Cultural Models and Fertility Timing among Cherokee and White Youth in Appalachia: Beyond the Mode

ABSTRACT Much anthropological research and theory concerns how group differences in behavior, subjective experience, and ways of seeing the world (i.e., cultural differences) are created and maintained. Both within and outside the United States, there are dramatic group differences in fertility. In the United States, American Indian groups exhibit some of the highest and earliest fertility. We used ethnographic data as well as structured card-sort and questionnaire data to compare cultural models of childbearing among Cherokee and white youth in Appalachia. The critical difference between Cherokee and white youth was not a modal difference in ideal ages for first childbirth but, rather, the degree of latitude for the timing of having children vis-à-vis other major life events. Group differences in modal norms are often posited as the critical axis of group distinction. In many cases, group differences in the intrapopulation variability among multiple norms may play a more critical role. [Keywords: American Indian, cross-cultural comparison, cultural models, life course, fertility]

CULTURAL DIFFERENCES AND CULTURAL MODELS One of anthropology’s central concerns has been how group differences in behavior, experience, and ways of seeing the world (i.e., cultural differences) are created and reinforced. Common approaches to characterizing cultural differences have focused on describing mean or modal distinctions, such as Douglas Fry’s (1992) analysis of different levels of community aggression between two Zapotec groups in Mexico or the cultural differences in child-rearing styles described in Beatrice Whiting and John Whiting’s classic Six Cultures study (Whiting and Whiting 1975). Psychological anthropology has contributed to these investigations through its description of group differences in shared cognitive and emotional structures, or cultural models (D’Andrade and Strauss 1992; Shore 1996; Strauss and Quinn 1997) that underlie these observed behavioral differences across cultural groups. For example, Sara Harkness and Charles Super (1996) show how parents’ culture-specific models of child rearing are associated with psychological, biological, and behavioral differences in child development.

Comparing and contrasting groups in terms of modal characteristics has productively shown culture’s influence on thought and behavior, but this approach has its limitations. In 1961, Anthony Wallace critiqued the way that culture and personality—the dominant analytical frame of the time—conflated cultural groups with individual psychological characteristics (Wallace 1961). Since this time, there have been recurring calls for a focus on subgroup differences and individual variability (Boster 1987; Pelto and Pelto 1975). Contemporary approaches in psychological anthropology direct our attention to the processes by which such diversity is formed (Handwerker 2002; Shore 1996), moving us further from the flat, descriptive essentialism of earlier perspectives on culture.

Our understanding of within-cultural variability has benefited greatly from quantitative data and models of cultural consensus (Romney et al. 1986). Such approaches have permitted anthropologists to explore the relative degree of sharing or consensus among related cultural groups (Borgatti 2002; Caulkins 2001; Garro 2000; Handwerker 2002; Hruschka et al. 2008; Moore et al. 1999; Weller and Baer 2002). For example, Roberta Baer and colleagues (2004) show that community location is more important than professional training in determining cultural beliefs...
Jennifer Johnson-Hanks has shown how cultural models trade-offs for having children versus delaying or foregoing by filtering perceptions of resources and framing relevant centered that cultural models also influence such decisions and Watkins (1993). Cultural anthropologists have documented historical, national, and ethnic differences in fertility (Kaplan et al. 2000; Pollak and Watkins 1993). Anthropologists, demographers, and economists have extensively debated the role of culture in determining these differences in fertility preferences and behaviors (Hammel 1990; Johnson-Hanks 2002). Economic, biological, and evolutionary approaches emphasize resource availability and constraints (against a background of preset or invariant human preferences) as the primary determinants of contemporary and historical differences in fertility (Kaplan et al. 2000; Pollak and Watkins 1993). Cultural anthropologists have countered that cultural models also influence such decisions by filtering perceptions of resources and framing relevant trade-offs for having children versus delaying or foregoing childbirth (Handwerker 1983; Kennedy 2004). Meanwhile, Jennifer Johnson-Hanks has shown how cultural models and resource constraints can interact, focusing on how expressed ideals regarding the timing of childbirth break down in resource-poor and unpredictable environments, replaced instead by the forces of serendipity and chance (Johnson-Hanks 2002, 2005).

Striking racial-ethnic differences exist in the timing of childbirth in the United States. Along with African Americans, American Indians and Alaskan Natives show the highest proportions of births to young and unwed mothers (see Table 1). Debates have focused on the nature and causes of young, out-of-wedlock child bearing among poor, urban, African American populations in the United States (Furstenberg 1992; Geronimus 2003). A central feature of this debate concerns the degree to which such strategies may be conscious and culturally specific adaptations to resource deprivation, shortened life expectancy, and the marriage squeeze faced by black women in the United States (Burton 1990). If this were the case, we would expect to see cultural differences in models of fertility timing on par with the large observed differences in actual fertility timing.

However, evidence suggests that racial-ethnic variation in the timing of childbirth does not match differences in cultural models in a simple or straightforward manner. For example, Patricia East (1998) found that black adolescent females in Southern California were more likely than white, Hispanic, or Southeast Asian girls to endorse child bearing before marriage as personally acceptable. However, increased black adolescent endorsement of these child-bearing patterns was quite small when compared to actual group differences in teen child-bearing rates. In summary, the current state of knowledge begs the question of whether (and if so, how) differences in cultural models underlie cross-cultural differences in fertility timing.

