ORIGINAL ARTICLE

Moving from ethnography to epidemiology: Lessons learned in Appalachia

RYAN A. BROWN¹, JENNIFER KUZARA², WILLIAM E. COPELAND³, E. JANE COSTELLO³, ADRIAN ANGOLD³ & CAROL M. WORTHMAN²

¹Human Development and Social Policy, Northwestern University, Chicago, IL 60208, USA, ²Anthropology, Emory University, Atlanta, GA 30322, USA, and ³Psychiatry and Medical Sciences, Duke University, Durham, NC 27701, USA

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Abstract

Background: Anthropologists are beginning to translate insights from ethnography into tools for population studies that assess the role of culture in human behavior, biology, and health.

Aim: We describe several lessons learned in the creation and administration of an ethnographically-based instrument to assess the life course perspectives of Appalachian youth, the Life Trajectory Interview for Youth (LTI-Y). Then, we explore the utility of the LTI-Y in predicting depressive symptoms, controlling for prior depressive symptoms and severe negative life events throughout the life course.

Subjects and methods: In a sample of 319 youths (190 White, 129 Cherokee), we tested the association between depressive symptoms and two domains of the LTI-Y – life course barriers and milestones. Longitudinal data on prior depressive symptoms and negative life events were included in the model.

Results: The ethnographically-based scales of life course barriers and milestones were associated with unique variance in depressive symptoms, together accounting for 11% of the variance in this outcome.

Conclusion: When creating ethnographically-based instruments, it is important to strike a balance between detailed, participant-driven procedures and the analytic needs of hypothesis testing. Ethnographically-based instruments have utility for predicting health outcomes in longitudinal studies.

Keywords: Depression, population health, life course, psychiatric epidemiology, American Indian

Introduction

At a recent meeting with an interdisciplinary research team on the social determinants of health, a demographer exclaimed ‘I wish someone would just create a quick and straightforward way to measure culture, so I could include it in my survey design and be
done with it’. This individual was clearly frustrated with the complexity of cultural explanations for the patterning of human suffering and disease. Many anthropologists might scoff at this statement; after all, we know that culture is nuanced and locally variable – you cannot throw in a one-size-fits-all culture measure, walk away, and let it do the work. But, hidden in this demographer’s intentionally provocative remark was an earnest request for anthropologists to produce methods that are capable of examining the role of culture in human health and well-being in a quantitative, hypothesis-testing framework. Anthropology has largely failed to do this, preferring often to privilege the complexity of our case studies or to critique the hegemony of quantitative methods instead of developing ethnographically-based methods that are capable of ruling out alternative explanations.

Ethnographic research based on a limited number of case studies can certainly suggest new directions for epidemiological research. However, the best storytellers and the individuals in a community most receptive to outsiders may not be particularly representative of the mean or modal pattern in the community itself (Handwerker 2003), which easily could lead such ethnographically-based approaches astray. Moreover, our interpretations of case studies in ethnographic data are rife with bias, including the tendency of ethnographers to romanticize the communities in which they work (Rohner et al. 1973). Finally, the strategy of moving directly from ethnography to epidemiology does not automatically build information about the content of cultural process into epidemiological databases. This requires additional translational steps, which we illustrate in these pages.

It is time to move beyond our armchair critiques and to translate key insights from ethnography into tools that can be used by epidemiologists, demographers, and other population health researchers concerned with causal inference regarding human behavior, biology, and health. This brings us naturally to the question posed by this special issue (and by the original AAA session that inspired the issue); how does one measure culture in large-scale epidemiological studies? The answer depends on the outcomes of interest and the (proposed) causal pathways to these outcomes. In our current state of knowledge and methodological development, this question is most easily answered through a set of examples.

One strategy is to find creative ways to examine the impact of culture within the general bounds of existing epidemiological methods. For example, case-control models examine the impact of a specific exposure on a population. If such studies are designed, conducted, and interpreted by a researcher with deep local knowledge who is simultaneously engaged in ethnographic work, culture’s influence can be uncovered in specific sub-population patterns of risk and resilience to the exposure of concern. For example, Kohrt shows how intersections of sex and traumatic experience yield increased vulnerability to the impact of child soldiering in Nepal because of cultural constructions of gender (Kohrt et al. 2008).

