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Exploring multiple trajectories of causality: collaboration between Anthropology and Epidemiology in the 1982 birth cohort, Pelotas, Southern Brazil

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Abstract

OBJECTIVE: Although the relationship between epidemiology and anthropology has a long history, it has generally been comprised of the integration of quantitative and qualitative methods. Only recently have the two fields begun to converge along theoretical lines, leading to a growing mutual interest in explaining rather than simply describing phenomena. This paper aimed to illustrate how ethnographic analyses can be used to assist with the in-depth and theoretically-imbued interpretation of epidemiological results.

METHODS: The anthropological analysis presented in this paper used ethnographic data collected as part of the ongoing 1982 birth cohort study, between 1997 and 2007 in Pelotas, Southern Brazil. Analyses were framed according to the results presented in two of the epidemiological articles published in this series on the determinants of mental morbidity and age of sexual initiation.

RESULTS AND CONCLUSIONS: The ethnographic results show that statistical associations consist of multiple pathways of influence and causality that generally correspond to the unique experiences of specific subgroups. In exploring these pathways, the paper highlights the importance of an additional set of mediating factors that account for epidemiological results; these include the awareness and experience of inequities, the role of violence in everyday life, traumatic life events, increasing social isolation and emotional introversion as a response to life's difficulties, and differing approaches towards socio-psychological maturation. Theoretical and methodological collaboration between anthropology and epidemiology is important for public health, as it has positively modified both fields.

Keywords

Causality; Health Knowledge; Attitudes; Practice; Interdisciplinary Research; Anthropology; Cultural; Epidemiology

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INTRODUCTION

Although the relationship between epidemiology and anthropology has a long history, it has generally been comprised of the integration of quantitative and qualitative methods.^{2,26} Only recently, with the development of an explicit public health interest in societal and institutional change have the two fields begun to converge along conceptual and theoretical lines, providing increasingly specific, diversified and rewarding results.^{27,28} As a mutual interest in *explaining* rather than simply *describing* phenomena has grown in both fields, this has resulted in some fundamental and noteworthy changes to both disciplines.^{1,7,15}

Over the course of the last few decades, anthropology has undergone several significant changes in the way it has been used in public health. When anthropologists first began working in public health in the 1980s, they were most often solicited for their methodological rather than theoretical contributions. Qualitative, unstructured methods were deemed useful for developing more precise and valid quantitative questionnaires, and for helping to explain why behavior-change programs had failed and how to make such programs more effective.²⁸

While potentially useful, a good many anthropologists rightly criticized such endeavors, highlighting the theoretically reductionistic and limiting view of ethnography that such collaborations endorsed.^{12,14,17,20} More often than not, anthropologists engaged in this type of methodological work limited the focus of their inquiry to cognitive dimensions – that is, to questions relating to individual beliefs, perceptions, attitudes and care-seeking behaviors, leaving issues of social change and mechanisms of social transformation largely untouched.^{18,24} However, when social change and improved health status are common goals of those working in the international health field, this theoretically microscopic focus may provide inadequate answers to the wrong questions.

Since then, medical anthropologists have increasingly sought to confront the limitations of the way applied anthropology has developed within public health. Learning in part from the macro-level perspective provided by social epidemiology, a more fruitful focus on the political economy of health and longitudinal case-study analyses has developed, with anthropologists engaging in questions of how social change can be accounted for and even stimulated. This has led to an increase in interest in the role of phenomena such as social resistance, popular mobilization and the development of political awareness in effecting health changes.^{16,22,25}

In the same way that anthropologists have taken a critical view of the reductionism developing within their own field, some epidemiologists have highlighted the way certain forms of epidemiological research promote a reductionistic understanding of health phenomena.^{3,8,28} Social epidemiologists in particular have increasingly bemoaned the lack of theory and use of conceptual frameworks in current epidemiology, highlighting the fact that epidemiology is generally taught as nothing more than a collection of methods.^{6,7,19,29} In addition, some point out that there has been an over-reliance on biological models for understanding etiology and how determinants of health may be interrelated.^{9,11} An important consequence of the lack of conceptual models is the uncritical use of regression analysis before a thorough investigation of the hierarchical inter-relationship between variables has been conducted, a critique that some argue leads to a “black boxed” and superficial understanding of the trajectories, or mechanisms, of causality.^{29,30}

