84	0.54	1.35	1.90†
Ever adopted	0.23*	0.77	2.31†	1.13	1.75
Health status					
Physical component summary score (standardized)	0.87	1.20	1.05	0.94	0.83

Note:

† p < 0.10

* p < 0.05

** p < 0.01

*** p < 0.001.