### CROSS-CULTURAL DIFFERENCES IN CHILDBEARING

Cross-culturally, one of the most central and universal aspects of the life course is childbearing. There are well-documented historical, national, and ethnic differences in total fertility, fertility timing, and fertility preferences around the world (Pollak and Watkins 1993). Anthropologists, demographers, and economists have extensively debated the role of culture in determining these differences in fertility preferences and behaviors (Hammel 1990; Johnson-Hanks 2002). Economic, biological, and evolutionary approaches emphasize resource availability and constraints (against a background of preset or invariant human preferences) as the primary determinants of contemporary and historical differences in fertility (Kaplan et al. 2000; Pollak and Watkins 1993). Cultural anthropologists have countered that cultural models also influence such decisions by filtering perceptions of resources and framing relevant trade-offs for having children versus delaying or foregoing childbirth (Handwerker 1983; Kennedy 2004). Meanwhile, Jennifer Johnson-Hanks has shown how cultural models and resource constraints can interact, focusing on how expressed ideals regarding the timing of childbirth break down in resource-poor and unpredictable environments, replaced instead by the forces of serendipity and chance (Johnson-Hanks 2002, 2005).

### TABLE 1. Racial-Ethnic Differences in Fertility in the United States

<table>
<thead>
<tr>
<th>Source</th>
<th>White</th>
<th>Black</th>
<th>AI &amp; AN</th>
<th>Asian &amp; PI</th>
<th>Hispanic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth rate (2005)</td>
<td>11.5</td>
<td>15.7</td>
<td>14.2</td>
<td>16.5</td>
<td>23.1</td>
</tr>
<tr>
<td>Percent of births to mothers &lt; 20 years (2006)</td>
<td>7.4</td>
<td>17.2</td>
<td>17.6</td>
<td>3.3</td>
<td>14.3</td>
</tr>
<tr>
<td>Percent of births to unwed mothers (2005)</td>
<td>25.3</td>
<td>69.9</td>
<td>63.5</td>
<td>16.2</td>
<td>48</td>
</tr>
</tbody>
</table>

Note: Census categories are (in order) non-Hispanic white, black, American Indian and Alaskan Native, Asian and Pacific Islander, and Hispanic. Sources: Centers for Disease Control 2009; Hamilton et al. 2007.

### THE CASE AT HAND: CHEROKEE AND WHITE YOUTH IN APPALACHIA

American Indian youth show higher rates of early and unwed childbirth than do white youth (see Table 1), and similar to the case of African Americans, they face higher levels of poverty, discrimination, and historical oppression, all of which have been linked with an increased likelihood of early and out-of-wedlock fertility (Burton 1990; Chisholm and Burbank 2001; Wilson and Daly 1997). Early and out-of-wedlock childbearing among American Indian youth may be accompanied and facilitated by extensive alloparental care. An historical reconstruction of Crow...
family life shows how clan structures were preserved on reservations (Hoxie 1991), allowing for distributed alloparental care by other clan members for children whose parents were dead or missing. This preservation of clan structures and distributed alloparenting is still readily apparent among the Eastern Band of the Cherokee Indians, and it likely provided a buffering impact to the genocidal campaign waged by the U.S. government against the Cherokee during the 19th century (Thornton 1984). Modern empirical evidence indicates a cultural emphasis on distributed (esp. extended family) caregiving among Cherokee mothers (Nichols 2004).

In addition, the Cherokee traditionally followed a pattern of matrilineal descent and matrilocal residence in extended family units. In this system, networks of women were the primary agents of choice and decision making in the household with respect to material resources and child care (Purdue 1998). Surviving elements of such female-centric extended family structures and cultural traditions likely support alloparental care via grandparents. The historical emphasis on female choice and female empowerment (women who crossed gender lines to participate in warfare were particularly honored) may help remove the barrier or stigma of having children when the biological father is not a present or active household figure.

Many youth in western North Carolina have children early in the life course compared to national standards. In some of the more rural counties, one of every ten girls between 15 and 19 becomes pregnant each year (North Carolina State Center for Health Statistics 2004). Pregnancy rates climb later in the life course; in Swain County (which overlaps with the Cherokee reservation), pregnancy rates for girls aged 20–24 are nearly one in five per year. Cherokee emerging adults have children earlier than their white counterparts. In our sample of 19- to 24-year-old youth, 51 percent of Cherokee females report having children at the time of interview, compared to 26 percent of white females, 29 percent of Cherokee males, and 12 percent of white males (two-sided proportion tests, p < .05). Cherokee youth are also more likely to have children without being married to or cohabiting with a partner: 16 percent versus nine percent of whites in the sample (two-sided proportion test, p < .05). Condom distribution and health care are as accessible on the reservations—if not more so—as in the surrounding white communities (Sears 2002), so this discrepancy cannot be explained away by differences in access to services.

Because many American Indian reservations in the United States are surrounded by white populations with lower fertility but also with high levels of poverty, these populations present an interesting test case for whether cultural models of childbearing might help account for observed group differences in fertility timing and reproductive behavior. In this article, we use ethnographic and quantitative data to compare cultural models of childbearing among Cherokee and white youth in western North Carolina. We test whether Cherokee and white youth show different models for the timing and sequencing of childbearing in the life course vis-à-vis other major life course goals, above and beyond any influence of current socioeconomic deprivation. Furthermore, we examine whether Cherokee and white youth show clear modal differences in models of childbearing. Narrative and quantitative data tell overlapping but slightly different stories, which illustrates the utility of mixed methods to triangulate inferences about the role of cultural models in human behavior.