Considering these critiques, it is important to explore how these two fields of expertise can develop a form of collaboration that is less focused on the mixing of methods, and more on the forms of theoretical exchange that are necessary to explore processes of social change. Epidemiological studies are essential in that they elucidate population-based health patterns

and are capable of assessing a large array of characteristics, histories and experiences. Nevertheless, analytical models used in epidemiology do not always allow for the in-depth understanding of complex trajectories of causality. Epidemiological studies often have difficulty exploring the ways in which statistical associations consist of multiple pathways of influence and causality – pathways that generally correspond to the unique experiences of specific subgroups. In this way, ethnographic data can help to better understand the ways in which statistical associations are established, bringing to the analysis a more dynamic and detailed understanding of the various factors that influence health outcomes.

This paper aimed to illustrate the fruitfulness of the potential collaboration between epidemiology and anthropology when implemented along these theoretical and methodological lines. The anthropological analyses presented in this paper are framed according to the results presented in two of the epidemiological articles published in this series – mental health⁵ and sexual initiation.¹³ The paper ends by highlighting the public health utility of such a collaboration for explaining the emergence of social phenomena, as well as the ways that theoretical collaboration between anthropology and epidemiology has the potential to contest and positively modify both fields.

METHODS

The analyses presented rely on ethnographic data that were collected as part of an ongoing 1982 birth cohort study. The incorporation of an ethnographic component in the 1982 cohort began in 1997, when the cohort youth were 15 years of age.¹⁰ A randomly sub-sample of the cohort was selected for the ethnographic study, totaling 96 mother-child pairs. Methodological details are described in another article.³¹

As repeated visits are necessary to gain in-depth and observational data on new life-course and health-related changes, mothers and their children were visited several times – the majority over 15 times – by the two authors and a team of 7 field researchers using a semi-structured guide covering social, economic and health topics. Intensive periods of fieldwork, in 1997, 1999, 2000, and again in 2003-04, have been interspersed with periods of data management and analysis. An ethnographic life-history approach was used to ascertain changes over the life course. Observations were noted shortly after visits, and most interviews were taped and fully transcribed. All youth agreed to participate in the study. The names used in this article are pseudonyms.

Two types of comparative analyses of ethnographic data were conducted. For the first comparison, “standard cases,” consisting of those who had both the determinants and outcome of interest, were selected from the ethnographic sample and compared with a random selection of young people from the remaining sample who had experienced neither the outcome nor the determinant in question. This latter group was termed the “standard controls”. The aim of this type of comparison was to conduct in-depth analysis of the mechanisms through which the determinants in question influence the health outcome in the standard cases.

A second type of comparative analysis focused on why some study participants who had been exposed to known risk factors did not develop the outcome in question. To undertake this analysis, “atypical controls” – those who experienced similar exposures but who did not develop the outcome in question – were selected and compared with the “standard cases.” This analysis gave us an indication of additional mechanisms through which determinants impact upon the outcome in question, as well as factors that may modify or assuage established statistical patterns.

Both types of comparisons proceeded through an inductive analytical approach. It is important to highlight that in order to identify mechanisms of causality through ethnographic fieldwork, this study relied not simply on how young men and women perceive and narrate their experiences, but rather, on focused observations and longitudinal case-study analysis, aimed at documenting the sequencing of life events, social relationships and socio-personal development through time. As highlighted in the introduction, it is contended that cognitive factors, such as individual perceptions, do not provide as much insight as in-depth ethnographic case-studies.

Oral informed consent was obtained from parents, or surrogate parents, in the early stages of the study (1982-1986). In more recent stages, the University's Research Ethics Committee, affiliated to the *Conselho Nacional de Ética em Pesquisa – CONEP* (National Research Ethics Council), approved the study, and written informed consent was obtained from participants.

RESULTS AND DISCUSSION

Psychiatric morbidity amongst young men

The article authored by Anselmi et al⁵ showed that amongst both young men and women, having a higher level of psychiatric morbidity is associated with being Afro-Brazilian and belonging to the poorest strata of the population.⁵

To explore these relationships, two main kinds of comparative analysis were performed. For both of these analyses, all cases of high mental morbidity from this study's ethnographic sample of young men were initially identified; this included 14 young men who, according to results from the 2006 survey, had an SRQ score equal to or greater than 6 points. Of these young men, 10 were from families with a family income (at birth) of 3 minimum wages or less, and 3 of these 10 were Afro-Brazilian. These ten young men constitute what was termed “standard cases”.