Another strategy for studying the impact of culture is to compare cases and non-cases of symptom clusters that do not fit standard biomedical diagnoses, but have recognizable symptomatic and etiologic patterns in certain populations. Often the forms and features of these symptom clusters are connected to local ways of understanding the world. The anthropological focus on meaning-making in context has yielded especially useful knowledge in such cases, as shown for example by Peter Guarnaccia’s research on ataques de nervios (Guarnaccia 1993).

There is also a broader approach. This begins with the notion that ‘culture matters’, and engages wide-ranging research methods to uncover the workings of culture in a given population. This often starts with open-ended interviews or other ethnographic methods, and proceeds to more structured tools such as focus groups or individual freelists. This approach has yielded impressive and far-reaching results. For example, Dressler has
illustrated how attained cultural goals emphasized and agreed upon by one’s social group can mitigate both physical and psychological disease risk (Dressler et al. 1998; Dressler and Bindon 2000), and recent work using this approach has revealed gene by culture interactions (Dressler et al. 2009).

We will present one case example of this broader approach; work conducted with a longitudinal study of mental health in western North Carolina, and involving a sample of 1420 Cherokee and White youth interviewed every 1–2 years starting at ages 9, 11, and 13, the Great Smoky Mountains Study or GSMS (Costello et al. 1996b). With the GSMS sample, we took on what was in retrospect an extremely broad and ambitious goal, namely, to develop an instrument that would capture GSMS youths’ psychological models of the life course (hopes and dreams, expectations, perceived roadblocks, etc.). Our goal was to create an instrument that would collect data in an ethnographically nuanced, personally meaningful way, yet would also produce quantitative data amenable to epidemiological analysis and population-level generalization.

Our research team has now spent over 3 years analysing the data collected from 2002 to 2005. We report several lessons learned over the past 6 years of instrument development, data collection, and analysis. Further, we provide one illustration of how a long period of investment in method development can pay off in analytic terms. Specifically, we test the ability of our ethnographically-based approach to predict mental health outcomes when compared with an accepted ‘gold standard’ approach to the measurement of stressors and risk factors.

**Instrument development**

*Particularities and generalities*

It is easy to get lost in details when a researcher enters the field with the goal of assessing broad cultural domains such as the life course. In our case, we spent almost as much time developing the instrument as we did administering the final version with our main sample! Through a combination of life history interviews, focus groups, and pilot card sort interviews taking 13 months and involving 150 participants outside the main study, we developed an instrument that was applied with 350 GSMS participants over an 18-month span, the Life Trajectory Interview for Youth or LTI-Y (Brown et al. 2006).

The LTI-Y is specifically adapted to the life goals and concerns of Appalachian (both White and Cherokee) youths during the transition to adulthood. It asks participants to perform a variety of sorting, ranking, and response tasks with four different sets of cards; 12 life course milestones (e.g. get married, finish high school), 20 socioemotional resources (social and emotional properties considered important for life course success; e.g. community connections, determination), 15 material goods (e.g. fancy car, nice clothes), and 20 life course barriers (e.g. going to jail, dropping out of school).

With a well-trained interviewer the respondent can complete the full protocol in 90 min, but it can be quite cognitively exhausting for both parties. While the physical nature of holding and sorting cards can keep participants engaged, it is nevertheless a difficult task that requires careful attention of both the interviewer and interviewee. In a more recent version of the instrument (which is being used when GSMS participants turn 25), we kept only a subset of tasks and simplified some of the procedures; the revised instrument can be completed in less than half an hour.

Although details may seem distracting during the method development stage, it is also possible to overlook what might look like annoying minutiae but could be crucial factors for
describing or understanding a population. When producing a single instrument for a diverse population (in this case 12 counties, almost 100 census tracts, and two ethnic groups), it is tempting to gloss over or ignore interesting intracultural variability. For example, several focus groups nominated ‘tattoos and body piercings’ as important aspects of the good life, and others nominated ‘going to jail for the first time’ as an important (positive) life course milestone. However, the final version of the LTI-Y only included the items ranked highly by the sample on average. As the aforementioned two items were popular with only a small number of individuals, neither of them made it into the final instrument. In retrospect, allowing for some items that were highly salient to subsets of individuals would likely have provided important leverage for delineating variability in life course values and preferences.

