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

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Introduction

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 Fry's (1992) analysis of different levels of community aggression between two Zapotec groups in Mexico, or the cultural differences in childrearing styles described in the Whittings' 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, Harkness and Super (1996) show how parents' culture-specific models of childrearing 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, A.F.C. Wallace critiqued the way that culture and personality – the dominant analytical frame of the time – conflated cultural group 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; Peltó and Peltó 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, Baer et al. (2004) show that community location is more important than professional training in determining cultural beliefs about AIDS among physicians and patients in Texas and Mexico.

Most quantitative studies of cultural variation have examined between-group differences in modal thought or behavior. However, another aspect of inter-group variability has to do with the degree to which group members endorse a single dominant model (Boster and Weller 1990; Hruschka, et al. 2008). For example, in the 20th century, Americans adhered to a strong norm concerning the appropriate color of a wedding dress (white). However, no such norm prevailed prior to the mid-19th century, when brides were free to wear a wide range of colors. The major difference between 19th century and 20th century Americans in the appropriate color of a wedding dress was not in the particular color, but rather in how much color mattered (Pleck 2000).

Thus, some group differences in behaviors may not be supported by group differences in *modal* cultural models, but rather in the distribution or relative emphasis of multiple models for any particular domain of life. In this paper, we explore one particular case of group differences in behavior and the underlying distributions of cultural models; the timing of first births relative to other major life events among American Indian (Cherokee) and white youth in the rural southern U.S.

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 determinant 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 tradeoffs for having children vs. delaying or foregoing childbirth (Handwerker 1983, Kennedy 2004). Meanwhile, 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; Johnson-Hanks 2005).

Striking racial-ethnic differences exist in the timing of childbirth in the U.S. 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 childbearing among poor, urban African-American populations in the U.S. (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 U.S. (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, East (1998) found that black adolescent females in Southern California were more likely than white, Hispanic, or Southeast Asian girls to endorse childbearing before marriage as personally acceptable. However, increased black adolescent endorsement of these childbearing patterns was quite small when compared to actual group differences in teen childbearing 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.

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 (like African-Americans) 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 Indian, and likely provided a buffering impact to the genocidal campaign waged against the Cherokee during the 19th century (Thornton 1984). Modern empirical evidence indicates a cultural emphasis on distributed (especially extended family) care giving 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 childcare (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 15 to 19-year-old girls becomes pregnant each year (NC 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 19–24 year old youth, 51% of Cherokee females report having children at the time of interview, compared to 26 % of white females, 29% of Cherokee males, and 12% of white males (2-sided proportion tests, $p < .05$). Cherokee youth are also more likely to have children without being married to or cohabiting with a partner; 16% vs. 9% of whites in the sample (2-sided proportion test, $p < .05$). Condom distribution and health care are, if anything, more accessible in Cherokee than in the surrounding white communities (Sears 2002), so this difference cannot be explained away by relative access to services.

Because many American Indian reservations in the U.S. 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 paper, we use ethnographic data and quantitative data to compare cultural models of childbearing among Cherokee and white youth in the 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 0–17 ranged from 16–29% (U.S. Census 1990). Experience of poverty among our study participants growing up in this area has been substantial: 24% of whites and 40% 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. Descendents of European settlers who first arrived in the 1780’s 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 Indian, the population of Cherokees who stayed and resisted or escaped the forced resettlement of the Cherokee via the Trail of Tears (Ehle 1988). Residential areas in Cherokee 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 nearby Snowbird territory), and many youth share excitement about Cherokee traditional values and world views. 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 identity (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 Indian, however, this ethnic boundary is also diligently monitored and actively constructed, forming what Caulkins (2001) terms 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 the Qualla Boundary reservation and nearby Snowbird (also Cherokee territory) demarcate important differences in historical legacy, proclaimed identity, and institutional structures. Ethnic boundaries are always socially constructed, but in this case a Tribal record-keeping system helps to directly police 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 (in cases 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 upon 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 pilot card sort 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 9 Cherokee and 12 white youth aged 17–22 (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 was 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 audio taped and transcribed.

