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Ethnoepidemiology and mental health: insights from Latin America

Etnoepidemiología y salud mental: perspectivas desde América Latina

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ABSTRACT In this essay, I explore methodological as well as theoretical implications of an ethno-epidemiological approach, aiming to integrate research findings in mental health into new conceptual models. With this objective, I first evaluate the roots and uses of the term "ethnoepidemiology" to designate three research strategies for scientific knowledge production: type I (studies of sociocultural risk factors and ethnically defined risk groups); type II (studies of lay models of distribution and occurrence of illness in populations); type III (ethnographic studies of projects and areas of epidemiologic research). As an illustration, selected methodological features of three studies in which I have participated are presented and discussed. I then elaborate upon methodological developments derived from this experience of doing research, generating new models for transcultural transdisciplinary research of mental health practices. Lastly, I comment on some broad implications of studying mental health problems from an integrated ethnographical and epidemiological point of view, in diverse and deeply unequal societies such as those of contemporary Latin America.

KEY WORDS Ethnoepidemiology; Methodology; Mental Health; Medical Anthropology; Transcultural Psychiatry.

RESUMEN En este ensayo, exploro las implicaciones teóricas y metodológicas de un abordaje etnoepidemiológico, que busca integrar hallazgos de investigaciones en salud mental con nuevos modelos conceptuales. Con este propósito, en primer lugar, evalúo las raíces y los usos del término "etnoepidemiología" para designar tres tipos de estrategias de investigación para la producción de conocimiento científico: tipo I (estudios de factores de riesgo socioculturales y grupos de riesgo definidos étnicamente); tipo II (estudios de modelos populares de distribución y ocurrencia de enfermedades en poblaciones); y tipo III (estudios etnográficos de proyectos y líneas de investigación epidemiológica). Como ejemplo, se presentan y discuten características metodológicas seleccionadas de tres estudios en los que he participado. Posteriormente detallo los desarrollos metodológicos derivados de esta experiencia de hacer investigación, generando nuevos modelos para la investigación transcultural y transdisciplinaria de las prácticas en salud mental y, por último, en las conclusiones, comento algunas implicaciones generales del estudio de los problemas de salud mental desde un punto de vista etnográfico y epidemiológico integrado, en sociedades diversas y profundamente desiguales, como las de la América Latina contemporánea.

PALABRAS CLAVES Etnoepidemiología; Metodología; Salud Mental; Antropología Médica; Psiquiatría Transcultural.

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INTRODUCTION

A recent movement towards broadening the scope of epidemiology has led to a growth of social epidemiology worldwide.[1,2] In this process, partnerships with other disciplines in the field of social and human sciences have been sought, particularly in the disciplinary subfield of medical anthropology and about mental health issues. Following the pioneering essay by Fleck and Ianni in 1957,[3] this movement towards interdisciplinary integration has been advocated by a long lineage of scholars.[4,5,6,7,8,9] In Latin America, Jaime Breilh,[10] Cristina Laurell,[11] Ricardo Bruno Gonçalves,[12] Pedro Luiz Castellanos,[12] and other authors have developed theoretical models of great heuristic potential, again supporting deep and strong interactions between epidemiological approaches and social sciences in health.

In the field of mental health, such an integrative approach has made possible the subdiscipline of transcultural or cross-cultural psychiatry, an important branch of social psychiatry.[14,15] In social epidemiology, here has been a quite proficient research tradition on cultural factors for mental health, from the pioneering studies of the Chicago school of human ecology to Leighton's social adjustment theory, and to the psychosocial epidemiology group of Chapel Hill, led by John Cassel.[9] In Latin America, inspired by the Stirling County studies, a series of morbidity surveys on mental health disorders was conducted during the 1970s in Lima, Peru, using state-of-the-art methodology for that time and considering mental health as a cultural construct.[16,17,18] Over the past decades, there has been growing concern regarding theory and methods to study global mental health from a comparative sociocultural standpoint.[19]

As an effort to integrate these trends and perspectives, almost 30 years ago I proposed the term "*etnoepidemiologia*" to name the many proposals of combination, composition, fusion, convergence or articulation of the originally divergent views of epidemiology and anthropology.[20] Canadian medical anthropologists Gilles Bibeau and Raymond Massé later on used the word "*ethnoépidemiologie*" to refer to the analysis of popular theories of disease categorization and determination, by which members of a given culture interpret signs and symptoms, as well as the correspondence and contradictions between popular and medical diagnostic categories.[21,22] Since then, the compound noun "ethnoepidemiology" and the adjective "ethnoepidemiological" have been used in several areas and topics of health research, in different contexts.[23]

In this paper, I will further explore this integrative approach, with a focus on mental health research. With this aim, first, I evaluate the roots and uses of the term "ethnoepidemiology" to designate research strategies for production of scientific knowledge of three kinds: 1) studies of sociocultural risk factors and ethnically defined risk groups; 2) studies of lay models of distribution and occurrence of illness in populations; 3) ethnographic studies of projects and areas of epidemiologic research. As an illustration, selected methodological features of three studies in which I have participated are presented and discussed. I then elaborate upon methodological developments derived from this experience of doing research so as to generate new models for transcultural transdisciplinary research of mental health practices. Finally, I comment on some broad implications of studying mental health problems from an integrated ethnographical and epidemiological point of view, in diverse and deeply unequal societies such as those of contemporary Latin America.

MEANINGS OF ETHNOEPIDEMIOLOGY

In 1990, invited for a seminar in the historical Universidad Nacional de Córdoba, Argentina, I wrote a manifesto for the integration of epidemiological and ethnographical research, proposing the notion of "ethnoepidemiology" as a transdisciplinary approach for health research objects and methods. This paper was

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originally published by a local journal with limited circulation, but soon was republished in *Cuadernos Médico-Sociales*, one of the leading journals of the recently born movement of Latin American Social Medicine that later reached wide diffusion in the continent.

My initial statement[20] aimed at more than the incorporation of anthropological thinking into explanatory models based on the risk approach, or the application of epidemiological methods for cross-cultural research in health, trends then observed within epidemiology. That proposal was meant to overcome "social meddling" in health research by emphasizing the social-cultural dimensions of health-illness phenomena as "an ethnoepidemiological totality." At that time, I proposed two preliminary goals for ethnoepidemiology: at the conceptual level, the construction of "interpretative models of the health-illness-care complex in modern society capable of integrating both ethnological and epidemiological perspectives" and, at the methodological level, "alternatives for research on social processes and practices related to health, able to competently combine qualitative and quantitative approaches."

This idea was conceptually developed in further papers.[24,25,26,27] Raymond Massé[21] expanded the concept of "*ethnoépidémiologie*" as a major section of his treatise "*Culture et Santé Publique*," giving me the due credit. Later on, Massé[28] proposed the notion of "*ethnoépidémiologie critique*" to overcome the risks of "medicalization of the anthropology of health," a strong trend in Anglo-Saxon anthropology, submitted to the empiric-positivist epistemology of the agendas of medicine and epidemiology.