For the first form of comparative analysis, the 10 standard cases were compared with a random selection of 10 additional “standard controls.” There are young men who had a low SRQ score and who had not been exposed to any of the risk factors in question. For the second type of comparative analysis, the 10 standard cases were compared to the group of “atypical controls” found in the ethnographic study (N=16), that is, participants who had the risk factor in question -- low family income – but who had a low SRQ score.

Results from the first type of comparative analysis indicate that the influence of low income, low educational levels, and Afro-Brazilian ethnicity on psychiatric morbidity is largely accounted for by the distressing experience of poverty and socio-economic marginalization. Unlike the “standard controls” – youth belonging to the largely white middle and upper classes who experience minimal mental distress – lower-class youth, many of whom are also of Afro-Brazilian descent, are exposed to a series of inter-related stressors, including poor living conditions and social and economic unpredictability. Other factors highlighted by these youth included the daily experience of managing economic constraints, discrimination due to low class status, and a strong sense of socio-economic alienation from normative institutions, such as schools and health centers.

Of the various factors related to class status, the role of violence appears to most vividly account for the relationship between socioeconomic marginalization and mental morbidity. Those with high mental morbidity showed a heightened sense of awareness – and fear – of the violence that permeates society, and often relayed the experience of being assaulted or knowing close friends who had been assaulted. These young men also highlighted a lack of

social support in shantytowns, constant threats imposed by neighbors, and significant levels of in- and out- migration, all of which exacerbated feelings of social anxiety. Although violence-related stressors were alluded to by these young men during their early teens, longitudinal data from this study shows that emotional anxieties relating to violence peaked as these young men left school and began the process of seeking employment, often in the informal sector. As several youth explained, because this transitional phase tends to expose youth to street life with greater frequency, it generates heightened concerns regarding risks associated with possible assaults.

One such young man, João, showed high levels of anxiety and stress when discussing, spontaneously and of his own accord, numerous accounts of violence and assault his neighbors and peers had suffered in the recent past. Although he himself had only endured one such episode to date, his fear of recurring violence increased as he acquired his first more stable job, which required him to travel through various part of the city at night. In searching for ways to address his anxiety and stress, João considered both changing jobs and moving to a calmer neighborhood.

Although these two solutions appear simple and practical, neither of these options are easily implemented for lower-class families, for whom changes of employment and residence are not only largely inaccessible, but in the long run, tend to simply cause more economic, social and emotional instability. João, for example, was never able to find a new job or move home. He eventually responded to his fear of violence by living a socially introverted life, meeting with friends much less frequently than he had as a young teenager, and staying indoors as much as possible. For João and other young men like him, these factors contributed to the deterioration of mental well-being. In some cases, the cycle between experiencing violence, increased fear of the public world, and the search for isolation as a solution begins much earlier, during childhood years -- a social fact that in a few select cases even kept young teens from regularly attending school.

Some of the young men included in the group of standard cases not only suffered assaults but actively engaged in violence themselves, and one ended up going to prison. Although these youth spoke about often feeling “nervous and anxious” and having “explosive personalities,” they did not appear to link their emotions as explicitly to the experience of poverty as did the young men reviewed above. However, they did associate the experience of becoming violent with emotional turbulence. As described by one such young man, Leandro, who recounted a recent episode of violence,

I can't remember what he did, when I looked to my side, this guy came and I punched him, he punched me back with a homemade knuckle-duster, which cut me like this, from side to side, then, I knew I fought back and all, when these guys saw I was doing all right, they all jumped on me and beat the hell out of me, my God, the next day I saw these huge bruises...

After some time, Leandro decided he wanted to leave the world of violence. Having understood his violent tendencies to be due to pre-existing emotional morbidity rather than the social environment, he sought ways to modify his behavior and control his emotions. As he described, “*then, when I got myself through with this mess, I got my mind right, stopped fighting, also because I took up Capoeira (a Brazilian type of martial art) so then, I got some discipline, you know.*” The attitudes of young men like Leandro indicate that the statistical relationship between poverty and mental morbidity can be explained not only through the stress of being involved in violence, but also through the explicit development of psychological self-criticism.