The major component of focus groups during development of the milestones was a freelist 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 (8 Cherokee, 8 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, or if 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 males and females. Thus, our prior expectations of strong ethnic and gender bias in salient life events were violated. 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 10 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 in size. Cherokee participants also generally showed more variance in their responses for the ideal ages on several 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 in order to determine the level of modality in responses. Generally, a ratio of 3:1 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 when the entire sample was included (5.09 for Cherokee alone; 5.44 for whites alone), with comparable scores for average cultural competence and no negative competence scores (see Table 3).¹ This analysis indicates

considerable cross-sample agreement regarding the mean ideal ages for life course milestones, suggesting that it might be fruitless to look for Cherokee-white differences in life course models. However, our ethnographic data (and ultimately our quantitative data as well) told a different story.

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 life course 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 (10 male, 9 female) Cherokee and 30 white (16 male, 14 female) participants. Life history participants ranged from 19 to 24 years old (mean age = 20), and 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 paper. 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 7 (QSR International, 2006) according to major common themes of life course events, barriers, and turning points. The full text of all field notes was added to this NVivo database. Excerpts and quotes from focus groups and life history interviews presented in this paper represent comprehensive searches by keyword and theme, as well as a full manual read of every transcript.

Results

Cherokee-white differences in life course 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, 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 towards 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

¹An almost identical pattern of results was obtained when ideal ages were converted into rank orders (i.e., life event with youngest ideal age was coded "1" and life event with oldest ideal age was coded "12").

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."

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 keeping 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.* [emphasis added]

Also attributing healing properties to her child, a 19-year-old Cherokee woman (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 semi-structured 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." 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%. . . . I, mean 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.

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."

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 childhood.²

The place of childbearing in the life course: 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 conceptualize the timing of three life course milestones: "have and raise kids," "settle down / be more responsible," and "marriage or live together with someone." Specifically, one would expect white Appalachian youth to endorse a "classical" American model of parenthood, whereby individuals "settle down" and preferably enter into a stable partnership before bearing children, in order to best be able to provide stability and resources to their children. Cherokee youth, on the other hand, 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 – (a) marrying/co-residing with a partner, or (b) "settling down" in life.³ During the LTI-Y, participants were asked to nominate a culturally acceptable "ideal age" for each of the twelve life course milestones for "average Americans." This allowed us to test for individual and group differences in models of the relative timing of childbearing vs. 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.

²There was only one exception to this pattern; one white participant (who was in very serious legal trouble) described how, if he had a child, he might behave better.

³This milestone (created at the repeated insistence of participants) refers to a behavioral transition from more selfish or "wild" behavior to more regulated behavior that is increasingly coupled to social responsibilities and the demands of close relationships.

Indeed, when compared to white youth, Cherokee youth more frequently endorsed ideal ages in which having children came before marriage (32% vs. 20%; $p < .05$, 2-sided proportion test) and settling down (31% vs. 17%; $p < .05$, 2-sided proportion test). However, despite being statistically significant, these mean differences are not particularly large (especially in comparison to the large Cherokee-white difference in early fertility). However, the greatest differences between Cherokee and white youth in life course 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% and 57% (respectively) vs. 40% and 35% for Cherokee youth. Thus, white youth were more constrained in their ideals about the timing of child-bearing, 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, while childbearing should happen, its timing relative to other life events is less important than its simple occurrence at some point in the lifespan.⁵

Among White youth, where normative tracks through childbearing, marriage / 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% vs. 16%, 2-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, Harding (2007) also finds that ideals and behavior are de-coupled in more disadvantaged urban communities.

It is important to test whether these apparently cultural differences are in fact actually 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 vs. social class on models of childbearing in

⁴Analyses involving GSMS participants often use sampling weights to correct for a disproportionate number of white participants who were considered “high risk” during sample recruitment, and to thus ensure that results for whites are representative of the white population. Using sample weights actually makes the ethnic differences described slightly more pronounced. For example, a weighted sample shows 68% of whites endorsing the modal model of settling down before having children (rather than 61%), and 60% of whites endorsing the marriage before children (rather than 58%). Thus, the results (and conclusions) remain unchanged when sample weights are used.