SETTING

The study area includes 11 counties in western North Carolina. The largely rural and widely distributed population (38 persons per square mile) inhabits one urban area, several larger towns, and a vast expanse of less developed, rural land containing small towns and “village”-level clusters of houses. From an economy based on farming, logging, textile mills, and other manufacturing plants, jobs in this area are rapidly changing to tourism and the building trades. This region has a long history of skilled and unskilled labor, marked by a regional experience of cultural marginalization and relative socioeconomic deprivation (Harrington 1962) that persists to the present. In 1992 (when our work in the area began), poverty rates by county for children aged 0 to 17 ranged from 16 to 29 percent (U.S. Census Bureau 1990). Experience of poverty among our study participants growing up in this area has been substantial: 24 percent of whites and 40 percent of American Indian participants have lived under the federal poverty line for two or more years while between the ages of 9 and 16.

The residents of this area are mostly European American. Descendants of European settlers who first arrived in the 1780s and gradually displaced the resident American Indian population, many long-term white residents are experiencing their own sense of displacement by an influx of wealthy newcomers and “transplants.” The region is also home to the Eastern Band of the Cherokee Indians, the population of Cherokees who stayed and resisted or escaped the forced resettlement of the Cherokee via the Trail of Tears (Ehle 1988). Cherokee residential areas are still organized by clan, and Cherokee culture has seen a proud resurgence after decades of repression through mandatory boarding schools and restrictions on Cherokee language use. All road signs are in the Cherokee syllabary script, and Cherokee language education is now mandatory at the high school level. Very few Cherokee youth live outside of the Qualla Boundary reservation (or the nearby Snowbird territory), and many youth share excitement about Cherokee traditional values and worldviews. For example, many Cherokee youth have neck or arm tattoos in the Cherokee script.

Like many ethnic boundaries, the border between Cherokee and white identity is (and has historically been) contested and blurry (Nobles 1989). This ethnic boundary has been further complicated by increasing rates of
intermarriage between American Indian and non-American Indian partners as well as an increasing percentage “mixed” offspring resulting from these marriages who espouse American Indian identities (Thornton et al. 1991). The lived experiences of being Cherokee or of being a white “native” of the Appalachian Mountains often overlap. For example, a close Cherokee friend of the lead author was admiringly described by other Cherokee youth as “true redneck,” while the Birdtown (home of the Bird Clan) area of Cherokee was described as the home of “white Indians.” Many Cherokee and white youth shared a common identity as “mountain people” who felt stigmatized and marginalized (in different but overlapping ways) by mainstream popular culture. In the case of the Eastern Band of the Cherokee Indians, however, this ethnic boundary is also diligently monitored and actively constructed, forming what Douglas Caulkins (2001) calls a “cultural edge.” The Tribal government uses criteria for determining “true” Cherokee status, including a declension of Cherokee ethnic identities based on the percentage of “Cherokee blood” ascertained from historical and genealogical records.

Thus, despite intersections of identity and experience, the borders of Cherokee land demarcate important differences in historical legacy, proclaimed identity, and institutional structures between Cherokee and white communities. Ethnic boundaries are always socially constructed, but in this case a Tribal record-keeping system directly polices this boundary. Furthermore, residents of the region commonly referred to themselves as Cherokee or white and had no qualms about asking other individuals if they were Cherokee or white (when phenotypic differences were not enough of a cue). For the purposes of this study, we compare individuals who have self-identified as either Cherokee or white. All Cherokee respondents are also registered members of the Tribe and live on federally recognized Cherokee territory.

METHODS

Given striking differences between American Indian and white youth in fertility behavior (at both the national level and in Appalachia), we set out to investigate whether Cherokee and white youth in western North Carolina exhibit different cultural models of childbearing vis-à-vis marriage and other salient life-course events. For our investigation of cultural differences in life-course models, we drew on rich ethnographic and quantitative data collected by the lead author during a period of 31 months in the field. This involved 13 months of pilot research, during which the lead author and his research team interviewed 132 youth in a variety of group and one-on-one settings, followed by 18 months of targeted data collection with a separate sample of 344 Cherokee and white youth.

Our motivation to examine Cherokee–white differences in life-course models of childbearing vis-à-vis other major events began with noticing striking group differences in the parenting narratives of Cherokee and white youth. Because we simultaneously collected quantitative data on life-course models at the population level, we were able to turn to our quantitative data set to examine whether the cultural differences suggested by ethnographic work were indeed present in a larger sample. This section describes the nature of our sample and data, including details on method development and basic descriptives for quantitative data.

LIFE-TRAJECTORY INTERVIEW FOR YOUTH (LTI-Y)

All quantitative results come from a sample of 344 Cherokee and white youth. This sample was drawn from the Great Smoky Mountains Study (GSMS), a population-based sample in western North Carolina (Costello et al. 1996). Originally recruited in 1993, participants were between 19 and 24 years old at the time of the interviews reported here. Of the 344 participants, 140 (72 female, 68 male) were Cherokee Indians (self-identified and registered with the Tribe). Meanwhile, 204 participants (104 female, 100 male) self-identified as white. Further demographic characteristics of the sample are reported elsewhere (Brown et al. 2006).

The sample of 344 youth completed the Life Trajectory Interview for Youth (LTI-Y), an instrument developed through long-term ethnographic work with Cherokee and white youth (Brown et al. 2006). The LTI-Y assesses how youth perceive their current life status and future possibilities across material, institutional, social, and emotional domains. The LTI-Y was developed through a 13-month process involving 132 unique participants who participated in 21 life-history interviews, 36 focus-group sessions, and 150 card-sort and questionnaire interviews.

LIFE-COURSE MILESTONES: METHOD DEVELOPMENT

The quantitative data in this study concern 12 items in a domain of the LTI-Y called “life-course milestones,” representing the events considered by Appalachian youth to be the most important to attain in life. Developing the life-course milestones domain occurred over eight months of this fieldwork. This work began with life-history interviews involving nine Cherokee and 12 white youth aged 17 to 22 (average age = 19) to explore the nature and diversity of life-course conceptions in the study area. The content and language of these life-history interviews were used to design focus groups concerning major life goals and life events of Appalachian youth.

