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# Structural competency in epidemiological research: What's feasible, what's tricky, and the benefits of a 'structural turn'

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**ABSTRACT**

Structural competency is an emerging paradigm for both the training of health professionals and the creation of a common language addressing structural processes that determine health disparities. However, its application to the field of epidemiological design and research is absent. Based on our previous proposal of a tool for Structural and Intercultural Competency in Epidemiological Studies, the SICES guidelines, in this article we analyse the possibilities and challenges of a 'structural turn' in epidemiology. In terms of possibilities, we recognise the value of paradigms from multiple parts of the world, such as social and sociocultural epidemiology, critical epidemiology and collective health, in facilitating a structural turn in epidemiological studies. In this framework, structural competency would provide a new angle by focusing not only on what to research (e.g. inequalities), but with what skills and attitudes (e.g. cultural and epistemic humility). The challenges lie in the inclusion of reflexivity and a comprehensive view in the context of a positivist epidemiology oriented towards obtaining evidence from a biomedical, but not social, perspective.

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> The epidemiologist views the ethnographer's task as "impressionistic", "anecdotal", "uncontrolled", "messy", "soft", "unrigorous", "unscientific"; the ethnographer, in near perfect counterpoint, regards the epidemiologist's work as "superficial", "biased", "pseudoscientific", "invalid", "unscholarly". (Kleinman & Good, 1985, p. 10)

## Introduction

If we are to believe Kleinman and Good, and there is significant reason to do so, epidemiological and ethnographic points of view face a severe problem in cooperating with each other, likely because both perspectives project onto their counterpart their own canon and shortcomings. We can say that this problem reflects, once again, the old epistemological controversy between 'causal explanation' (*Erklärung*) and 'comprehension and interpretive understanding' (*Verstehen*) revealed in the etymological meanings of these words. From the Latin *explanare*, the former connotes making clear, making plain, and unfolding; while the latter, from the Latin *comprehendere*, suggests taking together, uniting, capturing, understanding, and embracing (Dilthey, 1989; Habermas,

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2015; Ricoeur, 2013). These two points of view, two epistemes, at the same time, leave room for incompatibility and complementarity. On the one side is a biomedical and positivist perspective often in tune with the Baconian ideal of scientific language as a mirror of nature (Good, 1993), looking sideways at other ways of investigating reality that do not offer evidence in line with its own canon of scientific explanation. On the other side is a perspective that refrains from analysing reality – especially social reality (Geertz, 1973; Weber, 2019) – through its fragmentation into variables since it understands that this can only be a limiting artefact of any attempt at comprehension.

Fortunately, the scenario described by Kleinman and Good more than thirty-five years ago serves to address the more polarised positions rather than the wide diversity of proposals from both disciplines. Even so, we include it here as a constructive provocation, as we consider that a frank debate on possible divergences can give rise to proposals for more robust points of convergence and complementarity. In fact, the purpose of this article is to reflect on the possibilities and challenges of applying structural competency to epidemiological design and research; an endeavour in which we consider that the ethnographic approach can usefully contribute both to analyse comprehensively the broader social structures that shape morbidity, mortality and health care, and to enhance the reflexivity of research teams. These are two competencies that can improve the quality and impact of epidemiological inquiry. For example, ethnographic reflexivity can provide new clues for reducing bias and interpreting findings, encourage the engagement of the populations under study to research results and their dissemination, and strengthen empowerment among the most 'vulnerabilised' groups (i.e. those groups that are made vulnerable by unequal social, ideological, political and economic structures). Of course, we do not mean to suggest that the ethnographic approach is the only one that can provide these competencies. Options such as community-based participatory research (CBPR) (Brush et al., 2020; Wallerstein et al., 2017) and participatory action research (PAR) (Baum et al., 2006) methodologies, among others, can offer them from other angles. Rather, we limit ourselves to the ethnographic approach because it is from here that we hope to contribute to the development of these competencies in epidemiology.

This paper builds on a previous publication (Martínez-Hernáez et al., 2021) in which, together with a group of epidemiological colleagues within the European project SYNCHROS (SYNergies for Cohorts in Health: integrating the ROle of all Stakeholders), we developed the Structural and Intercultural Competency in Epidemiological Studies (SICES) guidelines. In the following sections, and based on this experience, we offer a set of reflections on what we see as feasible to implement and what is tricky at the intersection between structural competency and epidemiological research. But first we must contextualise our definition of structural competency and describe what the SICES guidelines are.