In parallel, and yet totally independent from my work, Michael Agar proposed to look beyond the mere merging of ethnographical methods and epidemiological designs. He argued that ethnography is not just a methodological adjunct, but instead could be the catalyst for a new epidemiology. In his own words[29]:

> The results, glimpsed at this point in outline only, will be neither epidemiology as we currently know it, nor ethnography as it is usually thought of in anthropology or sociology. Instead, they will approximate an epidemiology of context and meaning, or a focused ethnology of health. It is enjoyable to play with words and suggest "epnography" or "ethnodemiology," because the transformation now underway deserves a linguistic tag to signal its importance.

The idea of ethnoepidemiology has been evaluated in conceptual and methodological terms by Fernandes,[30] Hersch-Martínez,[31] Langdon,[32] Sy[23] and Singer.[33] The most thorough of such accounts has been carried out by Anahi Sy,[23] who situates ethnoepidemiological contributions as part of the Latin American Collective Health movement, with original proposals "to integrate the epidemiologic perspective with those from the social sciences, sociology, and medical anthropology in particular, raising the need to place health problems in their socio-historic, cultural, political and economic context." Sy points out the common roots and converging theoretical and methodological agendas of the ethnoepidemiology proposal, on one hand, and Menéndez's sociocultural epidemiology on the other, considering how both approaches investigate health-disease as a socio-cultural process, in which systems of meanings, representations, and practices of reproduction of daily life and health situations are studied by ethnographic methods. To classify critical perspectives such as those, she has coined the composite term "socio/ethnoepidemiologies."

To my knowledge, the adjective "ethnoepidemiological" was first used outside the anthropological field, in a phytochemical screening of plants used for treatment of gastrointestinal disorders in the Orinoco delta, Venezuela.[34] The noun "ethnoepidemiology" first appeared in the title of a research report on infant mortality among children of the Hmong ethnic group as compared to peasants, in Thailand.[35] Interestingly enough, in the body of that paper, the word "ethnoepidemiology" (or any of its correlates) is

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completely absent. The term was afterwards employed to name the proceedings of a symposium on evolutionary population genetics of neoplasms, organized by the Japanese Cancer Association: *Ethnoepidemiology of Cancer*.[36] The editors introduced the study of behavior patterns and physical and cultural factors associated with cancer, as an "exciting new field, which brings aspects of epidemiology, ethnology, ecology, virology, immunology, and molecular biology together in search of global cancer patterns." This formal descriptive approach made its way to the Dictionary of Epidemiology,[37] which defines ethnoepidemiology as "the epidemiological study of causal factors for health and disease among different ethnic groups, with development of intervention strategies that take culture into account." Conversely, the glossary of a research recently reported[38] defines *ethnoepidemiology* as:

> An emergent cross-disciplinary research methodology that combines the strengths of ethnographic observation and other qualitative methods for understanding social meanings and contexts as practiced in anthropology with the design, sampling, data collection, and analytical strategies developed in epidemiology.

Quite recently, Singer wrote an entry in the *International Encyclopedia of the Social Sciences* entitled "Ethno-Epidemiological Methodology," in an attempt to reconcile "the different but intertwined meanings" of the term.[33] Simultaneously, the term refers to the "emergent cross-disciplinary health research methodology" previously mentioned, and is also used to approach *emic* or folk systems of disease understanding and societal reaction. For him, ethnoepidemiological methodology reflects contemporary trends in public health, particularly "an increasing emphasis in medical anthropology on systematic data collection and analytic strategies and a corresponding decline among quantitative researchers in criticism of ethnography as being unscientific."[33] In his words:

> The two meanings of the term ethno-epidemiology described above are unified in their recognition of the fundamental importance of culture in health, with ethno-epidemiological methodology referring to approaches for its in-depth and systematic study, and ethno-epidemiological explanatory models labeling the local cultural conceptions of disease now recognized as a significant influence on disease expression and response.[33]

Although such a perspective can potentially take advantage of selected conceptual and methodological advancements, the ethnoepidemiological perspective must also imply reflexivity, in the sense of continuous critical self-assessment of the discipline itself, on epistemological and ethnographic grounds, therefore recognizing its socio-historical character. For this reason, it is worthwhile considering how the notion of ethnoepidemiology has been appropriated by researchers who have actually conducted studies in the cultural-symbolic interface of health issues in concrete societies.

So far, several authors have classified their scientific contributions as ethnoepidemiological, in different research areas and topics.[39,40,41,42] Chronic disorders such as diabetes have been also a target for self-designated ethnoepidemiological studies, particularly regarding autochthonous populations.[43,44] However, the field of research that has used the terms ethnoepidemiology and ethnoepidemiological most frequently is drug-related behavior, although with varied consistency and rigor.[38,45,46,47,48,49,50,51,52,53] Interestingly enough, one of the sources of the methodological breakthrough of this research field was the conception of participatory action-research developed by Latin America critical thinker Orlando Fals-Borda.[54] Unfortunately, in this area, the term "ethnoepidemiological studies" has often been used in mere opposition to "sero-epidemiological studies," as in a recent observational micro-cohort of HIV-positive drug users.[55]

In Brazil, there have been two self-designated "ethnoepidemiologic studies" in the state of Minas Gerais.[56,57] Several studies

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using a methodology described as ethnoepidemiological were conducted with a birth-cohort from Pelotas, Rio Grande do Sul.[58,59,60] Other self-designated "ethnoepidemiological studies" have been reported in different sites and populations, about several topics, and with a variety of methodologies, mainly in Salvador, Bahia.[61,62] Examples of prevalence studies with Brazilian autochthonous populations that claim to be ethnoepidemiological are Acioli[63] on alcoholism among the Pankararu community, in Pernambuco, and Saavedra and Câmara[64] on malnutrition among the Mbyá-Guarani population of Southern Brazil. As in other contexts, in these cases, the term "ethnoepidemiology" has been employed to name research that, despite its wide diversity of goals and methods, could be classified in the same group simply because they were carried out with ethnic groups or marginal segments of the population.

TYPES OF ETHNOEPIDEMIOLOGY

As a theoretical principle, ethnoepidemiology primarily involves exploring alternatives for transdisciplinary research on social determinants of health, based on variables commonly referred to as cultural-symbolic factors. Nevertheless, the crucial demand upon the ethnoepidemiological strategy has been primarily one of methodological nature. In this spirit, proposals of hybridization, articulation or integration of the apparently divergent (but hopefully complementary) research approaches of anthropology and epidemiology deserve to be named and classified, both semantically and epistemologically. Along these lines, the term "ethnoepidemiology" may have three distinct meanings:

- *Ethnoepidemiology type I*: studies on ethnic and cultural diversity as risk factors, protection factors or prognostic factors for diseases and other health problems, such as studies interested in the occurrence and prevention of disease in groups, populations and cultures.
- *Ethnoepidemiology type II*: studies of social representations, popular semiologies and community explanatory models of distribution and occurrence of diseases, injuries and health events in populations, as well as community-based theories of contagion and causality in human groups.
- *Ethnoepidemiology type III*: studies that take the scientific practice of epidemiology as the object of research, with the application of anthropological concepts and ethnographic methods to environments, daily life and institutional cultures wherein epidemiological knowledge is produced.