The lead author conducted seven focus-group meetings, involving 22 unique participants (12 Cherokee, 10 white). Participants were recruited via key community stakeholders (youth-center directors, pastors, parents, etc.) and youth contacts. Focus-group participants intentionally included white youth from counties throughout the study area and Cherokee youth from multiple areas of the reservation. All sessions were audi-taped and transcribed.

The major component of focus groups during development of the milestones was a free-listing process in which participants viewed a large timeline and nominated the most important events to achieve in life. Because we
initially expected strong ethnic and gender differences in salient life events, separate focus groups were conducted with Cherokee and white participants. Furthermore, all but one focus group involved all male or all female participants, and all focus groups were first asked to list important life events separately for males and females.

Focus groups yielded 317 separate nominations for life-course milestones. All 317 nominations were entered verbatim into a database and coded according to how many groups had listed each milestone. After grouping similar items and excluding those items suggested by only one focus group, we narrowed these 317 nominations to a list of 35. Sixteen participants (eight Cherokee, eight white) performed a card-sort procedure in which they first grouped these 35 candidate milestones into positive and negative events and then ranked the group of positive life events by importance. These data were used to narrow the list of 35 life events down to a list of 15. At this point, 56 participants (18 Cherokee, 38 white) completed a card-sort procedure in which they ranked milestones by importance and also indicated an ideal, minimum, and maximum age to achieve each event. Participants were also asked whether certain items should be removed and whether we skipped over anything important to youth in the study area.

Throughout the focus group and pilot-card-sort interviews, we were surprised by the similarity of the events suggested by Cherokee and white youth as well as by both males and females. Thus, our prior expectations of strong ethnic and gender bias in salient life events were disproven. By the end of the second card-sort procedure, sets of events for Cherokee and white participants were nearly identical. We used data from these 56 card-sort interviews to create a final list of 12 life-course milestones. Before finalization these items, GSMS interviewers (who have all lived and worked with Appalachian youth for more than ten years) helped to refine and edit the wording of all items. The exact wording of the final 12 milestones used in the LTI-Y can be found in Table 2.

**LIFE-COURSE MILESTONES: IDEAL AGES**

During the LTI-Y, all 344 participants were asked to write down the ideal age (not specifically for their own lives but in general) to attain each of these 12 milestones. In Table 2, the means and standard deviations for these ideal ages are listed (for the entire sample and also by ethnicity). There were several ethnic differences. For two milestones (driver’s license, first car or truck), Cherokees indicated a later ideal age than whites; these age differences were less than one year. Cherokee participants also generally showed more variance in their responses for the ideal ages on several other milestones (greater standard deviations for first job, driver’s license, college degree, and having children).

Mean ideal ages for the 12 milestones for Cherokees and whites were highly correlated ($r = .98$), which is not surprising considering that many of the 12 milestones are timed and structured by laws, institutions, or strong social convention. The informal CCM model was applied to correlations between ideal ages (Weller 2007) using UCINET (Borgatti et al. 2002). This technique factor analyzes a participant-by-participant response matrix and compares the ratio of the first to the second eigenvalue to determine the level of modality in responses. Generally, a ratio of three to one or greater is considered to indicate the presence of cultural consensus, although multiple models may still be present under these conditions (Hruschka et al. 2008). This analysis revealed an eigenvalue ratio of 5.25:1 for the first and second factors when the entire sample was included (5.09:1 for Cherokee alone; 5.44:1 for whites alone), with comparable scores for average cultural competence and no negative competence scores (see Table 3). This analysis indicates considerable cross-sample agreement regarding the mean ideal ages for lifecourse milestones, suggesting that it might be fruitless to look for Cherokee–white differences in lifecourse models. However, our ethnographic data (and ultimately our quantitative data as well) told a different story.

### TABLE 2. Ideal Ages for Life-Course Milestones (SD)

<table>
<thead>
<tr>
<th>Milestone</th>
<th>All ($n = 344$)</th>
<th>White ($n = 204$)</th>
<th>Cherokee ($n = 140$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start first job$^b$</td>
<td>17.1 (1.7)</td>
<td>16.9 (1.4)</td>
<td>17.3 (2.0)</td>
</tr>
<tr>
<td>Driver’s license$^{a,b}$</td>
<td>17.7 (1.6)</td>
<td>17.4 (1.4)</td>
<td>18.1 (1.8)</td>
</tr>
<tr>
<td>Get first car or truck$^a$</td>
<td>18.3 (2.0)</td>
<td>17.9 (2.0)</td>
<td>18.8 (2.8)</td>
</tr>
<tr>
<td>Have financial security (savings, investments)</td>
<td>23.0 (5.9)</td>
<td>23.4 (6.4)</td>
<td>22.4 (5.2)</td>
</tr>
<tr>
<td>High school graduation or GED</td>
<td>18.4 (1.3)</td>
<td>18.4 (1.4)</td>
<td>18.6 (1.2)</td>
</tr>
<tr>
<td>Move out of parents’ house</td>
<td>20.3 (2.0)</td>
<td>20.4 (2.0)</td>
<td>20.2 (1.9)</td>
</tr>
<tr>
<td>Settle down / be more responsible</td>
<td>23.3 (3.8)</td>
<td>23.0 (3.7)</td>
<td>23.8 (4.0)</td>
</tr>
<tr>
<td>Get college, technical, or vocational degree$^b$</td>
<td>22.8 (3.1)</td>
<td>22.5 (2.7)</td>
<td>23.3 (3.6)</td>
</tr>
<tr>
<td>Get permanent job / career</td>
<td>23.5 (3.6)</td>
<td>23.7 (3.3)</td>
<td>23.4 (3.9)</td>
</tr>
<tr>
<td>Marriage or live together with someone</td>
<td>23.9 (3.3)</td>
<td>23.8 (3.2)</td>
<td>24.1 (3.3)</td>
</tr>
<tr>
<td>Get first house (or trailer, modular home, etc.)</td>
<td>24.6 (3.7)</td>
<td>24.7 (3.7)</td>
<td>24.3 (3.8)</td>
</tr>
<tr>
<td>Have and raise kids$^b$</td>
<td>24.9 (3.9)</td>
<td>25.2 (3.2)</td>
<td>24.5 (4.7)</td>
</tr>
</tbody>
</table>