Letting participants lead the way

When designing a quantitative instrument based on ethnographic work, it is both critical and difficult to achieve a balance between theoretically driven, largely ‘pre-field’ notions of ‘how things work’ and the respondent-driven understandings the researcher gains while in the field. It is crucial to note that fields outside of anthropology (especially psychology) will generally not reward the researcher for such creative methodological forays. However, the following example illustrates how crucial it can be to let participants guide decisions during method development.

During early focus group sessions, we held several preconceived notions about models of the life course. In one case, we had decided that ‘the things that help you achieve major life goals’ and ‘the things that make you happy and satisfied in life’ were two separate domains of life worthy of individual inquiry. In our minds, one category represented a ‘helping hand’ during the life course, while the other was composed of desirable life course endpoints. But, during group and individual freelist tasks, pilot participants listed largely overlapping items for each category. In other words, our participants were collectively and indirectly stating that the same things that make one happy and satisfied in life also help one to attain highly valued life goals; according to Appalachian youth, the means were also the ends.

Responding to the collective voices of our pilot participants, we created a combined category of items, termed ‘socioemotional resources’, including diverse elements of social support, social status, social activities, and personal emotional coping. Treating this domain of items as a set of outcomes (as well as facilitators) yielded a highly useful index that has, for example, allowed us to estimate locally meaningful determinants of subjective social status among youth in the region (Brown et al. 2008).

Still, treating these diverse social and psychological elements of the life course as a unitary domain (driven by participants’ responses) collapses categories of items considered different in prevailing sociological and psychological approaches to the life course (Heckhausen 1999; Grant and Dweck 2003). Violating these assumptions has led to confusion, frustration, and even anger from reviewers. Trostle points to exactly this tendency of epidemiological researchers to privilege their own cultural models over those of their participants (Trostle 2005). Meanwhile, while some quantitative research may still be intent on separating ‘psychological’ and ‘social’ factors, it is telling that the intervention world – which often has more direct contact with individuals – has realized the inherent overlap of psychological and social, tending towards an integrative psychosocial model (de Jong 2002).

On balance, ethnographic honesty and the strong relationship of socioemotional resources with other variables and outcomes of interest (Brown et al. 2008, 2009b) have made the academic battles worth fighting.
Presumptions of group difference

We also entered the field with a strong prior expectation that life course expectations and goals would differ dramatically between White and Cherokee youth. In other words, we expected quite different content in response to our focus group and interview queries such as, ‘What are the important things for a person to achieve in life?’ After all, almost all Cherokee youth live on the Qualla Boundary reservation, have a distinct ethnic identity, and are subject to a different governmental structure than surrounding Whites. There were thus many reasons to expect ethnic differences in the content of life course models. As a result, we expected that we would have to create two versions of the LTI-Y; one for Cherokee youth and one for White youth.

Ethnographic experiences revealed that Cherokee and White identity were blurred and contested in ways that complicated a clear ethnic distinction. The Eastern Band of Cherokee Indians has seen considerable admixture from surrounding Whites over the years, and some neighborhoods on the reservation were openly labeled as the homes of ‘White Indians’ (both phenotypically and culturally). One Cherokee participant was described admiringly by his Cherokee friends as ‘true redneck’. Meanwhile, White participants often enjoyed talking about their Cherokee heritage, and local Whites would often display large ‘True Native’ signs on their vehicles (meaning natives of the area rather than Native American Indian).

Given this ethnographic evidence, perhaps we should not have been surprised when Cherokee and White youth listed (and ranked) strikingly similar items during the creation of the LTI-Y. Similarly, piloting of the LTI-Y led to both White and Cherokee participants indicating that the LTI-Y ‘really captures peoples’ concerns out here’. As a result, our expectation of needing to create two versions of the LTI-Y was vitiated. Contrary to our often strong expectations of cultural particularity, it is sometimes easier than expected to translate local knowledge into an instrument that can be used across multiple groups.