## Diverse paradigms, overlapping labels

Any scrutiny of the epidemiological scenario shows paradigms close to the social science perspective, either by analysing the social determinants and vulnerabilities of health (Marmot, 2005) (which we can also call determinations and vulnerabilisations) or by including critical approaches and social participation of the communities under study. This is the case of social epidemiology (Berkman et al., 2014) and sociocultural epidemiology (Hersch-Martínez, 2013), participatory epidemiology (Bach et al., 2017) and critical epidemiology (Breilh, 2012; Breilh & Krieger, 2021; Krieger, 2021; Navarro, 1986; Prussing, 2018, 2020), in which we could even include the proposal of an 'epidemiology without numbers' (Almeida Filho, 1989) that pursues the collective production of health.

In parallel, the ethnographic view and its sisters (i.e. qualitative research, narrative analysis) already have a long history of analysing the social, cultural, and political-economic basis of health, illness and health care (Menéndez, 1998). This analysis has usually taken place within the framework of medical anthropology and medical sociology, but also in other fields more specific to clinical practice that have proved capable of integrating ethnographic or para-ethnographic perspectives. This is the case of the narrative-based medicine approach, which attempts to

counteract the excesses of a biomedical model centred heavily on the biological bases of disease and decentred from the patient's voice (Greenhalgh, 1999). Another case is the cultural competency paradigm, with its insistence on enhancing the skills of professionals to interact effectively with patients from other cultural contexts (Betancourt, 2006; Fleckman et al., 2015; Martinez et al., 2004).

In general terms, the cultural competency paradigm is a well-intentioned project. At its core is the need to adapt health services, policies, and clinical practice to a culturally diverse and at the same time globalised world in which different knowledge, experiences, values and lifestyles come into play, thus challenging a biomedical healthcare model unconcerned with the cultural and social aspects of disease. After all, clinical practice requires both the capacity for natural explanation and a critical hermeneutics of suffering (Martínez-Hernáez, 2000; Menéndez, 1998). Cultural competency could respond to the latter requirement, but this paradigm shows several shortcomings already highlighted in a wide literature (Fleckman et al., 2015; Kirmayer, 2012; Tervalon & Murray-Garcia, 1998). In a previous publication (Martínez-Hernáez, 2006), we noted some of these shortcomings as: (1) treatment of cultural and social data as biological data, (2) tendency to reify users' cultural traits, (3) creation of cultural and/or ethnic stereotypes, (4) recognition of 'culture' only among users from ethnic minorities, (5) scant attention paid to material and structural vulnerabilities, and (6) excessive logging procedures, which prevent assessment and treatment adapted to the specificity of each case, creating the 'I already know what you are like' effect, among others. Indeed, these kinds of criticisms have overlapped across different knowledge traditions, although under different labels (Fernández Liria & Pérez Sales, 2011).

In some European countries, such as Spain and Italy, these critiques developed early on within medical anthropology as well as under the umbrella of the 'interculturality in health' movement. Driven mainly by health professionals in the public system alongside NGOs and advocacy groups, the latter has addressed the health and health care problems that migrants, refugees and asylum seekers face as a result of structural social exclusion, poverty and racism (Leal Rubio, 2013; Sayed-Ahmad et al., 2008; Seppilli, 2000). The aims of this movement are both to give migrants the same universal health coverage as the rest of the general population and to promote health services that challenge rather than reproduce structures of inequality and racism (Fernández Liria & Pérez Sales, 2011; Sayed-Ahmad et al., 2008). In this context, it is important to say that the label 'intercultural' does not necessarily have the same meaning as in other regions (e.g. Latin America), where it has been used with uneven success to recognise and include indigenous health practices in public health systems (Langdon & Diehl, 2020; Menéndez, 2017; Piñones Rivera et al., 2019). Rather, in the Spanish and Italian context, 'intercultural' refers to the awareness of relations of hegemony/subalternity between expert and lay systems, as well as the epistemic ability to position oneself and oscillate 'between' (*inter*) a cultural world already known and a cultural world yet to be known. In this approach there is much inspiration from the Gramscian idea – actively promoted by the *Centro Sperimentale per L'Educazione Sanitaria* of the University of Perugia since the 1950s (Seppilli, 1959) – of encouraging professionals to consider their position of hegemony with respect to lay sectors and to promote bottom-up initiatives in the health field.