*Note: a 2-sided t-test of mean (difference between Cherokee and white) significant, $p < .004$ (p-value corrected for multiple comparisons). b 2-sided standard deviation test (difference between Cherokee and white) significant, $p < .004$.*

### TABLE 3. Cultural Consensus for Ideal Ages

<table>
<thead>
<tr>
<th>Group</th>
<th>Eigenvalue ratio</th>
<th>Average competence (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>5.255:1</td>
<td>0.75 (0.14)</td>
</tr>
<tr>
<td>Cherokee only</td>
<td>5.089:1</td>
<td>0.77 (0.14)</td>
</tr>
<tr>
<td>White only</td>
<td>5.439:1</td>
<td>0.74 (0.15)</td>
</tr>
</tbody>
</table>

*Note. $n = 344$.*
ETHNOGRAPHIC DATA

Ethnographic information in this study comes from a variety of sources, including transcripts of the focus groups and card-sort interviews focusing specifically on lifecourse milestones but also 78 additional pilot card-sort interviews and 29 additional focus groups conducted during the development of other components of the LTI-Y. Furthermore, detailed life-history interviews (lasting between 30 minutes and four hours) were conducted with 49 of the 344 participants who also completed the LTI-Y. This included 19 Cherokee (10 male, 9 female) and 30 white (16 male, 14 female) participants. Life-history participants ranged from 19 to 24 years old (mean age = 20); individuals were selected to represent a broad range of socioeconomic circumstances and geographical locations in the study area. Ethnographic analysis was also informed by the aforementioned 21 preliminary life-history interviews conducted after first entering the field.

The lead author conducted all focus groups as well as 19 out of the 49 life-history interviews and all 21 preliminary life histories. The other interviews were conducted by Gabe Cyr, who participated in discussions of the main topics in this article. Furthermore, the lead author lived and worked in and around the Qualla Boundary reservation for 31 months and engaged in participant-observation with local white and Cherokee youth throughout fieldwork. Field notes from these experiences also inform this study.

All focus groups and life-history interviews (totaling 162 individual participants) were transcribed and coded with NVivo software (ver. 7) according to major common themes of lifecourse events, barriers, and turning points. The full text of all fieldnotes was added to this NVivo database. Excerpts and quotes from focus groups and life-history interviews presented in this article represent comprehensive searches by keyword and theme as well as a full manual read of each transcript.

RESULTS

Cherokee–White Differences in Lifecourse Models: Narratives

The impetus to test cultural differences in the sequencing of childbearing vis-à-vis other major life events was rooted in ethnographic observations: specifically, in the differences between Cherokee and white youth in narratives regarding parenting. In focus groups and life-history interviews, Cherokee participants frequently mentioned having children before settling down with a partner or spouse or establishing a great deal of stability in their lives. Indeed, Cherokee participants often indicated that having a child specifically caused them to settle down, diverting these new parents from previously destructive or self-destructive behaviors and directing them toward healthier, more positive routines and patterns. This is evident in the following conversation between two 22-year-old Cherokee men that occurred during a focus-group session:

Tommy: Some of them, it [having children] changes them right then. Some of them will be on the good side, but a little on the wild side. But having a kid completely changes them. And men can even be like that. They can be on the border line. That’s how I was, because I was jumping off bridges. I was mostly on the bad side. Then I had a kid, and it took a year or so, but then it completely changed me. And before that, there ain’t no telling what I would have done. I guarantee you I’d probably be in jail.

George: It didn’t take me that long, but it was the second my little girl was born. I changed completely the day she was born. But you still have some of that wild edge in you. You don’t do it, but you’d love to go out and do something again. But then you turn around, and there’s your little baby, and you think, “Nah, I’ll stay home.” [focus group, September 12, 2002]

The model of children as a settling force for parents also figured significantly for Jeremy, a 20-year-old Cherokee father. Jeremy credited his child in part with keeping him “clean” after almost a decade of substance abuse and also with preventing him from engaging in more aimless (potentially dangerous) free time with friends.

Jeremy: If you have a kid, it’s just like—you know—all those things that you used to go do—and you used to go lift weights and go hang out—I mean, you gotta have somebody to watch him before you can do all those things. You don’t want to do all those things. You know what I mean?

Ryan [lead author]: You’d rather take care of him?

J: I’d rather actually be home with him. He’s just like—he’s like one of the greatest—greatest people I’ve ever known in my whole entire life. The only person I’d want to be around my whole entire life, 24 hours a day. I think Billy’s [his child] being here made that switch away from substance abuse. . . . I’d say that’s about the only reason I am still alive right now. [interview, February 10, 2004, emphasis added]

Also attributing healing properties to her child, a 19-year-old Cherokee woman named Michelle recounted that she had experienced problems with depressive affect and lethargy before becoming a mother. However, the arrival of her newborn baby helped her overcome these mental-health issues. Asked whether there was anything in life that kept her life moving and consistently made her life better (one of the probes used in semistructured life-history interviews), Michelle said, “My baby, she keeps me on track. You know, sometimes I feel like I just don’t want to do nothing. I want to lay in bed and sleep, but she wakes me up and you have to get up and go” (interview, November 19, 2003). Thus, Cherokee parents described a process whereby having children significantly redirected their lives from previously destructive or unpleasant paths. For the Cherokee parents we interviewed, their children both healed and redeemed them.