While enjoying the sport of deconstructing the essentialism inherent in definitions of ethnic groups, anthropology remains quite wedded to the notion of deep and incommensurate group differences in worldview. After all, adhering to the assertion that, ‘You could not possibly understand how a Xanderphyte understands the world unless you were Xanderphyte (or possibly an anthropologist who has lived with the Xanderphytes and speaks their language)’ helps to rarify anthropological knowledge and defend the boundaries of the field.

Thus, the notion that we could use a single instrument to assess the life course perspectives of both Cherokee and White youth upset many anthropologists during early presentations of LTI-Y analyses. Subsequent analyses did, however, show that Cherokee and White construct the same life course content in quite different ways (Brown et al. 2008). This finding would have been impossible to obtain had we forced our preconceptions of ethnic differences onto the development of the LTI-Y. In a way such findings vindicate expectations of ethnic differences, but show that they may take subtle forms that would be impossible to detect (or test) without creating detailed quantitative databases of cultural content.

Instrument administration and interpretation

It would be wrong to claim that we were always insightfully prescient or completely open to our local participants’ concerns. In one case, rather than respond to our participants’ concerns, we decided to go ahead with a style of data collection that would simplify later statistical analysis. During ranking and sorting tasks involving the 12 life course milestones,
participants often wanted to lump groups of items together as having equivalent importance and being a ‘package deal’ (Townsend 2002), such as getting a college degree and obtaining a career, being married and having children, etc. These participants were quite stymied by our requests to rank one of these items above the other in importance (or even difficulty), as they considered them to be inseparable parts of a single whole.

Regrettably, we did not build in a data collection procedure that would have allowed for us to code this ‘lumping’ of items into groups. Instead, we pressed on with our original plans, forcing these participants to rank items \textit{whether they believed this was a meaningful task or not}. When we came to analyse the data we found that the ranked importance of milestones and other life course domains generally did not exhibit strong or coherent associations with other dimensions. Although there could be many reasons for this, it certainly did not help that we forced noise into the data by not allowing participants to create what they often felt were ‘natural’ groupings of items with equivalent importance. The lesson, in retrospect, was that we should have listened more closely to our participants.

Thus far, we have recommended letting participants strongly guide content and process during method development. Nevertheless, this is not always feasible. Most ethnographers have had the experience of a participant wanting to take them on a tour of all of their favorite places and tell them all of their favorite stories (day after day). Such strong-minded and vocal individuals often become the key (or sometimes only) voices in ethnographies that purport to describe the cultural milieu for entire world regions. Such individuals, while good story tellers, may not represent the predominant or average perspective of their peers or communities (Handwerker 2003).

Likewise, during the creation and administration of the LTI-Y, some participants wanted to discuss and deconstruct every item and dimension of the LTI-Y card sort with counterexamples, caveats, and qualifiers. Great storytellers, after all, prefer to use their own narrative structure, and such discussions produced very interesting interview content. However, if we took on board every variation and suggestion of these participants, we would have produced an unwieldy and burdensome interview task that would be extremely difficult to administer across individuals (much less analyse). When the goal is to produce population-relevant understandings and insights, a desire for individual specificity must be weighed against the need to produce data that are interpretable across subjects.

One advantage of the LTI-Y is that it is a highly structured interview that nonetheless allows participants to describe their life course perspectives in rich detail. The result, shown in Figure 1 for a single participant drawn at random (for one life course domain – life course milestones) contains many layers of information. For example, we know that ‘Rusty’ (a locally representative pseudonym rather than the participant’s real name) considers 16 years old to be the ideal age to have children, and 20 years old the ideal age for marriage. We also know that he feels settling down (an item included at the insistence of participants that refers to establishing more regulated, responsible patterns of behavior) is the most important milestone in his life, and obtaining financial security is the most difficult. Finally we know that he has obtained a vehicle, gotten a job, and graduated high school, but has yet to achieve a career, to move out of his parents’ home, or to get married.