In addition to these modalities of ethnoepidemiology, in the review of literature above, one can find several studies that have been self-defined as ethnoepidemiological, but do not fit into any of the above types. In this group, that perhaps could be called pseudo-ethnoepidemiological studies, I include conventional epidemiological research with socio-cultural variables that have been reduced to quantitative exposure factors, and population health research with ethnic groups or isolated peoples and villages.

Ethnoepidemiology type I

The term "ethnoepidemiology type I" refers to a particular modality of health research, equivalent to epidemiological inquiry with an anthropological orientation, focusing on ethnical or socio-cultural heterogeneities as indicators of risk, vulnerability, prognostic or protective factors for illnesses and other health problems. One can find attempts of epidemiologic research of this kind in all areas of inquiry in the health field, particularly studies regarding cardiovascular morbidity of populations submitted to rapid cultural change by the psychosocial epidemiology group of Chapel Hill.[65] Also, it has become a prominent trend in social research related to chronic diseases such as cancer,[66] as well as in acute transmissible diseases such as diarrhea[67] and, more recently, AIDS.[68]

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This modality of ethnoepidemiology is roughly equivalent to Menéndez's[69] proposition of a "sociocultural epidemiology." In general, such a proposal criticizes the biological reductionism and the quantitative risk factor approach of conventional epidemiology, appealing to the theoretical contributions of anthropology to challenge a positivist, reductionist, a-critical and a-historical epidemiology.[70] Recently, Menéndez[71] proposed that the ultimate focus of sociocultural epidemiology is the category of avoidable damage (instead of predictive risk) because it provides a more dynamic, integrative and globalizing dimension of collective health problems. In this proposition, dynamic analytical concepts such as risk, hazard and vulnerability are incorporated as part of the social and cultural dimensions of health.[72]

Let me present two examples of type I ethnoepidemiologic enquiry from my own research experience: a) a multi-site morbidity study of mental health with a highly structured research design; b) a household survey to assess the impact of social inequality and race/ethnicity upon selected common mental disorders and associated comorbidity.

Between 1990 and 1993, I coordinated a multicentric morbidity survey in selected urban areas of Brazil.[24,73] In this study, almost 6,500 adults were screened for the presence of psychopathology and a subsample (n = 836) was invited for a confirmatory psychiatric interview. Examiners and examinees did not have any previous information on scores or on screening status. Diagnostic interviews included basically the application of a Brazilian version of the DSM-III. A more detailed account of the survey methods can be found elsewhere.[73,74] Prevalence estimates were higher than those established by previous investigations with comparable methodology, showing an increment in the prevalence levels of disorders considered as adaptive, reactive or, in another perspective, part of a process of social determination, such as the majority of non-psychotic disorders.[73]

With this dataset, I also conducted a case-control analysis of socio-cultural factors for selected non-psychotic conditions (anxiety disorders, phobias, somatization, and depression).[24] The case-control design is perhaps the most cost-efficient tool for epidemiological hypothesis testing. It compares in retrospective fashion the differential exposure to a putative risk-factor between currently diseased (case) and non-diseased (control) groups.[75] Despite its incapacity to produce measures of disease occurrence (such as incidence or prevalence), the case-control study can estimate the relative risk with reasonable accuracy, that is, it can measure the magnitude of a hypothesized association, as well as to assess its statistical significance.

For the nested case-control study,[24] all subjects positively diagnosed by the second phase interviewers as suffering from non-psychotic disorders, and whose symptoms had begun within the past 12 months, were considered cases. Controls were randomly selected among those who, examined by the diagnostic team, did not fulfill any of the diagnostic criteria and were therefore considered as "disease-free." Independent variables of the study were migratory status, with subjects classified according to their migration status, and position in the formal labor market, which was categorized as displaced (unemployed, under-employed) or placed (salaried, retired, employer). The case-control analysis produced no evidence to support the hypothesis of a direct, positive association between migration experience and the occurrence of any of the non-psychotic disturbances considered. Surprisingly enough, having a regular, stable job in the formal labor market did not seem to effectively protect against suffering such disorders. However, stratified analyses showed a consistent pattern of interaction between labor-related variables and gender, in the following direction: being regularly employed seemed to be somehow a risk factor for men but not for women. Among women, housewife activity was associated with a higher risk for all disorders studied. My conclusion was that a formal service or industrial job appeared as a source of psychological unrest, a potential risk-factor for non-psychotic disorders.

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In the year 2000, I coordinated a household cross-sectional study of minor psychiatric disorders, alcoholism and associated comorbidity in a representative sample of 2,303 residents in Salvador, Bahia.[76,77,78] Our main hypothesis was that gender, social and racial/ethnic inequalities (basically Afro-Brazilian cultural origin) were risk factors for depression, anxiety and substance use/abuse. Individual mental health status was assessed by a shortlist of common mental disorders, as defined in the DSM-IV. Overall 12-month prevalence for anxiety disorders, depressive disorders, and alcohol abuse or dependence was 15%, 12%, and 7%, respectively. The most common comorbidity was depression and anxiety in both men and women. The male-to-female ratio for alcohol consumption-abuse was 6:1.[77] The study also reported findings on comorbidity between psychiatric diagnoses and of those with chronic diseases, using set component analyses, a graphical technique to assess co-occurrence of morbid states in population research.[78]

This survey was the first epidemiological study on social determinants of mental health, carried out in Brazil, that included race/ethnicity and reported interaction analyses (nowadays known as "intersectionality") of social factors, mediated by gender.[76] African ancestry or race/ethnicity was assessed with a combination of self-designation and a system of racial classification. Regarding race/ethnicity, higher prevalence of depression was concentrated in the *moreno* and *mulatto* subgroups. A positive association of anxiety disorders with education and social class was found; however, none was found for alcoholism and ethnicity. Three-way interaction analyses revealed strong gender effect for poor and working-class groups, for all race/ethnicity strata but whites. Poor black women yielded the highest risk of all (up to nine-fold, as compared to white, upper-middle class, college-educated males).

Ethnoepidemiology type II

The label "ethnoepidemiology type II" includes studies on ethno-models of representations and perceptions of the distribution and occurrence of diseases in populations, such as community-based theories of contagion, transmission and collective causality of disease.[26] This notion implies understanding how people create, share, organize and use a common knowledge, a popular semiology and a system of signs and meanings, which are socially and historically constructed as semantic networks to refer to health-disease phenomena. Epidemiologists tend to view such models ethnocentrically as folk taxonomies, social representations or native cultural constructs, designating these efforts of explaining reality as "popular epidemiology"[79] or "lay epidemiology."[80] In opposition, anthropologists typically are more respectful of the popular knowledge as legitimate in itself, such as in Larrea's[81] ethnohistorical exploration of miasmatic models of disease transmission and in Caprara's[82] ethnography of the notions of contagion and healing in the Candomblé of Bahia.