Despite the salience of these results, not all of the boys who belonged to the group of standard cases had intensive interludes with violence. As highlighted in the Introduction, the statistically significant relationship between any two quantitative variables is likely to be mediated by diverse pathways of influence. Other more indirect pathways between class and psychiatric morbidity revealed by the comparative analysis include the fact that some of these young boys have undergone serious traumatic life events, including the loss of a parent or loved one, parental abandonment, and persecution by the police and other authorities. These experiences tended to be more frequent amongst the socially excluded. Therefore, even though these young men did not always explicitly link their emotional anxieties to socio-economic deprivation, comparative analysis clearly showed that anxiety and depression resulted directly from traumatic events that ensue from socioeconomic marginalization.

Another factor that the comparative analysis highlighted was the role of these young men's mothers. A subgroup of this group lived with mothers who exhibited high levels of anxiety and fear, emotions that they explicitly linked to the difficulty of their economically-deprived life-styles. In attempting to address their emotions and views of urban life, these women raised their children in highly controlled ways, limiting the amount of leisure time spent in the streets and instigating a considerable sense of fear of the "outside world" in their children. As a result, children of these mothers tended to become introverted, fearful and highly anxious with regards to the need to "battle life out" and confront the various challenges associated with living in poverty. While their emotional reactions were similar to those of youth who feared violence (as described before) in that they sought to retreat from everyday social life, the prime mediating factor for these young men was not violence but the mother's own emotional distress, linked as it was to the experience of socio-economic hardship.

The second type of comparative analysis aimed to explore statistical *exceptions*; that is, it enabled an understanding of how and why exposure to social and economic marginalization lead to mental morbidity in *some* young men, but not in others. This consisted of comparing the 10 standard cases (with high SRQ score) with the 16 atypical controls, or youth who experienced socio-economic adversity, but who did not develop mental morbidity.

This comparative analysis highlighted the importance of the relationship between socio-economic inequities and young men's subjective experiences with discrimination and social injustice. Key here was the experience not simply of poverty and social marginalization, but of inequities. Young men who lived in dire social and economic conditions but who showed robust mental health (the atypical controls) struggled with poverty, but were less attuned to the perils of adapting to modern urban life and did not show as much emotional strain when discussing and reflecting upon their living conditions. In effect, they felt supported rather than threatened by their local neighbors in the shantytown, had close friendships with other youth of the same social class on whom they could count for help and solidarity, and were less aware of and sensitive to the economic and social inequities that surround them.

In contrast, those with high SRQ scores not only struggled actively with the stresses of poverty, but were highly sensitive to various aspects relating to their immersion in what they described as an inequitable and unjust society. In effect, this reflected differences not only of perceptions, but of actual daily life. These young men actively sought to interact with friends and acquaintances from all economic strata, to the extent that their everyday social relationships tended to be less stable and long-lasting, as well as more imbued with social critiques. One such young man, Otávio, attributed his high levels of anxiety to the experience of "being criticized" for being "lower class." As he explained, youth in school

often segregate themselves according to social class, and teachers, in turn, inappropriately feed into these divisions in negative and exacerbating ways:

'Cause these guys (teachers) sit there, facing you, and put you down, and they do it in front of everyone, they call other classes and do it to put you down, they even call other classes and students to come and put you down, and I was nervous, man, I was shaking...I don't like injustice and I don't like to do stuff like this to other people. I think things like this make people feel badly, and you feel bad because of these things too.

In addition to being more exposed to socio-economic inequities and the judgments of members of other social classes, these young men also appeared to be more sensitive to their family's changes in income and class status. Several youth spent considerable energy analyzing their family's current class status and potential for future upward mobility. Others claimed to be upwardly mobile but nevertheless showed high levels of anxiety regarding the fact that jobs are hard to find and unemployment is a constant threat. In effect, the anxiety and depression these young men felt resulted less from poverty per se, and more from encountering the unstable, inequitable, and unfair aspects of the larger social environments in which they actively sought to circulate.