It can be challenging to move between the rich detail of Rusty’s individual life course model to meaningful population-level findings. For example, three of the items that Rusty included in his list of essential life course milestones (and that are considered classical life course milestones by life course theorists) – having children, acquiring a house, and getting married – were not included as essential life course goals by a considerable percentage of the GSMS population; 44%, 34%, and 28%, respectively. It is noteworthy that such a high proportion of participants found such ‘classical’ milestones to be relatively unimportant.
These findings make sense in the light of the literature on emerging adulthood in the USA and Europe, a cultural and demographic phenomenon characterized by youth in their 20s and 30s emphasizing play, travel, and acquiring diverse experiences over career, reproduction, residential stability, and the like (Arnett 1998; Arnett 2000).

Yet, this ‘emerging adulthood’ pattern is far from universal, as illustrated by Rusty’s life course model. In fact, 56% of the LTI-Y sample did include having children as an essential life goal, meaning participants were evenly split about the importance of this goal. To make sense of such variability in cultural models, Romney, Weller, Dressler, and others have developed a set of quantitative tools for assessing the degree of consensus around modal ideals and values in a population (Romney et al. 1986; Boster and D’Andrade 1989; Pelto and Pelto 1997; Dressler and Bindon 2000; Handwerker 2002). However, the modal approach may not always be enough. In cases of particularly high population variability (such as found in this sample), Hruschka has demonstrated that multiple identifiable models may be present, requiring the data analyst to test for and describe these multiple models rather than assume a modal pattern of beliefs (Hruschka et al. 2008).

The utility of ethnographically-based instruments: A test case

While it is interesting to observe and describe variability in life course models attainment, the true test of cultural epidemiology lies in whether ethnographically-based instruments relate to biological and health outcomes in meaningful or novel ways. This section tests how ethnographically defined life course barriers (perceived impediments to desired life course progress) and the attainment of life course milestones in the LTI-Y relate to depressive symptoms among GSMS youth.
The availability of longitudinal data from GSMS allows us to perform a particularly stringent test of the utility of these ethnographically based constructs. We control not only for previous reports of depressive symptoms, but also the lifetime accumulation of negative life events, assessed at several points throughout the life course. This allows us to determine whether life course milestones and barriers are associated with unique variance in depressive symptoms not predicted by an existing pattern of depression or by the cumulative impact of stressful life events.

Methods

Sample. The Great Smoky Mountains Study or GSMS includes 1420 participants. Of the total, 349 are enrolled members of the Eastern Band of Cherokee Indians including all eligible Cherokee aged 9, 11, or 13 in 1993 who agreed to participate in the study (95% screened, 81% recruited). The remaining 1070 participants are a representative sample of youth living in 12 counties within western North Carolina. Potential participants were selected from the population of some 20,000 children using a household equal probability, accelerated cohort design (Schaie 1965), and were oversampled for risk using a phone-screening interview. A full description of the methods used in GSMS recruitment and data collection can be found in Costello et al. (1996b).

This study draws on a sample of 350 GSMS participants interviewed with the LTI-Y when they were between 19 and 24 years of age (Brown et al. 2006). All study procedures were approved by the Emory University Institutional Review Board, and were in accordance with the Declaration of Helsinki. The sample was drawn to create an even distribution of major risk exposures across Cherokee and White males and females; additional information about the sampling strategy can be found in Brown et al. (2006). Due to missing data, the total analytical sample was 319 (190 White, 129 Cherokee).

Depressive symptoms. Depressive symptoms measured by the Mood and Feelings Questionnaire, or MFQ (Messer et al. 1995). The MFQ was developed to assess the ability of current (last 2 weeks) mood to predict psychiatric outcomes; it has excellent psychometric properties and very good predictive characteristics for psychiatric diagnoses (Angold et al. 1995). The questionnaire contains 13 symptoms (see Appendix 1), with the possible response options of ‘not true’ (scored as 0), ‘sometimes true’ (scored as 1), and ‘true’ (scored as 2); this yields a scale range from 0 to 26.