Type II ethnoepidemiology is based on the assumption that the popular knowledge of health-disease issues corresponds to an ethnoscientific object. Therefore, this approach can make a contribution by respecting the ways individuals and the groups to which they belong classify and categorize illnesses, with regard to characteristics, causes, forms and the frequency with which they occur. This implies going beyond conventional epidemiology, limited to the identification of pathologies and diseases, classified and categorized from a scientific point of view, and exceeding an *etic* approach in which the biomedical diagnosis represents a hermetic idiom, alienated from and inaccessible to the people's worldview. This approach in fact highlights ethnoepidemiology as part of a community's understanding of its own health problems and development of preventive actions based on local social and clinical resources, represented by the therapeutic agents and agencies of the professional sector, as well as the *folk* sector, following the distinction originally proposed by Kleinman.[83]

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Canadian anthropologists Gilles Bibeau and Ellen Corin, and other collaborators, have proposed considering the complex of health-related social and cultural processes as a system of signs, meanings and practices (S/smp).[22,84,85,86,87] The S/smp theory is a frame of reference for a community-grounded approach to mental health conditions and social responses. As an object of knowledge, mental health practices can only be understood as densely interwoven with signs and meanings as part of semantic networks. In this approach, behaviors are considered as signifying practices which develop at the interface of structural constraints, symbolic markers, and social processes.[87] Narratives are effect of discursive practices in social life, which may be considered as sensors of the representational matrix that symbolically supports people's behaviors and practices regarding health.

The methodological strategy corresponding to this framework departs from two assumptions. First, at the level of praxis, the expectations, judgments and reactions of people do not respond only to the objective features of signs and symptoms. They are also guided by a larger set of values and norms associated with the local social and political scene, which can vary according to events and circumstances. Secondly, in order to define and recognize cases, community members do not necessarily function by identifying clear-cut categories of thought. Rather, they reason and behave on the basis of perceived prototypes, which together reflect and establish disjunctions and continuities between cases according to a variety of (more or less) precise criteria.

From 1993 to 1999, I participated in a research initiative aimed at applying the S/smp conceptual framework in Bahia, Brazil. The northeastern region of Bahia, previously ethnographed by Kottak,[88] was chosen for the fieldwork in three research sites: the seat of the municipality and commercial entrepôt, two neighboring fishermen villages, and various rural scattered settlements. The first stage of fieldwork was aimed at identifying behaviors people associate with mental health problems, through interviews and participant observation. This was planned to ensure a "semiotic window," allowing development and application of particular context-sensitive research techniques. An extensive survey was conducted with respondents from the main heterogeneous groups in each community, selected using social networks, to allow a more diversified semiotic repertoire and avoiding excessive concentration of interviewees from the same social group. In the third stage of the research, cases identified by key informants were later reconstructed in more intensive interviews providing the core data about signs, meanings and behaviors related to each identified case. Throughout the entire research process, special attention was given to the ethnographical backstage of the fieldwork as well as a thorough appraisal of the social history of each research site.

In the rural field site, the extensive survey included subjects from all origins, particularly in terms of gender and location, but also considering other sources of diversity. In the survey, the "cases" were identified in terms of behaviors described in the prototypes and not on the basis of diagnostic labels. The research protocol did not assume a necessary association between any of these behaviors and certain supposedly negative labels. Sometimes the label of mentally ill was used in the narratives produced by close kin of cases as a means to account for the inappropriateness of the person's behavior. This means that, rather than starting a labeling process, the research may have become an important tool in people's daily quest for elaborating their narratives as true or objective, whenever possible. According to labeling theory,[89,90] once a person is labeled as deviant, a whole series of societal reactions often contribute to the aggravation of the behaviors initially displayed and interpreted as signs of madness. Reassessments of this theory have pointed out positive effects of labeling when psychosocial rehabilitation is available.[91]

Selected results of this ethnoepidemiological study have been reported in different opportunities. The effect of labeling and stigma on the outcome of identified cases in

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the Bahia Study was analyzed elsewhere.[92] Practices and actions in which cases and family members engaged were categorized as community therapeutic management, defined as a set of initiatives of social networks to face relational difficulties and signs of maladjustment resulting from the mental health problem.[93] Strategies of daily care, treatment seeking behavior and efforts toward the subject's social rehabilitation and reintegration were also analyzed,[94] in addition to the profiling of a popular religious healer who was active in the area during the fieldwork.[95] The explanatory models of etiology, transmission and prognosis prevailing in the community were object of a separate analysis.[96]

Ethnoepidemiology type III

To respond to demands for greater reflexivity in epidemiological science and to consider the still incipient applications of ethnographic methods for the study of scientific practice in the epidemiological field, I would like to propose a "type III ethnoepidemiology." This branch of the ethnoepidemiological perspective is aimed at exploring the possibilities, and also limits, of the process of knowledge production itself in the scientific field of epidemiology, particularly evaluating its impact upon the field of collective health. In this perspective, by recognizing that scientific facts are not given, but made as a consequence of social praxis, it is postulated that science constructs, organizes and orders the facts – known reality – out of a disordered chaotic context. However, this ordering can be interpreted considering the resources and information required by the context in which the supply of knowledge and technology arises as well as the social demand for scientific facts that organizes social life. Thus, it must be admitted that science, like any social-historical practice, is also at the mercy of circumstances, histories, subjects and, essentially, power relations.[97]

The use of ethnomethodological approaches for the study of fact-building in scientific research has been steered by the pioneering work of Bruno Latour and Steve Woolgar in *The Laboratory Life: The Social Construction of Scientific Facts*.[98] The basic assumption of this line of research is that, in addition to logico-philosophical foundations, thematic focus and methodological issues, the organized production of scientific knowledge takes place in a complex institutional network operated by concrete historical agents, directly connected to the broader socio-political context.[97] Among the numerous studies on the social organization of sciences, several scholars[98,99,100] have chosen teams and laboratories engaged in health research as their study sites – see Lynch[101] for a comprehensive review and Biagioli[102] for a broad sampler of this type of research. There have been ethnographies of hospital wards,[103] public health projects[104] and clinical trials.[105] However, to my knowledge, approaches of this kind have not been developed for studying the practice of epidemiological research in general. As an exception, I found a few ethnographic studies of epidemiological investigations, all of them conducted in Brazil.[62,106,107]