As these examples show, imbedded in quantitative variables that measure family income is not only economic deprivation, but the awareness and experience of the social injustices that are linked to inequities. This is a relatively new dimension in the lives of poor youth. Over the past twenty years, a number of social, political and health care changes have significantly changed the experiences of poor populations, such that increased access to educational opportunities and medical resources is ironically coupled with a greater awareness of class status, and the various amenities and services which the poor cannot afford. As such, an individual's "class-based identity" now includes not only the material experience of living in poverty, but the subjective and increasingly politicized experience of living in a highly inequitable society and of what this represents for individuals' well-being.

Not surprisingly, for several young men, issues of injustice and social critique became central to their experience of the public world, a process that contributed to their emotional turbulence. The awareness of inequities adds an important dimension to explaining high levels of mental morbidity amongst the poor, an empirical finding that, without an anthropological focus, could easily go unnoticed.

The interplay between class and sexuality

In the article by Gonçalves et al, 13 youth who began their sexual life early (< 13 years) tended to be of Afro-Brazilian ethnicity, and from families whose income and level of education were low (< 8 years of study).

Two standard cases were compared to each other and, subsequently, to the *atypical controls*. The standard and control cases were the following:

Standard case 1 (cases1)—young people who had experienced early sexual initiation, who reported they had had sexual intercourse at < 13 years, and who also had low levels of education (< 8 years). Those with high levels of education (> 9 years) and whose families had average to high income in 1982 (> 3.1 monthly minimum wages) were also included in this group.

Standard cases 2 (cases2)—young people with high level of education (> 9 years) and who had a late sexual initiation (> 18 years). Low family income, which showed a significant

statistical association with early sexual initiation, included two groups with low monthly minimum wages (<1.0 and 1.1-3.0).

For each of the two groups of *cases*, respective *atypical controls* were identified. For the first group, the *atypical controls 1 (controls1)* were those who had high level of education and late sexual initiation. For the second group, *atypical controls 2 (controls2)* were those with high level of education, but who, for some reason, differed from the norm and had had an early sexual initiation.

To achieve the proposed objectives, ethnographic data on 24 youth were analyzed as either *cases* or *controls*, of which 16 (five men and 11 women) had high level of education and two were of mixed ethnicity. Of the eight with low level of education, three were of mixed ethnicity.

Statistical analyses presented in the article by Gonçalves et al¹³ revealed that being male, black or mixed, and having low levels of education and family income increased the likelihood of early sexual initiation. Educational and socioeconomic difficulties encountered by this group caused events such as sexual initiation, work and dropping out of school to occur earlier. Ethnographic analyses were used to contextualize sexual initiation and socio-cultural factors, with a particular focus on young people's behavior.

The following was found in the first group of *case1* youth: weak family bonds, emotional traumas experienced in childhood, low level of education of those in the family's network, a reduced social network, and having been a victim of urban or intra-family psychological violence. Women with early sexual initiation were not found in the sample. Consequently, the following considerations were based on the sample of men only.

These young men's family histories involved major ruptures since childhood, such as their parents' traumatic separation and the subsequent lack of contact with one parent, or in some cases, the mother assigning her relatives the task of raising her child. The fact that these young men had little family support to study and live led them to start working at an earlier age. Early sexual initiation generally began at the same time that they entered the job market. The need to become sexually active was often felt more intensely by these men as they began interacting with new social peers, generally sexually experienced adult males, in the work-place. In such cases, early sexual initiation was further influenced by the fact that sex was seen as a valued landmark of masculinity amongst men in the workforce. By becoming sexually active, these young men could be identified as "adult hard-working men," a process which strengthened their sense of belonging to this group.

João, for example, had his first sexual experience with a friend at the age of 13. Since his initiation, he spoke about his sexual relationships with different girls, a fact that shows the importance of his active sexual activity for reinforcing his status in the group. In fact, he often referred to episodes of sexual activity that had not actually happened. As he described, "*You had sex with her and then... Even if you didn't fuck her, you fuck anyway! It's your word [against theirs]. You always win!*"

It could be concluded therefore, that early sexual initiation for those belonging to the *cases1* group was related to belonging to a group of employed men, many of whom had probably also experience early sexual debut. Lack of encouragement to study was frequent in these young people's family contexts, and it was usually based on previous school failures. Thus, the world of work and workmates was found to be an important identity reference. Time spent at work reduced leisure time with same-age youth, as well as time spent on other activities. In addition, these young men's parents required them to help maintain the home (shopping for food, caring for younger children, and paying bills) at a younger age than in

other families, valuing work more than formal education. The pressure to comply with such household responsibilities caused these youth to move away from maintaining ties with “adolescents” (youth who were usually only students), and towards activities that made them to feel and act as “adults” (or “workers”).