Negative life events. The circumstances and experiences (poverty, family stability, life events, etc.) of GSMS participants were assessed every year between the ages of 9 and 16, and every 2–3 years thereafter (Angold and Costello 2000). For the purposes of this study, we include an index of lifetime exposure to 10 stressful life events (see Appendix 2), as defined by the Diagnostic and Statistical Manual of Mental Disorders, Version 4 (APA 1994). These consist of relatively rare, extreme events that are not expected to be highly correlated, but have similar impacts on psychological functioning (APA 1994; Copeland et al. 2007). The items have very good consistency and reliability, as well as excellent discriminant validity (Costello et al. 1998). Exposure at any age was assigned a ‘1’ and no exposure a ‘0,’ resulting in an index ranging from 0 to 10.

Life course barriers and milestones. The LTI-Y includes an ethnographically based (developed via 21 ethnographic interviews, 12 focus groups involving 54 unique individuals, and 32 pilot card sort interviews) scale of barriers to life course attainment, consisting of 20 items
Participants used a five-point Likert scale to report the extent to which each barrier was present in their own life. Three items are clearly confounded with depressive symptoms; these include ‘Being angry or overly emotional’, ‘Depression/anxiety’, and ‘No motivation/laziness’, and were dropped from these analyses. Scores on the remaining 17 items ranged from 0 (strongly disagree) to 4 (strongly agree). These scores were summed, resulting in a scale ranging from 0 to 68, with a Cronbach’s alpha scale consistency of 0.72.

The LTI-Y also includes the domain of ‘life course milestones’ (developed via 21 ethnographic interviews, seven focus groups involving 22 unique individuals, and 72 pilot card sort interviews), which is composed of 12 events that local youth considered the most important to achieve in life (see Appendix 4). Participants were asked whether they had achieved or attained each life course milestone; ‘yes’ was assigned a ‘1’ and ‘no’ a ‘0.’ Scores for all life events were summed, yielding an index ranging from 0 to 12, with a KR-20 scale consistency of 0.62 (Brown et al. 2006).

Analytic strategy. For prior MFQ scores and traumatic life events, we drew from the GSMS interview directly preceding the LTI-Y, an average of 1.36 ± 0.09 (SE) years prior. Due to the distribution of MFQ scores and the over-representation of 0s, we ran zero-inflated Poisson regression models, using Stata MP 10.1 (StataCorp 2008). All analyses were performed with sampling weights, which corrected for the deliberate oversampling of behavioral risk among White youth in GSMS (Costello et al. 1996a) and the deliberate oversampling of Cherokee youth. The first model included age (years, months, and days), ethnicity, sex, prior MFQ score, and traumatic life events. In the second model, we added life course barriers and milestones from the LTI-Y to examine unique variance in depressive symptoms explained by these variables. Poisson regression coefficients are reported; coefficients represent the difference in the log of the expected count of MFQ symptoms (ranging from 0 to 26) for each unit change in the independent variable, net of the other variables in the equation.

Results

Dependent and independent variables were approximately equivalent across Cherokee and White participants, with Cherokee youth reporting higher levels of life course barriers (see Table I). Not surprisingly, prior MFQ score was correlated with MFQ score at the time of the LTI-Y ($r = 0.44$, $p < 0.0001$). None of the independent variables were correlated above $r = 0.26$ (see Table II).

In Model 1, both prior MFQ score and negative life events were significant predictors of depressive symptoms at the time of the LTI-Y interview (roughly 1 year later), with a total model $r^2$ of 0.21 (see Table III). Model 2 added two domains from the LTI-Y, life course barriers and milestones (see Table III). In Model 2, prior MFQ score continued to predict depressive symptoms. Both LTI-Y barriers and milestones were significant predictors ($p < 0.05$, $p < 0.001$, respectively). Life course barriers were associated with more depressive symptoms, while higher attainment of life course milestones was associated with less depressive symptoms. Together, these variables accounted for an 11% increase in variance explained. Additionally, two trends associated with sex and ethnicity from Model 1 were statistically significant in Model 2; namely, the tendency of Cherokee participants to report lower depressive symptoms and female participants to report higher depression. In Model 2, negative life events were no longer a statistically significant predictor of depressive symptoms ($p = 0.11$). This suggested that LTI-Y variables might mediate the effects of severe life events on depressive symptoms. Indeed, a follow-up Sobel–Goodman mediation...
test (controlling for prior MFQ scores, race, and sex) indicated that life course barriers mediated 37% of the direct effect of stressful life events on depressive symptoms (Sobel coefficient =0.24, \( p<0.001 \)).