The parenting narratives of whites were noticeably different. In no cases did white parents describe how having children would fundamentally change the emotional or
behavioral qualities of their own lives. Instead, white parents expressed a strong desire to make their children’s lives better than their own or even to make them into better people than they (the parents) had the chance to be. In some cases, this apparent desire for vicarious redemption was described in terms of better material circumstances during the child’s life. For example, a 21-year-old white father named Jason explained his parenting desires as follows:

I want to back them up and support them 110 percent. … I, mean I want I want to get him the Tommy Hilfiger pants and I want to get him the Nikes. … I want to get him this name brand stuff so he don’t—you know—end up like me in these tight jeans, and be this type of kid that looks forward to going to school but don’t [doesn’t go to school], ’cause he’s gonna get made fun of. [interview, November 1, 2003]

Meanwhile, a 22-year-old white mother named Crystal focused on promoting better educational attainment and the absence of abusive relationships, specifically contrasting her own life experiences with the experiences she wished to provide for her children:

I plan on raising my kids up a lot better than my life. And I am happy that the man has left me—the one that left me—because my kids don’t need to see it [physical and emotional abuse] like I saw it. … I didn’t go to school; they better go to school. My mom says, “I said the same thing about you, that you was gonna do right, and you didn’t.” And she said, “You better make them do right.” [interview, November 19, 2003]

Jason and Crystal’s narratives expressed a desire to provide specific stabilizing influences and enabling resources to their children. Meanwhile, Tommy, George, Jeremy, and Michelle described specific instances of how the presence of their children led to stability and improvement in their own lives. Thus, a comprehensive examination of all white and Cherokee parenting narratives revealed ethnic differences in the source of stability in parenting. Cherokee parents described a process whereby children stabilized and healed parents’ lives, while white parents described the desire to provide the stability, control, and resources to their children’s lives that they did not get to enjoy during their own childhoods.2

The Place of Childbearing in the Lifecourse: Quantitative Data

Thus, our qualitative data suggested a modal cultural distinction in models of childbearing vis-à-vis other events in the life course. Cherokee parents appeared to endorse childbearing as a transformative event that encouraged settling down in life, often with a romantic partner. Meanwhile, white parents described a desire to provide their children with a settling, stabilizing environment. We next turned to our quantitative data: to test whether such a modal distinction in cultural models of the sequencing of life events existed on the population level. If such an ethnic difference in conceptions of childbearing in the life course were present at the population level, we would expect to see ethnic differences in the way Cherokee and white youth conceptualized the timing of three lifecourse milestones: (1) “have and raise kids,” (2) “settle down” or “be more responsible,” and (3) “marriage or live together with someone.” Specifically, one would expect white Appalachian youth to endorse a “classical” U.S. model of parenthood, whereby individuals “settle down” and preferably enter into a stable partnership before bearing children to best be able to provide stability and resources to their children. Cherokee youth, however, would be expected to more frequently endorse the reverse pattern, whereby having children ideally comes before settling down or entering into a stable partnership.

There were no statistically significant group differences in the mean ideal ages for any of these life events (see Table 2). However, narrative differences focused on the sequencing of life events. Thus, our predictions for the quantitative data specifically concerned whether individuals’ models of life-event timing place childbearing before or after (1) marrying or coresiding with a partner or (2) “settling down” in life. During the LTI-Y, participants were asked to nominate a culturally acceptable “ideal age” for each of the 12 lifecourse milestones for “average Americans.” This allowed us to test for individual and group differences in models of the relative timing of childbearing versus marrying or settling down. Based on narrative and focus-group data, we expected Cherokees would more frequently endorse a model whereby having children would ideally come before either marriage or settling down.

Indeed, when compared to white youth, Cherokee youth more frequently endorsed ideal ages in which having children came before marriage (32 percent vs. 20 percent; \( p < .05 \), two-sided proportion test) and settling down (31 percent vs. 17 percent; \( p < .05 \), two-sided proportion test). However, despite being statistically significant, these mean differences were not particularly large (esp. in comparison to the large Cherokee–white difference in early fertility). However, the greatest differences between Cherokee and white youth in lifecourse models were not mean differences in ideal timing, but the distribution of responses regarding the timing of childbearing vis-à-vis settling down or getting married.

As can be seen in Figure 1, white youth exhibited a clear modal pattern of endorsing marriage or settling down in life as ideally preceding childbearing: 61 percent and 57 percent (respectively) versus 40 percent and 35 percent for Cherokee youth. Thus, white youth were more constrained in their ideals about the timing of childbearing, with cohabitation coming before child rearing in dominant cultural models.4 Despite our expectations based on ethnographic narratives, Cherokee youth did not show a clear modal pattern in favor of childbearing before marriage or settling down in life. Rather, their responses were evenly distributed across each of these possibilities, indicating no clear preference in this domain. The distribution of Cherokee models for timing childbearing with respect to
other life events therefore includes several possibilities among which “child settles parent” is one. However, it is likely that this model is subsumed under an overarching model that, although childbearing should happen, its timing relative to other life events is less important than its simple occurrence at some point in the life span.5

Among white youth—for whom normative tracks through childbearing, marriage or cohabiting, and settling down are more tightly constrained—deviation from the track is likely more salient. In support of this, white youth who behaviorally deviate from the norm of marriage ideally before childbirth are also more likely to endorse the ideal of children before cohabitation (37 percent vs. 16 percent, two-sided proportion test, p < 0.05). Such an association between ideals and behavior does not exist among Cherokee youth. This finding further supports our contention that the Cherokee model is not necessarily one of children before marriage or children before settling down in life but, rather, a model of flexibility in childbirth timing. Notably, David Harding (2007) also finds that ideals and behavior are decoupled in more disadvantaged urban communities.