Unlike *cases1*, *controls1* were young women and men who did not have the risk factor of interest (low level of education) and began their sexual life late, at 18 years. In the group of *cases1*, sexual activity was not usually initiated within a romantic relationship. In contrast, amongst *controls1*, sexual initiation occurred with boyfriends/girlfriends. In addition, shyness, introversion, low self-esteem, and intense self-criticism, especially of one's body, were common feelings among *controls1*, constituting important factors that modified the relationship established in the statistical analysis (low economic status and early sexual initiation). For youth belonging to the group of *controls1*, establishing more intimate relationships required overcoming these feelings of introversion, social isolation and self-criticism. By delaying sexual initiation, they therefore protected themselves from others' criticisms and the potential confirmation of their negative self-perceptions.

Unlike the *cases1* group, future plans to improve *controls1*'s social position through formal education were not common, despite the fact that they did value studying. Their educational trajectories were not linear, though their family members expected them to study and progress more than had the previous generation. Dropping out of school, abandoning one's studies and failing repeatedly were frequent in this group, as was a conformist and less ambitious view of the future, as exemplified in the following account, “*I think... well... that my life got to the point where I had to choose, either to work or to study, so I chose to study... which is easier.*”

Among these youth, the desire for immediate results and the demonstration of minimal tolerance in handling daily frustrations were specific and common types of behavior. The introversion and personal dissatisfaction mentioned above often translate into little contact with other youth and institutional authorities. For these youth, school represented a diversity of ideas and a variety of daily routines that were poorly tolerated. Watching television all day long and playing soccer on a daily basis were examples of common practices amongst these youth at the age of 23, demonstrating their late development, including that relating to sexual initiation, when compared to other adolescents.

The group of *cases2*, consisting of youth who had high levels of education and late sexual initiation, were compared with *controls2*, or those youth who had high levels of education and early sexual initiation (at 13 years). *Cases2* (ten women and two men) emphasized that their sexual initiation occurred when they felt safe with regards to their partner's respectful and committed feelings towards them. To ensure a sense of safety, these youth would often find ways to assess whether their partner had any plans to continue the relationship before becoming sexually active.

Now, Rafael (boyfriend) and I, we're changing our plans, we're thinking of getting engaged, living together and getting married, you know? 'Cause it's no point getting married and then struggling. He should at least finish his residence and then get a steady job, while I get a scholarship for a Master's degree.

Perspectives regarding the future such as the one highlighted by the young woman cited above was not found in the other groups. This may be partly explained by the existence of stricter and more traditional moral values in these families. According to the parents of these youth, women should first study and then marry. Furthermore, if women married men who could support them, their work would become a personal choice, depending on the economic context and relationship. For men, the process would be the opposite. They would be

expected to provide for and be responsible for the family. Consequently, they would be persuaded from the beginning of a relationship to guarantee material and emotional family safety. More explicitly than other youth, *cases2* blended modern and traditional conceptions without major conflicts in their relationships and discourses. The contrast between a traditional attitude (man/work/provider/family) and a modern discourse (gender equality) tended to become evident when discussing the behavior of other young people, as in the following account:

A woman who goes out with many guys is a slut, but a man who picks up lots of women is a stud. I guess I gotta disagree. This is nonsense. I don't know, but I think that if a man behaves like that, sleeping around, it's not cool. If you got a girl you like, you gotta stick to her.

Cases2 often expressed romantic ideas of marriage and family explicitly; they did not hide their wish to marry and become professionals in the job market. They described themselves as “upright” and self-confident, with defined goals. Investing in education was fundamental to them, as was achieving a better social position through their own efforts (job/salary) and entering into an upper-class social network. This type of behavior was more evident among women, with their more “reserved” attitudes directly influencing the age of their sexual initiation. Their affective relationships were based on more traditional moral values, whose idea of future commitment required prior commitments to be made. For the young men in this sample, it was clear that their role would be a more traditional one, that of economic provider; as such, they sought partners who held the same traditional standards. Such values can explain the association between higher levels of education and late sexual initiation in these youth.