From 1997 to 2000, an eco-epidemiological evaluation was carried out to assess the health impact of the Bahia Azul Project – an environmental sanitation program in the All the Saints Bay, in Salvador, Bahia.[106,107] In parallel to the household survey, Larrea-Killinger et al.[107] conducted participant observation of day-to-day social and cultural dynamics of 62 families, aiming to inoculate greater ethnographic sensitivity into the epidemiological team. The ethnographic techniques employed were in-depth interviews, life histories, genealogical data, observations on health and sanitation, mapping, filming, photography, and community activities, before and after the installation of the sewage system. The primary research objective was to understand the relationships of communicable diseases with trash disposal, as well as with other environmental factors, to assist the construction of a conceptual model for the interpretation of results. Overtly trying to avoid reduction of sociocultural dimensions (family, gender, hygiene, etc.) to exposure variables, the ethnographers found initial difficulties in

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the conversations around the creation of the data gathering tool, a questionnaire intended to respect local realities and to integrate popular categories. In addition to refining criteria for the choice of interviewees and the selection and training of interviewers, they studied how the anthropological approach helped to improve the data collection and to promote the epidemiologists' participation in local activities, which allowed greater acceptance of the research by the target community. Purposefully, the research report has the suggestive title of *Epidemiologists working together with anthropologists*.[107]

The daily activities of scientific personnel active in different subprograms of the Bahia Azul Project, researchers, technicians, and students, were also object of an ethnographic study by Silva.[106] He noted that field interviewers performed the role of mediators in the process of production of epidemiological registries regarding incidence of diarrhea in toddlers, the first step to transforming them into data. They were responsible for the generation, maintenance and circulation of data, to the extent that they could establish a trustful dialogue within their own spontaneous "cohort," which made communication possible between staff and residents of the neighborhoods researched. In the daily operation of the project, informal strategies were mobilized to overcome moments of resistance or disinterest on the part of the interviewees, in order to guarantee the follow-up of cases.[106] In these moments, observing the family dynamics, interviewers departed from the research protocol, creating a relationship of greater intimacy, which allowed a production of narratives that, paradoxically, made it possible to comply with the objectives of the epidemiological research. Therefore, in the dynamics of epidemiological fieldwork, taking into account the interferences or noise caused by translations and interpretations among researchers and informants, as well as the resistance of informants, there is room for renegotiation and repositioning. Such strategies and adjustments are performed to achieve practical effects for the production and circulation of scientific data.[106]

Later on, Silva joined a research team engaged in observing the experience of implementation and development of an ethnoepidemiological study on living conditions and ways of life among transvestites and transsexual women, while investigating determinant factors for HIV infection, syphilis, and hepatitis.[62] Ethnoepidemiological data were generated by a "formative survey" for mapping the population, which was crucial for orienting the epidemiological survey. The authors report that the production of ethnoepidemiological data posed a daily challenge for the researchers, provoking a series of reflections on the limits of epidemiological concepts and categories for translating the diversity of study participants' practices and experiences.

Actually, in this continuous and heterogeneous process of mediation, with articulated participation of human subjects and research devices, the most immediate and individualized moments of scientific production were in some way deviating from the production of formal and ordered narratives. In the course of this displacement, a seemingly confused, scattered and distant world was transcribed into forms, spreadsheets, tables and graphs. Systematically organized numbers (sample size, observations, missing data, frequency distributions), mediated by human agents producers of discourses, arrived at the reports translated by signs of reliability, generality, significance, in the indication and promise of new information, analytical perspectives and unfolding of future works. This is what Silva[106] calls the mediation process, which is quite similar to what has been reported in ethnographies of laboratories and experimental settings.[98,100]

An ethnographic approach of epidemiological research can recover in scientific practice a sense of intercommunication between distinct scientific subcultures, without forgetting their particularities as disciplines. The role of ethnography in scientific practice therefore implies translations and transcriptions that were not originally intended in the early history of applied anthropology. The "ethnomethodological listening" of the mediators of scientific practice allows for

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the identification of elements of social praxis that make up the multiple research strategies, practices and knowledge (scientific and non-scientific) that coexist in the daily life of epidemiological research. Separated by historical processes, these fields of human knowledge now may seek a new movement of convergence.

Especially in mental health research, epidemiologic data are usually "surveyed" by means of linguistic devices such as questionnaires and symptom inventories. In this area of inquiry, not much attention has been paid to social and cultural meanings attached to the information generated by population data collections. Nevertheless, we need to bring to the context of analysis and discussion, cases, narratives and meanings of health-disease-care that will become data important for understanding the modes of life of individuals and groups. In this process, limited by the conditions of actual scientific production in concrete research settings, science in general is lost in particularity, materiality and multiplicity, which, especially in epidemiological research, will be recovered in calculation, standardization and circulation of information. Ethnographic accounts of epidemiological practice of this kind is what I propose to classify as type III ethnoepidemiology.

Type III ethnoepidemiology, in this peculiar sense of an ethnography of epidemiological practice, brings about important reflections on the real possibilities of exchange amongst different epistemic languages or cultures. In this sense, when actors, interests, conflicts, and languages that circulate in the daily routine of epidemiological production are highlighted, we have a chance to start problematizing the existence of precise limits or rigid borders that separate and organize knowledge and practices (scientific and non-scientific) within and between disciplines.[97] That is, in interactions among researchers, professionals, and populations, there are different habits and cultural trajectories, resistance and reactions stemming from communities and informants, material obstacles that limit responses, strategies used in their production, interests in data, personal skills, etc. It is important to highlight that, even for the production of biomedical data, the ways and procedures of collecting biological samples, performing clinical examinations, applying questionnaires and inventories, processing narratives and observations occur in specific contexts. For Morgan-Trimmer and Wood,[105] who advocate the use of ethnographic methods for process evaluation of randomized controlled trials, reflexivity helps to manage "the tension between acknowledging the interpretation that goes on in producing data and in trying to present a valid account of how an intervention works in a given context."

ETHNOEPIDEMIOLOGY IN MENTAL HEALTH

In the field of mental health, dealing with sociocultural and psychological processes, a pure notion of objectivity is not applicable because signs of abnormal behavior and symptoms of psychic suffering are not easily distinguishable from normal behavior variation and, for that reason, are not direct correlates of underlying disease processes. These signs are personal and collective metaphors as well, that often condense distinct networks of meaning with shared cultural significance. Indeed, the experiential, subjective accounts of the researcher as an epistemic builder are relevant to face some of the problems of fieldwork or research areas, in order to help to balance out the notion of objective reality and the social construction of knowledge.

Particularly in mental health research, prototype descriptions, community taxonomies, glossaries, narratives, documents, inscriptions, fieldwork and other ethnographical objects, models and methods should be taken into account in order to pursue an effective conceptual integration of internal and external approaches. In this regard, theoretically speaking, distinctions between type I and type II approaches may be interpreted through less absolute and more relativistic lines. For such an "attenuated relativistic" perspective – or "transdisciplinary critical

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discourse," to use Lynch's[101] term – the practice of scientific inquiry is what allows the decontextualized relationships of science to its object to be overcome, opening the opportunity for type III ethnoepidemiological enquiry.