**Limitations**

Many studies are moving towards ethnographically-based, locally validated instruments to assess psychological distress and psychiatric morbidity (Devon et al. 2000; Fox 2003). This is highly important, as anthropological research has shown that psychiatric disorders ranging from neurasthenia (Kohrt et al. 2004) to anxiety (Guarnaccia 1993) may present with different symptoms in different cultural contexts. In this case, we did not have the benefit of a locally developed index of depressive symptoms or psychiatric distress. It is possible that such an index would produce a better model fit than we were able to obtain in the present analyses. Furthermore, LTI-Y variables in this analysis can be considered ‘privileged’ in that they were collected concurrently with MFQ scores. Future analyses will examine the capacity of LTI-Y variables to predict psychiatric outcomes prospectively.

**Discussion**

The long process of method development and careful attention to local cultural context seems during the construction of the LTI-Y seems to have paid off. Specifically, the ethnographically derived scales of life course barriers and milestones predicted unique variance in depressive symptoms over and above prior depression and a cumulative index of

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**Table I. Variable means (weighted).**

<table>
<thead>
<tr>
<th></th>
<th>Mean (±SE)</th>
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<tbody>
<tr>
<td></td>
<td>Total</td>
</tr>
<tr>
<td>MFQ at LTI-Y</td>
<td>2.79 (0.29)</td>
</tr>
<tr>
<td>Prior MFQ</td>
<td>2.41 (0.3)</td>
</tr>
<tr>
<td>Age at LTI-Y</td>
<td>21.7 (0.16)</td>
</tr>
<tr>
<td>Age at prior interview</td>
<td>20.34 (0.11)</td>
</tr>
<tr>
<td>Sex (% male)</td>
<td>44.1 (4.87)</td>
</tr>
<tr>
<td>Life events</td>
<td>2.16 (0.13)</td>
</tr>
<tr>
<td>LTI-Y barriers</td>
<td>16.1 (0.71)</td>
</tr>
<tr>
<td>LTI-Y milestones</td>
<td>6.31 (0.2)</td>
</tr>
</tbody>
</table>

*Ethnic group difference, \( p<0.05 \).

**Table II. Pairwise correlations.**

<table>
<thead>
<tr>
<th></th>
<th>MFQ at LTI-Y</th>
<th>Prior MFQ</th>
<th>Life events</th>
<th>LTI-Y barriers</th>
<th>LTI-Y milestones</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFQ at LTI-Y</td>
<td>1</td>
<td>0.44***</td>
<td>0.24***</td>
<td>0.4***</td>
<td>-0.13*</td>
</tr>
<tr>
<td>Prior MFQ</td>
<td></td>
<td>1</td>
<td>0.09†</td>
<td>0.26***</td>
<td>-0.05</td>
</tr>
<tr>
<td>Life events</td>
<td></td>
<td></td>
<td>1</td>
<td>0.26***</td>
<td>-0.2**</td>
</tr>
<tr>
<td>LTI-Y barriers</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
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<tr>
<td>LTI-Y milestones</td>
<td></td>
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\( \dagger p<0.1; \ast p<0.05; \ast\ast p<0.001; \ast\ast\ast p<0.0001. \)
life course exposure to negative life events. Notably, both positive and negative items from the LTI-Y related to life course attainment were associated with depressive symptoms, suggesting the utility of an ethnographically grounded life course approach to mental health.

This is not to say that ethnographically-based work should supplant the existing tools of psychiatric epidemiology. However, ethnographically-based tools may help identify stressors and life course perspectives more proximal to psychological distress and psychiatric outcomes, and should be employed in concert with existing instruments and longitudinal measurement. Such ‘experience-near’ predictors of psychological distress may be a good place to focus in therapeutic and intervention work, as larger structural forces and associated severe life events are much further ‘upstream’ in social systems and are arguably more difficult to intervene upon.