In the United States, structural competency is undoubtedly one of the main paradigms for overcoming the cultural competency model. Defined as a framework for addressing health-related social justice issues that emphasises diagnostic recognition of economic and political conditions producing and racialising inequalities in health (Bourgois et al., 2017; Harvey et al., 2022; Metzl & Hansen, 2014; Metzl & Petty, 2017; Neff et al., 2020), it is an emerging paradigm for both the training of health professionals and the creation of a common language addressing structural processes that determine health inequalities as well as the naturalisation of these inequalities.

Here we do not envision structural competency as an *ex novo* creation, but as a paradigm that condenses pre-existing elements in different disciplinary and national traditions (i.e. social medicine, social and sociocultural epidemiology, critical epidemiology, collective health, interculturality in health, global health), critical theories – i.e. anti-racist, Marxist and Gramscian, feminist, radical

justice theories, and decolonising theories developed in the global health movement – as well as many postulates from medical anthropology (especially critical medical anthropology), including the ethnographic perspective. Of course, structural competency cannot be reduced to any of these sources, but it has many things in common with them, especially with the ethnographic view and critical medical anthropology (Baer et al., 2013; Farmer, 2001; Seppilli & Otegui, 2005; Singer & Baer, 2018). Some of these shared aims are the holistic analysis that allows a kind of 'macroscope' to be applied to phenomena (comprehension), the relational approach, the importance of focusing on the social worlds of suffering, the emphasis on social inequalities and structural vulnerabilities in health, the unravelling of naturalisation (and the concealment) of inequities, and the recognition that the creation of knowledge is an interdependent and collaborative activity between expert and lay knowledge. This last point connects with the importance of epistemic and cultural humility (Foronda et al., 2016; Ho, 2011; Tervalon & Murray-Garcia, 1998; Valles, 2021; Waters & Asbill, 2013), a necessary first step both for ethnographic analysis and structural competency. This set of orientations guided us in the creation of an instrument for enhancing a structural turn in epidemiology.

## The SICES guidelines

SICES came out of a scoping review of the existing literature. Surprisingly, a search for instruments on structural competency applied to epidemiology returned a null result, even when we replaced structural with cultural, cross-cultural, or intercultural competency. This gap led us to search for instruments, tools and guidelines on these competencies applied to other related fields such as medical education, clinical practice and health promotion, among others, and to tentatively use them as a basis on which to build a set of guidelines that would be applicable to epidemiological design and research. To the best of our knowledge, SICES is the only systematic attempt to apply structural competency in epidemiological inquiry.

The idea of maintaining dual intercultural and structural competency arose for two reasons. The first is that structural competency does not cover all the cultural aspects that epidemiological research can assess, a field where, for example, translation and cultural validation of scales and instruments, as well as sensitivity to local knowledge, are relevant issues. Moreover, the cultural approach and the critical orientation are not contradictory, as the Gramscian tradition and several authors show, among them the promoters of the *Centro Sperimentale per L'Educazione Sanitaria* (Falteri & Bartoli, 2020). The second has to do with the attempt to combine a paradigm established in the North American literature, such as structural competency, with existing efforts in southern Europe under the rubric of intercultural competency and interculturality in health, as mentioned above. In fact, the word 'intercultural' in the SICES guidelines allows us to recover a critical cultural approach from before the popularisation of the notion of cultural competency in the medical literature.

SICES is made up of four domains that we extracted from the analysis of the intercultural and structural competency instruments (see Table 1). According to the rationale of SICES, these domains should structure the various phases of epidemiological research: (1) formation of the research team and research questions, (2) study design, recruitment of participants, data collection and analysis, and (3) dissemination of results. Table 2 shows SICES in its checklist format. It is important to note that we do not see our proposal as a finished product but as a work in progress. To do otherwise would be to disregard the fact that the intersection between structural competency and epidemiological research is uncharted territory that requires the collaboration of multiple actors. Tentatively, and paraphrasing Bourgois et al. (2017), we can define structural competency in this field as the ability of epidemiologists and epidemiological teams to recognise and respond with self-reflective humility and community engagement to the ways negative health outcomes and lifestyle practices are shaped by larger socioeconomic, cultural, political and economic forces.