Ethnoepidemiological research undoubtedly must go beyond the study of ethnic differences and social inequities in health, as did cultural epidemiology in the past and social epidemiology today. It should include in its problematics the social praxis and the context of field research, as well as the living conditions of the studied populations and the dynamics of daily life. One of the unintended effects of any pragmatic approach might be a "textualization" of life processes that serve all too well the producers of knowledge, even if supposedly for the good or emancipation of the people. Of course, there is a large ground for criticism here. To make ethnoepidemiology an effective tool for transdisciplinarity, ethical and political components must be brought into reflexivity. Therefore, we need to understand better and in greater depth the conditions of production, validation, and circulation of epidemiological knowledge. Since Latour and colleagues, we know that science is a social practice performed in well-bounded and fixed locations (laboratories), in unbounded but fixed locations (observatories), and in unbounded and non-fixed locations (fields, sites, etc.).[97,98,99,100,101] Despite obvious differences in the strategies and techniques involved, any scientific location is socially constructed by the daily practice of research.

My experience as a researcher in the Bahian context may guide some reflections regarding the possibilities of integration of anthropological theory into epidemiologically oriented mental health research. The lesson to be learned from these studies is that the first step towards the theoretical construction of ethnoepidemiology is to broaden the scope of psychiatric epidemiology as a research subfield. In this regard, mental health research should imply studying not only mental health problems and related conditions but also representations of mental health in the spheres of life, labor and leisure. This implies attributing meaning and sense to conventional epidemiological categories such as risk, risk groups, risk factors, and their effects, as well as better contextualization of historical-cultural models of mental health and its determinants.

Therefore, any theoretical interpretation of the type I ethnoepidemiological studies presented above should consider the fundamental issue of meaning. Conventional epidemiological reasoning based on the interplay of risk factors, confounding variables, and interaction terms may be useless in this case. For instance, how do we explain that, in these studies,[24,76] employment was protective only for women but not for men? To make sense of such findings, one needs to admit that the same exposure factor (such as a regular job, or the lack of it) may have distinct meanings for different genders, in different cultural contexts, for different ethnic groups, at different times. In sum, the social and personal meaning of being unemployed or underemployed varied with the inequalities of ethnicity-gender-generation and diversity of the sociocultural context. Of course, despite providing powerful evidence of the limits of the risk factor approach for mental health research, the scope of these studies was too narrow to be exemplary of the complexity implied in the connection human diversity - social inequality - mental health.

Regarding type II ethnoepidemiological approaches, let me consider some implications of exploring mental health problems using multi-site, team-based, transdisciplinary strategies, in order to articulate research findings into potentially new and broader conceptual models. In order to advance in the understanding of such relevant subject matter, comprehensive explanatory frameworks may be grounded in the analysis of living conditions and social reproduction processes of daily life. A theoretical model on this scale must incorporate the key elements of former theories into a more advanced explanatory structure, departing from the historical contribution of classical social epidemiology, as revised by Berkman and Kawachi[1] and Trostle.[9] Such a theory should question symbolic systems and analyze differences in the mental health situations of ethnic and gender groups, instances of social reproduction, family social

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networks and, in parallel, relationships among social classes, in everyday living.

In the US, several social-history and political economy issues related to this complex conceptual node have been developed by critical perspectives in the fields of medical anthropology[108] and social epidemiology.[2] In this approach, the dynamic of social classes and labor process themselves are taken as direct determinants of the living conditions and, indirectly, as factors that condition lifestyles. In parallel, in the process of construction of social group identity, human subjects are placed in the symbolic structure according to their cultural, ethnic, gender and generational position.[86]

Argentine scholars Mario Testa[109] and Juan Samaja[110,111] have supported a new breed of social epidemiology in Latin America, capable of contending with the relationships between mode of life and health in the spheres of social practices and social reproduction. Samaja[110] considers that "it is not the rates that tell us about health and disease in the population, but their distribution in the '*discursiveness of everyday life*' of that population." This is so because "the very source of meaning [...] derives from the dynamism of the structures in the *world of life*" (italics added, own translation).[110] Hence, to study the differential distribution of risks in populations, epidemiological research must invest in the production of meaning, including everyday life processes capable of accounting for the production of meaning or the failure to produce it. The overarching problem for this type of research is how to address the conceptual categories of living conditions, daily life, worldview, and mode of life, theoretically and methodologically.

In theoretical terms, the question of living conditions and their relationships with social reproduction, and health in general, has been developed by Samaja.[111] The social reproduction cycle and the forms of production of social life – concrete expressions of the mode of life – shape the ways by which individuals perceive and express situations of ill-being and well-being, as behavioral and bodily signs are transformed into meaningful symptoms of affliction. As daily participants in semantic networks and in power relations, individuals build their worldview through social practices that shape a given mode of life. In turn, this mode of life determines certain living conditions (guaranteed directly by income or indirectly by social policies) and lifestyles, which comprise a *corpus* of perceptions and practices. The idea of mode of life includes the dynamics of social classes and the social relations of production, always in light of the symbolic aspects of daily life in society. The prevailing mode of life in society drives a complex dynamic articulated with the systems of signs, meanings and practices, as seen above. Such symbolic systems are closely related to the social facts of life, health, and suffering, that is, the practices of daily life.[109] Despite recent headway, advances must be made in the theory of "mode of life," living conditions and lifestyles, in order for this theory to be sufficiently prepared to approach determinants-processes-effects on individual and collective mental health-disease-care processes from a type II ethnoepidemiological standpoint.

In methodological terms, medical anthropology – as well as other social sciences applied to health – faces the dilemma of taking into account local and global processes related to health issues in contemporary societies. Because of their small-scale scope, both the conventional ethnographical method and the clinical approach seem to be limited in coverage, mostly adequate for the study of local processes within the limits of well-bounded human groups[112] or the personal experience of individual cases.[113] Alternatively, the methodological simplification of "rapid assessment," so popular in the field of medical anthropology in the eighties, showed some potential for the study of extensive, global processes. Unfortunately, by reducing complex dimensions such as meanings and social practices to estimators and parameters, these approaches ended up being a sort of "epidemiologization" of ethnography. Such a trend, which was predicted by Eduardo Menéndez,[69] suggested that there could be a flux of interdisciplinary influence of medical thought on anthropology,

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in this particular case as an imposition of epidemiological reasoning upon medical anthropological research.

In the desired exchange between anthropology and epidemiology that inspired ethnoepidemiology as a transdisciplinary formation, there are some solutions, of course, that do not entirely fulfill this demand, but at least allow reasonable advancement towards a feasible methodological integration. In advance, symbolic and praxiological knowledge is necessary for a more concrete treatment of these issues and for reaching people who are excluded or made invisible through societal structures. This implies pursuing a special scientific program to meet these demands, capable of addressing complex research issues with equally complex strategies, combining data production techniques and analytical resources at different epistemological levels.