One key challenge in moving towards a cultural epidemiology is designing instruments that describe cultural processes relevant to health outcomes. We outlined one approach to creating such an instrument; in this case, the development of a tool to assess cultural models of the life course among Appalachian youth, and its relationship with mental health. Our research team learned several key lessons in the development and administration of the LTI-Y. First, we learned that it is important to pay attention to atypical item suggestions that might not fit with the mean or modal pattern, but have salience for specific subgroups. An overarching lesson is to listen to participants and let participants’ responses guide method development, even if their voices violate strongly held prior expectations. In our case, participants led us to violate prevailing life course theory, collapsing what are thought to be two life course domains into one (socioemotional resources). Participants also led us to discard our prior presumptions of strong ethnic differences in the content of life course goals. This has allowed us to detect interesting ethnic differences in the construction and meaning of such goals (Brown et al. 2008, 2009a) rather than becoming mired in a fruitless search for ethnic differences in goal content.

The LTI-Y was developed via in-depth, participant-driven research that informed not only the content but also the design of the LTI-Y, i.e. how it is administered. The various cardsort-based tasks in the LTI-Y allowed participants to view multiple life events, goals, and barriers at once, and to physically and visually manipulate these items until they are satisfied that the resultant model adequately describes their own life course. This helped satisfy our goal in designing the LTI-Y, which was to develop a set of tasks that felt intuitively ‘right’ to participants.
and to some extent mimicked the processes of anticipation, prioritization and trade-off that occur in the ‘real’ world of life course planning, striving, attainment, and frustration.

Moving from the ethnographic field setting to the world of quantitative analysis is a journey that is fraught with frustrations, but also unexpected surprises, and (ultimately) fresh insights about human lives, suffering, and health. The primary goal of this paper is to convince cultural, biological, medical, and psychological anthropologists that it is eminently possible to transform the ‘blooming, buzzing confusion’ of variability and specificity in human lives into quantitative instruments that retain this variability but also allow generalization to the population level. More than mere descriptive tools, such instruments promise to be interesting to the growing field of population health, as well as the disciplines of demography, epidemiology, sociology, and psychology. While not mainstream in anthropology at present, our hope is that the discipline will begin to treat such efforts as valid and important approaches to describing human lives and social systems.

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Supplementary material

Appendix 1. Mood and Feelings Questionnaire

- I felt miserable or unhappy
- I didn’t enjoy anything at all
- I was very restless
- I felt I was no good any more
- I found it hard to think properly or concentrate
- I hated myself
- I was a bad person
- I felt lonely
- I thought nobody really loved me
- I thought I could never be as good as other people
- I did everything wrong

Appendix 2. Negative life events

- One or more loss events (death of loved one, relationship break-up, parental divorce)
- Learned about traumatic event
- Diagnosed with physical illness
- Serious accident
- Natural disaster
- Fire
- Exposure to noxious agent
- Physical abuse or captivity
- Sexual violence or abuse
- Other violent events (exposure to war/terrorism, caused death or severe harm, sibling/peer death due to violence)

Appendix 3. Life course barriers

- Stress/time pressure
- Major loss: divorce, illness, heartbreak, accident, death of friend/family
- Pressure to help family or friends
- Overspend/go into debt
- Lack of jobs & lack of educational opportunities/resources
- Fights/conflict/tension with friends, family, or community
- Party too much
- Hang with the wrong crowd
- Things that hold you back from college (homesick, traveling, money, stress, etc.)
- Always going for the thrill/impulsive
- Have kids too early
- Drop out of high school or college
- Get married or settle down too early
- Addiction (drugs, alcohol, etc.)
- Bad experiences in school (with teachers, students, counselors, etc.)
Community or family holds you back/discourages you
Jail/prison/trouble with the law

Appendix 4. Life course milestones

- Driver’s license
- Get college, technical, or vocational degree
- Get first car or truck
- Get first house (or trailer, modular home, etc.)
- Get permanent job/career
- Have and raise kids
- Have financial security (savings, investments, etc.)
- High school graduation or GED
- Marriage or live together with someone
- Move out of parents’ house
- Settle down/be more responsible
- Start first job