⁵These data beg the question of whether this distribution represents a stable commitment to different ideals across or a more flexible attitude towards the sequencing of marriage and childbearing. Test-retest data on the sequencing of life events indicates showed equivalent or higher consistency for Cherokee vs. white youth, which suggests a stable commitment to specific models. However, whites showed a correlation between endorsing childbirth before marriage and exhibiting this behavior, while Cherokees did not; this suggests the existence of more flexible models among Cherokee youth.

the life course. To compare the impact of ethnicity vs. social class, we coded participants according to whether they had experienced two or more years of poverty during the ages of 9–16 (participants' families were interviewed every year during these ages). While 59% of Cherokee had experienced two or more years of family poverty during childhood, only 31% 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 vs. non-poor participants and white poor vs. non-poor 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 towards a modal model of childbearing occurring *after* settling down and getting married. Cherokee, also regardless of exposure to family poverty, show no clear bias towards 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 non-stratified 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 whites. 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 / cohabiting. To test this possibility, 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 vs. having children in Cherokee and white youth with children (Breslow-Day test of homogeneity, $p = .45$). However, for the sequencing of getting married / cohabiting vs. 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 vs. white participants who endorse having children *after* obtaining (a) a career or permanent job, or (b) financial stability. The proportions were both very similar and statistically indistinguishable; 61% of Cherokees vs. 60% of whites endorsed having financial stability before having children, and 48% of Cherokees vs. 53% 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 lifespan 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. While the variability in behavior is clearly evident, the precise cultural mechanisms underlying such variability are less obvious.

In the U.S., considerable attention has been focused at racial-ethnic variation in the tendency to bear children either early in the lifespan or out of wedlock (or both). Ensuing debates 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. While 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 matrilineal and matrilocal system with a high degree of female choice, in which extended family units centered around the mother were the primary supportive units for child rearing (Purdue 1998). While 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 intra-population 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; in this case, 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.

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Figure 1.

Table 1

Racial-ethnic differences in fertility, United States

	White	Black	AI & AN	Asian & PI	Hispanic
Birth rate (2005)	11.5	15.7	14.2	16.5	23.1
Percent of births to mothers < 20 years (2006)	7.4	17.2	17.6	3.3	14.3
Percent of births to unwed mothers (2005)	25.3	69.9	63.5	16.2	48

Note: Census categories are non-Hispanic white, black, American Indian and Alaskan Native, Asian and Pacific Islander, Hispanic (in order).

Sources: (Hamilton, et al. 2007; CDC 2009)

Table 2

Ideal ages for life course milestones (SD)

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

^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 (n=344)

	Eigenvalue ratio	Average competence (SD)
All	5.255	0.75 (0.14)
Cherokee only	5.089	0.77 (0.14)
White only	5.439	0.74 (0.15)

Table 4

Life event sequencing, non-poor vs. poor

	Having children vs. settling down (% with model)		
	Children first	Simultaneous	Children after
White non-poor (n=138)	16.7	20.3	63.0
Cherokee non-poor (n=57)	36.8	21.1	42.1
White poor (n=64)	23.8	17.5	58.7
Cherokee poor (n=83)	28.9	31.3	39.8
<i>Having children vs. marriage (% with model)</i>			
	Children first	Simultaneous	Children after
White non-poor	16.7	23.9	59.4
Cherokee non-poor	28.1	40.4	31.6
White poor	19.1	28.6	52.4
Cherokee poor	33.7	30.1	36.1

Table 5

Life event sequencing, without vs. with children

	Having children vs settling down (% with model)		
	Children first	Simultaneous	Children after
White without child (n=151)	18.0	18.0	64.0
Cherokee without child (n=84)	32.1	26.2	41.7
White with child (n=53)	24.5	22.6	52.8
Cherokee with child (n=56)	32.1	28.6	39.3
	<i>Having children vs. marriage (% with model)</i>		
	Children first	Simultaneous	Children after
White without child	14.0	20.0	66.0
Cherokee without child	32.1	38.1	29.8
White with child	26.4	39.6	34.0
Cherokee with child	30.4	28.6	41.1