In the mental health field, ethnoepidemiology may foster anti-reductionist frameworks with a transdisciplinary attitude that research health-disease-care as complex objects. This is what Agar[29] postulated as a baseline for epistemological, theoretical and methodological reconstruction towards a new epidemiology, warning us that overcoming old paradigms would not be an easy task. In Martinique, Massé[28] recognized that a socio-psychanalytical approach to distress would be too limited and short-sighted to consider "the long-term memory of colonized populations" and, employing Fanonian thought, has called for a "critical ethnoepidemiology." In this regard, colonialism, slavery, oppression and their "pathogenic psychic and identity avatars" should not be taken as emblematic causes cut off from social and cultural realities, moving beyond "the incantatory denunciation of the neocolonial political and economic structural framework that enshrines the relationships of dependency and domination."[28]

METHODOLOGICAL INTEGRATION

Regarding both type I and type II ethnoepidemiology, at a fundamental level we have to pursue a close methodological integration. On the one hand, this implies expanding the idea of ethnography to reach out a larger number of individuals, either as respondents or as cases, through the adoption of renovated notions of validity, sampling, and representativeness. On the other hand, for epidemiological research, this means using in-depth ethnographic techniques as a way to incorporate qualitative, subjective and contextual diversity as part of a population-based perspective.[27] This point will be very important for evaluating new methodological possibilities opened by ethnoepidemiological strategies for knowledge production.

The existing assumption of methodological polarities such as a generality-depth continuum or a quantity-quality contradiction is one of the fundamental ideas that make it possible for ethnoepidemiology to arise as a scientific endeavor. Given that ideally both poles should be present in given research at the same time, the challenge, in the first polarity mentioned, is to discover different and appropriate ways to deconstruct (and then recover) these dialectics as contradictions.[25] In order to do so, it is necessary to combine the properties of different research strategies. As for the second polarity mentioned, there is no continuum nor contradiction between quantity and quality,[25] nor is there any sort of gradient. Actually, these are arrangements designed to more efficiently produce knowledge about concrete problems in nature, culture, society, and history.

As we know, epid-style population research has been grounded on empiricism, exposure-risk-outcome models and evidence defined by "*etic*" objectivity, whereas ethnography is framed by phenomenology, embeddedness, and understanding "*emic*" subjectivity. As I commented elsewhere[25]:

> the intensity, depth, and openness of the ethnographic style of research recommend it as the most effective way to address unexplored issues and to model new scientific objects (or to explore old issues through innovative, original ways) in the field of collective health. Moreover,

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> ethnoepidemiology is a unique possibility to apprehend objects of knowledge that are insubordinate to conventional inductive reasoning characteristic of modern epidemiology.

There have been several, and creative, forms of integration of so-called qualitative research strategies and techniques into an ethnoepidemiological methodology. The integration of the generalizing potential of one type of study with the capacity of another study to go deeper can be achieved in several ways, among which the following possibilities stand out:

1. In-depth approaches can provide information crucial for the validation of research tools typical of epidemiological studies.
2. Data produced through anthropological techniques can be a rich source of knowledge for the process of theoretical modeling in epidemiological research.
3. Ethnographical techniques can contribute to the formulation of work hypotheses, as a result of the examination of "typical" case-histories that encompass basic themes of the research questions under discussion.
4. Approaches of this type can eventually help the interpretation of epidemiological results, by illustrating more complex associations through case studies or ethnographic findings.
5. In a process of deep methodological integration, less structured techniques can help compose mixed or hybrid strategies of epidemiological investigation, in order to overcome the distance from reality inherent to more structured designs.

Methodologically speaking, in principle, there is a fundamental problem in all these options: the way scientific methodology, in the field of health, has dealt with so-called "independent" variables. The superficiality in dealing with independent variables that occurs in epidemiological research (a problem little recognized, but very frequent in this field of investigation) can be attenuated by developing data-collection instruments using, for example, in-depth interviews to generate validity and reliability criteria. This set of procedures is already routine in epidemiological investigation only in relation to the outcome dependent variable. Epidemiological research of health problems related to some of the objects of study of social anthropology (such as family problems, ethnic differences, social inequality, etc.) has only to gain from the development of simplified instruments based on reliable and conceptually valid standards. Roughly speaking, the social sciences may have, for the independent variables of epidemiology, the same role that the so-called basic health sciences would play in relation to their dependent variables.[25]

Let me use a concrete example to illustrate the case of radical or deep methodological integration, related to option 5 above. In a structured research design such as the case-control study, we could combine an unstructured clinical technique for identification of cases of mental illness with an unstructured socio-historical technique (such as family oral history) for the definition of exposure, in relation to the independent variable social class. In this example, although using unstructured case identification techniques, the structured research strategy of a case-control design remains. It could even be an experimental design if we so desired or if we had the resources to do so, or if such an approach would be worthwhile in order to answer some interesting research question. Therefore, well-conducted studies could employ several less-structured techniques and, considering the overall study architecture, the research strategy would nevertheless remain rigorously structured. Furthermore, hybrid designs allow for the combination of a narrative appraisal and generalization analyses within more or less open research strategies, and vice versa. Type I ethnoepidemiology studies, such as a "nested" case-control study in a cross-sectional strategy, or a cohort study in parallel to a specific subsample case study, or a survey with multiple stages of case identification, may be examples of this kind, as reviewed above.

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Following the epistemological premises set up by Samaja,[114] a preliminary step to assess the validity of research designs related to ethnoepidemiological science is to consider a distinction between research *strategy* and research *technique*, pointing out the utility of each to critically assess the adequacy of methodology for the research goals. The research *strategy* consists of the global plan of a given investigation, made up of the ensemble and the organized sequence of definitions, preparation, steps, procedures, and application of techniques. It corresponds to the overall architecture of a given scientific study. A research *technique* is equivalent to the tactics (or field movements) of the research process, regarding the procedures for data production (often called "data collection"). Such a distinction does not seem to be a problem in relation to conventional quantitative research, but much confusion can arise regarding community and group studies, like identifying "survey" as a technique or considering participant-observation or in-depth interviewing as a research strategy. Case study, group-study, ethnography, survey, follow-up, clinical trials, experimental studies, are all research strategies. Interviewing, observations, participant-observation, questionnaire application, record collection, archival document compilation, clinical examination, physical measurements, lab tests, are all research techniques.

Interesting possibilities of insemination of techniques qualified as qualitative into extensive research strategies are at hand, through processes that we might call methodological hybridization. Let me take this opportunity to propose a typology of methodological hybrids in relation to research strategy, as follows:

- *Combination*: Research design or strategy that uses, or articulates in the logistic plan, techniques from different methodological extractions. As soon as a fully structured research design is assembled, it can employ unstructured techniques for data production.
- *Compound*: Ethnoepidemiological field studies planned as a composition of different research strategies can form a methodological compound. Compounds are mixed strategies with two or more steps or sections in the same study.
- *Complex*: Less often, observational studies on health can take the form of methodological complexes, when the research strategies, techniques, tools, and procedures organically form an integrated design.