It is important to test whether these apparently cultural differences are in fact driven by socioeconomic disparities between whites and Cherokees, especially in light of recent evidence that community disadvantage may be linked with greater heterogeneity in cultural models of romantic relationships and childbearing (Harding 2007). The Cherokee Nation has faced genocide, oppression, and systematic discrimination (Ehle 1988; Thornton 1984) as well as a more recent history of intensive poverty that is just beginning to recede (Costello et al. 2003). Thus, it is reasonable to wonder whether the forces of socioeconomic status and social class are in fact the primary drivers of apparent ethnic differences in the distribution of cultural models regarding childbearing vis-à-vis other major life events.

The participants in this study have been followed longitudinally since childhood, and this allowed us to disentangle the effects of ethnicity versus social class on models of childbearing in the life course. To compare the impact of ethnicity versus social class, we coded participants according to whether they had experienced two or more years of poverty during the ages of 9 to 16 (participants’ families were interviewed every year during these ages). Although 59 percent of Cherokee had experienced two or more years of family poverty during childhood, only 31 percent of whites in the sample had the same experience of family poverty.

We then ran analyses identical to those in Figure 1 for Cherokee poor versus nonpoor participants and white poor versus nonpoor participants. As can be seen in Table 4, ethnicity is clearly the factor that delineates different models of childbearing in the life course, rather than social class. Regardless of exposure to family poverty, whites show a strong tendency toward a modal model of childbearing occurring after settling down and getting married. Cherokee, also regardless of exposure to family poverty, show no clear bias toward an ideal of childbearing occurring before, after, or simultaneously with marriage—cohabiting or settling down; rather, they exhibit an even distribution of these models. In short, results stratified by social class echo the nonstratified results shown in Figure 1: family poverty does not modify the effect of ethnicity. A statistical test for effect modification on the odds of endorsing the modal cultural model (for whites “get married before having children” and “settle down before having children” confirms this. In both cases, exposure to family poverty does not modify the effect of white ethnicity in determining the greater likelihood of endorsing this model (Breslow-Day test of homogeneity, p = .85 for marriage, p = .35 for settling down).

One might also wonder whether the observed differences in cultural models are driven by the fact that more Cherokee participants had children than white participants. In other words, perhaps the experience of having children somehow motivates local youth to endorse more open or flexible models of childbearing vis-à-vis settling down or getting married or cohabiting. To test this...
possession, we examined the distribution of models separately for Cherokee and white youth with and without children at the time of interview (see Table 5). The observed ethnic differences were even stronger (more of a modal response for whites) when we considered only Cherokee and white youth without children. Notably, this constituted the majority of the sample for both ethnicities. This was also true for the sequencing of settling down versus having children in Cherokee and white youth with children (Breslow-Day test of homogeneity, \( p = .45 \)). However, for the sequencing of getting married or cohabiting versus having children, there was a tendency for the minority of white participants (\( n = 53 \)) with children to show a more “Cherokee-like” even distribution of models (Breslow-Day test of homogeneity, \( p < .05 \)). Thus, the modal pattern “get married before having children” applies only to the sizable majority of the white sample that did not have children at the time of the LTI-Y interview.

It is important to note that the more flexible positioning of childbearing in the life course among Cherokee youth does not mean that Cherokee youth think it is appropriate to have children without providing the requisite resources or support. We compared the number of Cherokee versus white participants who endorse having children after obtaining (1) a career or permanent job or (2) financial stability. The proportions were both very similar and statistically indistinguishable: 61 percent of Cherokees versus 60 percent of whites endorsed having financial stability before having children, and 48 percent of Cherokees versus 53 percent of whites endorsed having a career before having children. Thus, Cherokee youth endorsed models of financial responsibility for children that were indistinguishable from those of white youth from the surrounding area.

**DISCUSSION AND CONCLUSIONS**

**Overview**

From an evolutionary perspective, reproduction is the single most important activity in the life span of an individual. Mate selection, pair bonding, parental investment, child rearing—these are the behaviors on which strong selective forces have operated throughout human history. Yet, the emergence of human cultural capacity has allowed for remarkable variability in the timing and sequencing of reproduction vis-à-vis other events in the life course, including cohabitation and marriage. Although the variability in behavior is clearly evident, the precise cultural mechanisms underlying such variability are less obvious.

In the United States, considerable attention has been focused at racial-ethnic variation in the tendency to bear children early in the life span and out of wedlock (Edin and Reed 2005). Debates on the cause of this variation have been vociferous and heated; it seems great moral stakes rest on whether such racial-ethnic disparities are the product of “culture,” “oppression,” “social status,” or even a behavioral adaptation to ecological risk (Burton 1990; Furstenberg 1992; Geronimus 2003). Recent work by Harding (2007) shows that more disadvantaged communities exhibit greater heterogeneity in cultural models of family formation, a pattern we also found among Cherokee youth.