Even so, not all young people with high levels of education could be classified as *cases2*. Those with good school performance (9 years), whose families have an average income and who became sexually active at a young age (13 years), comprised the second group of *atypical controls* (*controls2*). These youth experienced traumas or serious family conflicts in childhood, and in many ways, early sexual initiation was associated with these events.

Situations such as losing one's father as a child and feeling responsible for the family; finding out about one's adoption through a cousin; experiencing severe maternal rigidity and prohibitions; and being forbidden by parents to play soccer professionally when invited by a professional sports club, were events that changed these young person's view of their future and led them, in their own words, to grow up “prematurely.”

For these youth, the desire to have had a different relationship with the family – one that was less critical and invasive – led them to begin dating earlier and to stay in a relatively stable relationship for longer than other youth. Early sexual initiation generally occurred with a boyfriend/girlfriend, an intimate context that guaranteed some degree of safety and support, and thus, that helped these youth to handle problems with their families. Within this subgroup, two different reactions to the family nucleus were observed. First, some youth began working in order to become economically independent, usually at about 15 years of age. These young people reacted positively to family conflicts, finding ways to acquire status and autonomy. Second, other youth showed feelings of discouragement and insecurity towards their professional future, which caused them to become more indifferent to adversity. For these, sexual initiation, in addition to providing the possibility of a strong emotional bond, represented a way of “transferring” their dependence on their family onto their new partner.

In sum, even though *controls2* (who showed early sexual initiation) were part of the same socioeconomic group as *control1* (who showed late sexual initiation), the fact that they had

experienced traumatic events and “grown up” earlier was a significant determinant of their decision to become sexually active at an early age. In *controls2*, sexual initiation, together with the creation of strong emotional connections, became a way of handling of traumatic events and the desire for a different kind of affective relationship with their families.

FINAL CONSIDERATIONS

This paper has shown that epidemiological analyses provide a very fruitful framework within which to conduct focused ethnographic analyses. For anthropologists, this may prove to be a useful tool for moving beyond ethnographic approaches which focus on general descriptive accounts of beliefs systems and cultural practices. Specifically, we hope to have demonstrated the way ethnographers can use comparative analysis of heterogeneous subgroups to contribute to the analytical objective of exploring factors that account for and mediate social change. For epidemiologists, in turn, the above analysis has demonstrated the need for a more in-depth and detailed interpretive framework, one that empirically clarifies, rather than presupposes, diverse mechanisms of influence.

The public health importance of fully exploring the mechanisms through which two variables may be statistically related can be clearly demonstrated by briefly reviewing the implications of the results from this study for public health programming.^{4,21,23} The statistical relationship between poverty and psychiatric morbidity, one that is eliciting increasing attention in the literature, may appear so obvious as to not need elaborate interpretation or additional research attention. However, the extent to which the relationship between poverty and mental morbidity is accounted for through violence, social isolation, financial unpredictability, or awareness of social inequity will no doubt have major implications for the specific focus adopted in social and public health programs.

Similarly, with regard to age of sexual initiation, results from this study show that the influence of socioeconomic class is clearly not linear, as is often assumed in some epidemiological studies. Rather, it varies according to key issues, such as differential approaches to socio-psychological maturation and the future, and the actual social and personal contexts within which sexual activity is initiated. Public health programs aiming to communicate effectively with young people about their sexuality would be best developed with detailed insight of this sort.

These results also suggest that mediating factors, those that explain population-based statistical relationships, are likely to vary depending on the specificity of socio-political and economic contexts. As such, to be adequately tailored to each setting, public health strategies need to be based on a more detailed, in-depth and context-specific understanding of the *reasons* accounting for the salience of statistical associations. The findings also demonstrate the existence of similar underlying determinants for the two health outcomes considered in this article. These include the role of violence and traumatic life events, attitudes toward socioeconomic class, and the nature of the young person's relationship with his/her family. This should not be surprising, since the social and cultural fabric within which individuals develop certain health outcomes, no matter how disparate the outcomes might be, is in effect the same.

From a public health perspective, this demonstrates the importance of developing initiatives that address the underlying and more distal *determinants* of several outcomes, rather than relying on devise disease-specific programs, as tends to currently be the case. As such, programs that address young people's experiences with inequities, violence and traumatic life events – while not health-specific in content – are likely to have a positive influence on both mental morbidity and sexual initiation.

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