The elements of a combination or of a compound can always be separated. If we have a first step and a second or a third step, and each of them has distinct characteristics, we sometimes can conduct two sub-studies in sequence or in parallel. The methodological challenge will be to get them to dialogue in order to articulate, logically and analytically, the mosaic of knowledge about the problem. In turn, complexes are true methodological hybrids, in which we cannot separate the elements that, within the study, have the highest degree of structuring from those that have lower degrees of structuring. The methodological complex ends up being unique, integral and inseparable, as it is an unassembled complex of design, strategy, instruments, and techniques. Then, the field team is more concerned with the feasibility of operating a complex research strategy composed of a wide variety of field tactics.

Particularly regarding mental health research, in order to overcome the qualitative-quantitative divide,[8,27,115] type I ethnoepidemiological studies may well use hybrid research strategies. Let me explain this point using as examples the studies discussed above. A case-control design – a classic of risk-factor epidemiology – can be combined with less structured techniques for data production to study the deleterious effects of inequity on mental health. For the independent variables, we can approach social class origin and situation of people through their family history, based on typologies, indicators or forms of classification of subjects. For the outcome variable, we may use a flexible definition of clinical diagnosis, employing an unstructured clinical judgment as a case-identification technique.

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Nevertheless, methodologically speaking, ethnoepidemiology does not mean simply a superimposition of methods originated from supposedly dissonant scientific fields. A mere combination of research techniques may be of limited value for the desired conceptual and methodological hybridization. In this perspective, research "combos," even the most attractive, may be useful only if we pursue an effective theoretical and methodological integration of different fields of research. Only then can such innovations become instances of cross-fertilization that will indeed enhance the internal validity of data production processes, in order to consider both depth and difference, distance and diversity in the same research action. In this process, we can count on attributing new value to research structures that until now have lacked prestige, such as ethnographic strategies, case studies, and ecological designs.

However, we can question this approach by arguing that research about a given health problem cannot be only based on a structured protocol for selection of subjects because this approach might not be able to answer the research question and thus would not be useful to solve a given scientific problem. Again Menéndez[71] may help us, now with his notion of *significant social actors,* persons who are priority sources of information for the importance they have with regard to the health issue under scrutiny, key for the selection criteria to be applied "to correctly observe the subjects that have to do with the problem under study, and not just any subject interviewed" after a random sampling selection. In this case, it would be better to identify special types or categories in a population and build a sample to include these subgroups. This is called a sample of chosen types. It is a sampling strategy that provoked much controversy at the beginning of the 20th century, in the early days of modern statistics.[116] In fact, nonparametric ways of sample construction gave way to parametric forms, based on assumptions of stochasticity and homogeneity. When a group of subjects is drawn to compose a simple random sample, all members of the group are homogeneous with regard to the chance to compose the sample.

The general problem of transdisciplinary exchanges amongst sciences is also a matter of language. This is a key epistemological issue, as discussed by Elliott and Thomas,[117] who suggested that the interaction of researchers from the fields of biomedical and epidemiological research with colleagues from the social sciences has been "lost in translation." These authors contend that, in spite of decades of discussions about the social determination of health-disease-care, medical doctors and epidemiologists still do not consider their knowledge -producing practice in broader contexts of structural, societal, institutional, and pedagogical practices. On the other hand, ethnographers have been amazed by the paucity of interdisciplinary communicability they have observed and analyzed in different research contexts, such as medical wards, clinical trials, biomed labs or development projects. Elliott and Thomas[117] also comment that, mainly due to different levels of linguistic incommensurability, both disciplinary fields fall short and have a long way to go before celebrating integrative scientific coworking, when "jargon gives way to a shared language." Given the limited possibility of developing a common idiom, it is urgent and necessary to analyze the nature of the misunderstandings and contradictions, which often prevents fruitful collaborative work.[118,119,120,121,122,123] Instead, as I argue elsewhere,[124] one direct, effective solution could be the training of hybrid transdisciplinary agents, fluent in both the languages of anthropology and epidemiology.

FINAL COMMENTS

The main conclusion of this paper is that to build up the new interdisciplinary field of ethnoepidemiology we have to practice more and more transdisciplinarity, theoretical integration, methodological exchange, and reflexivity.[118] As we have seen, all branches of ethnoepidemiology are based on the

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recognition that health-illness-care phenomena constitute socio-historical processes and must be conceived as complex, reflective and contingent objects of knowledge. However, it is not enough to prescribe ethnographic methods to address complexity in health research.[119] It is necessary to effectively deal with the uncertainties and ambiguities of ethnoepidemiological phenomena in the majority of their manifestations, considering the historical-cultural nature of their correlates and derivations.[25]

In the studies reported in this paper, having a numerous, diversified research team posed initially the serious logistic problem of field coordination and communication.[120,121] Such a difficulty can be partially bridged by frequent meetings and by the daily exchange of information among the teams; however, this seems a small problem as compared to the analysis of the material produced throughout the research. In a complex research strategy, who eventually will make sense out of such a huge mass of data? How can researchers who are representative of different "scientific cultures" communicate among them in order to come out with a somewhat unified theorizing effort? One provisional solution may be what has been called "triangulation"[8,122] in which researchers from diverse disciplinary backgrounds perform a simultaneous independent analysis of a given topic or situation. According to Janesick,[123] another approach to triangulation is to build up expertise in combining different methodologies, as well as enriched analytical frameworks. Through a process that I defined elsewhere as "pragmatic transdisciplinarity,"[124] social health researchers are then urged to become "boundary crossers,"[8] "hybrid" or "amphibious" performers, both in methodological and in conceptual terms, cultivating in themselves the plural nature of their object of knowledge. Only then the discourse of signs, meanings, and practices that construes mental health as a scientific problem may permeate through the different disciplinary fields that eventually compose its complex totality. One potential way to deal with these dilemmas is the exercise of reflexivity, as in the proposal of a type III ethnoepidemiology.

The epistemological basis of ethnoepidemiology as a new interdisciplinary field *in potentia* is indeed a quite practical question, despite being mistakenly considered by a few as an esoteric, abstract discussion. Eventually, ethnoepidemiology may contribute to a more respectful exchange with popular knowledge about health, disease, suffering, healing, and cure. For the implementation of mental health policies that are actually effective and efficient, it would be wise to use the best of the two scientific domains: the depth of anthropological approaches (prone to methodological diversity) as well as the broadness and distance of the epidemiological vantage point (respectful of individual differences). The idea of ethnoepidemiology is aimed towards rescuing not only the applied and cognitive objectives of the scientific enterprise but also its social and political goals of striving for equity, freedom and quality of life for humankind, resulting in more effective and culturally sensitive health policies and planning not primarily in the so-called global North, but in diverse and deeply unequal societies such as those of contemporary Latin America.

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