In narrative accounts, Cherokee youth emphasized children as agents for positive behavioral change and even healing for parents. Meanwhile, white parents’ narratives focused on the struggle to make sure that their children’s lives would be better than their own. From these differences in narrative data, we derived a specific hypothesis concerning models for the timing of children vis-à-vis other events in the life course. Data from the LTI-Y were used to test the hypothesis that Cherokee parents would be more likely to endorse a life course model in which childbearing came before getting married or settling down in life. Although this was true, the distribution of results indicated a more complex underlying pattern than simple mean differences.

Specifically, Cherokees did not endorse a modal pattern of having children first but, rather, indicated that having children had flexible timing vis-à-vis getting married or settling down. In contrast, whites endorsed a modal model of childbearing, whereby parents were expected to settle down and develop a permanent partnership before having children. In this case, the critical difference between Cherokee and white youth with regard to childbearing turned out to be the degree of latitude for the timing of children in the life course. This suggests that one facilitating factor for early and high fertility among American Indian youth (and perhaps other groups as well) is not a specific cultural model for early childbearing but, rather, a degree of allowance for childbearing to occur at multiple points in the life course.

As noted in other populations (Burton 1990), such an allowance is likely facilitated by the existence of extended family and community structures that allow for distributed child rearing (Hoxie 1991). It is difficult to say, however, whether such heterogeneity in Cherokee cultural models can be pegged directly to a history of oppression or relative socioeconomic disadvantage. Traditionally, Cherokees have had a matrilocal and matrilineal system with a high degree of female choice, in which extended family units

### TABLE 5. Milestone Sequencing, without versus with Children

<table>
<thead>
<tr>
<th>Having children vs. settling down (% with model)</th>
<th>Children first</th>
<th>Simultaneous</th>
<th>Children after</th>
</tr>
</thead>
<tbody>
<tr>
<td>White without child</td>
<td>18.0</td>
<td>18.0</td>
<td>64.0</td>
</tr>
<tr>
<td>Cherokee with child (( n = 153 ))</td>
<td>32.1</td>
<td>26.2</td>
<td>41.7</td>
</tr>
<tr>
<td>White with child (( n = 53 ))</td>
<td>24.5</td>
<td>22.6</td>
<td>52.8</td>
</tr>
<tr>
<td>Cherokee with child (( n = 56 ))</td>
<td>32.1</td>
<td>28.6</td>
<td>39.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Having children vs. marriage (% with model)</th>
<th>Children first</th>
<th>Simultaneous</th>
<th>Children after</th>
</tr>
</thead>
<tbody>
<tr>
<td>White without child</td>
<td>14.0</td>
<td>20.0</td>
<td>66.0</td>
</tr>
<tr>
<td>Cherokee without child</td>
<td>32.1</td>
<td>38.1</td>
<td>29.8</td>
</tr>
<tr>
<td>White with child</td>
<td>26.4</td>
<td>39.6</td>
<td>34.0</td>
</tr>
<tr>
<td>Cherokee with child</td>
<td>30.4</td>
<td>28.6</td>
<td>41.1</td>
</tr>
</tbody>
</table>
centered on the mother were the primary supportive units for child rearing (Purdue 1998). Although this system may have helped ensure successful reproduction during times of high male mortality (Hoxie 1991), it is not apparent that such sources of hardship were necessarily the cause of this social system.

**Local Distinctions in Global Consensus**

It is noteworthy that neither of the cultural differences in life course models was detectable by the standard cultural-consensus model. Such techniques first describe a general domain of life, then identify a modal model, and finally compare groups and individuals with respect to the endorsement or enactment of this model. The results of such analyses have been highly informative, yielding predictive power for both mental- and physical-health outcomes (Dressler et al. 1998; Dressler and Bindon 2000). However, such analyses tend to hover at the broadly descriptive level, leaving one to wonder about the specific content of the cultural models and their relevance to the individuals and groups for the outcomes under consideration.

Recent work on cultural models indicates the need to “drill down” into the specific content of models and to explore the possibility that individuals and groups simultaneously espouse multiple models for the same domain of life (Hruschka et al. 2008). In this study, our analyses resulted from first noticing a difference in the way that Cherokee and white youth described their parenting experiences in open-ended interviews. Using these insights, we explored targeted slices of a rich quantitative data set to examine how Cherokee and white youth positioned the timing of childbearing vis-à-vis other major life events. Such targeted methods that emerge from the specific content of ethnographic data are a complementary way of exploring the role of cultural models in group behavioral differences.

**Conclusions**

Cultural models work in multiple ways throughout the life course, determining the content and prioritization of major life goals but also the relative constraint or allowable bounds for attaining milestones in life. Our analyses have shown that it is important to describe and compare populations not only with respect to modal norms but also with regard to intrapopulation variability in these norms. These analyses and conclusions were possible because of a concerted effort to describe a population in multiple ways, including both ethnography and quantitative data collection. Moreover, analyses proceeded from a drive to compare these multiple sources of data with respect to a common focus: differences in fertility timing between Cherokee and white youth.

Such research ideally produces knowledge that is both content rich and informed by the diversity of ways through which individuals think, feel, work, and play their way through life (Hollan 2004; Lowe 2003). Such techniques hold the potential to help explain how differences in thought and behavior over the life course are molded and maintained in different populations. They also suggest that it is important not to “quit early” by relying on surface observations of behavioral or cognitive differences or ethnography alone. Rather, intersections of ethnography with systematic and structured data collection can yield new insights in the space between idiographic and nomothetic understandings of culture, mind, and behavior. A new generation of ethnographically informed quantitative techniques reveals that behavioral differences between groups are often supported by cultural differences in the distribution, organization, and weighting or salience of intracultural variation in cultural models and values.
and exhibiting this behavior while Cherokees did not; this suggests the existence of more flexible models among Cherokee youth.

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FOR FURTHER READING

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