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"Bioculturalism" -- An interview with Benjamin Campbell

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By Benjamin Campbell

This series aims to get anthropologists and closely-related others talking seriously, and thinking practically, about how to synergize biological and social scientific approaches to human health and well-being, and to what positive ends. In this interview, [Benjamin Campbell](#) responds to questions posed [Jeffrey G. Snodgrass](#).

How and why might cultural anthropologists and social scientists interested in health benefit from integrating biological variables/biomarkers into their research and analysis?

Simply stated health is inherently biocultural. It is experienced by individual bodies in social and cultural context. Whatever the impact of social forces on health, they must act through physiological processes in an individual body. Integrating biomarkers forces us to be specific about which elements of culture impinge on the body and how they may do so. As such they make hypotheses about social factors in health falsifiable and allow for refinement of our original ideas rather than standing or falling on a single test.

Most social science health researchers focuses on specific health conditions, such as diabetes or depression, and have a wealth of information about the condition. Thus in integrating biological variables the researcher is able to determine which specific measures will help to address their research question or not. For instance, traditional healing practices and rituals are generally thought to work by reducing psychosocial stress. Respondents reports provide one measure of stress reduction, but biomarkers such as blood pressure or cortisol levels provide additional physiological measures that can corroborate or contradict such reports, leading to a better understanding of the cultural expectations and bodily experience. In addition, genetic variables can determine if a particular sub-group responds to the ritual differently than another, allowing for a better understanding of how the cultural process may vary across individuals.

How would you respond directly to one potential cultural anthropological or social scientific critique of such an integrative “biocultural” approach?

I think that the most telling critique of the biocultural approach is that it ends up featuring biological factors at the expense of social and cultural factors. This is particularly important given the dominance of the biomedical paradigm. But it is very important to distinguish a biocultural approach from a biomedical approach. The biocultural approach explicitly includes social and cultural factors in a naturalistic setting while the biomedical approach neglects variation in social and cultural factors in favor of the controlled clinical setting. So for instance, the constraint of blood sample collection tends to lead to research designs based at a single fixed location that cuts out immediate environmental variation.

The development of non-invasive techniques, especially saliva for sample collection, has made it increasingly possible to collect biomarkers ranging from hormones to genetics telomere length in naturalistic settings. Of course sample collection is not without its constraints, such as the number of individuals from which samples can be collected or the cost of the subsequent assays, or even in some cases the time of day at which samples can be collected. But it does make research that incorporates both biological and social factors under conditions of interest to anthropologists much more accessible.

What is one potential caution you’d have for cultural anthropologists or social scientists considering a biocultural approach?

Expect to approach your research question differently from the beginning. Adding a biomarker to your research design requires more adjustments than adding additional questions to an interview or creating a new section on a survey instrument. It is important to be aware of the way in which biomarkers may constrain your research design so you can take advantage of any natural differences within your research setting. As I mentioned above, for some hormones saliva samples must be collected at a specific time of day or even year to minimize naturally occurring variation.

Understand the biology of any biological variable or biomarker you use as best you can. Even if you collaborate with others. It is critical to being able to interpret your results from their initial stage as raw numbers through to the concepts they represent as variables in statistical models

representation. I worked with Dick Udry, a sociologist who added sex hormones to his research on the social determinants of adolescent sexual behavior. As a sociologist he had an impressive understanding of the biology of adolescent sexual development. But he was less able to appreciate the dynamic nature of biological states. For example, when he first incorporated the hormonal measures in the eventual analysis he thought that hormonal assays counted the number of molecules directly producing an exact measure, rather than measures that included errors and required interpretation, much like the results of the survey questions he asked.

What is one piece of research (ideally your own) that points to the benefits of such an integrative approach?

In one of the early pieces of work I did with Dick Udry and Carolyn Halpern (Halpern et al. 1994) we found that higher testosterone levels were related to greater sexual activity among teenage boys, but the interpretation of these findings were confounded by the question of whether testosterone worked directly on the brain to increase sexual motivation or on secondary sexual characteristics to increase social perception of maturity and attractiveness to potential sexual partners. But regardless we found that there was an interaction between testosterone and church attendance. Sexual activity was related to testosterone in boys who were infrequent church attenders but not among those who attend church more regularly. The interpretation is that in the absence of strong social controls, increases in testosterone lead to sexual activity, but strong social controls take precedence over individual motivation. Sexual behavior is, for the most part, after all, a social behavior.

What are some other references to help cultural anthropologists or social scientists interested in such an approach get started?

Halpern C.T., Udry J.R., Campbell B.C., Suchindran C. 1994.
Testosterone and religiosity as predictors of sexual attitudes and activity among adolescent males: a biosocial model. *Journal of Biosocial Science* 26:217-234.

[Benjamin Campbell](#), PhD, Associate Professor of Anthropology at The University of Wisconsin-Milwaukee, is a biocultural anthropologist and human biologist. His research falls in the general area of the human life

history: the evolutionary study of the human life course. He takes a biocultural and evolutionary approach centered on hormones as important modulators of human biology and behavior. His studies of the male life course among Turkana and Ariaal pastorals have been funded by the National Science Foundation and the Wenner-Gren Foundation; research among adolescent boys has been funded by the NIH. He is currently working to extend his research to hunter-gatherers, as well as pastoral nomads and industrialized populations, and to middle childhood as well as puberty and aging. In addition to his work on life history, he maintains an active interest in neuroanthropology, the study of the brain and culture. He has also supervised graduate students working on a number of different topics, including primates and science education.

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