**Table 1.** Intercultural and structural competency domains and definitions.

| Domain 1: Cultural awareness and reflexivity | Domain 2: Cultural and linguistic validation | Domain 3: Sensitivity to cultural diversity and structural vulnerabilities | Domain 4: Representativeness of minoritised groups and excluded populations |
|---|---|---|---|
| Defined as the capacity of the research team to reflexively analyse how their cultural, ethnic, social and expert backgrounds interact with those of the participants, and can affect research questions, design, recruitment, data collection, data analysis, and dissemination activities. One of the bases of reflexivity is cultural humility and the ability to recognise in others a variety of knowledge, whether lay knowledge and/or that based on experience. Reflexivity is an intangible domain that has to do with attitudes and predispositions and influence the quality of research. For example, reflexivity on cultural and social gaps between the research team and the populations under study can provide new clues for reducing bias. | Defined as the linguistic and cultural adaptation of instruments, tools, informed consents, participant information sheets, questionnaires, interactions between researchers and participants and dissemination outputs addressed to the participants. Crucially, this refers not only to a translation into the participants' language(s), but also to adapting to a discourse that is intelligible to them, thus avoiding the usual biases in the use of questionnaires that participants do not understand, as well as situations of exclusion due to immigration, low level of education, disability, or a combination of these. | Defined as the incorporation of variables and relevant information on cultural diversity and structural vulnerabilities of the groups under study in any of the phases of epidemiological research. This is the most comprehensive domain as it includes team training in intercultural and structural competency, the cultural and social knowledge of populations under study, and knowledge about the medical history of the country/community in which the research is taking place and of the medical research legacy for ethnic minorities and hidden populations. This also includes the use of social determinations of health and structural vulnerability issues in the study design. | Defined as the ability to favour the representativeness of minoritised groups and excluded populations throughout the various phases of the study, such as the composition of the research team, the selection of the sample and the development of dissemination activities. This includes assessing social and cultural barriers to their participation, as well as promoting the involvement of these groups in the dissemination process with the aim, for example, of strengthening their agency. |

## What's feasible

A first question that emerged in drawing up the SICES guidelines was why there were no previous systematic efforts to endow epidemiological research with structural or even intercultural competency. The most straightforward answer is because such a vision was already embedded in some of the paradigms mentioned above, such as social medicine and social epidemiology. But this is only half true.

Certainly, social epidemiology has a long history of investigating health disparities according to social determinants (and determinations) such as class, gender, race, ethnicity, income distribution, access to social policies and social capital, to cite the most relevant. Various contributions in nineteenth century Europe are widely recognised as precursors to the study of the impact of the social, economic and political forces on the health of populations. Villermé's work in France showed the impact of lack of schooling and working conditions on the mortality of the most vulnerable groups (Julia & Valleron, 2011). In his famous, and to all intents and purposes, ethnographic essay on the living conditions of the English proletariat, Engels described a scenario of extreme hardship and asked rhetorically: 'How is it possible, under such conditions, for the lower class to be healthy and long lived? What else can be expected than an excessive mortality, an unbroken series of epidemics?' (Engels, 1993). Shortly after, Virchow, one of the best-known representatives of nineteenth century German social medicine, wrote his report on famine typhus in Upper Silesia, in which he appealed to the shortcomings of our societies to understand the role of structures of inequality, poverty and vulnerability in the precarious health of the working class (Taylor & Rieger, 1985). The three cases cited above are landmarks that have been unevenly projected onto more recent social epidemiology.

**Table 2.** The Structural and Intercultural Competency for Epidemiological Studies (SICES) guidelines.

| PHASES | Guide questions |
|---|---|
| Research team building and research questions | 1. Has the research team identified its ethnic, cultural, and social composition and compared it with that of the study population? Has the research team considered the potential impact that these differences or similarities may have on the research?<br>2. Does the research team have any tools or means to facilitate reflexivity, e.g. fieldnotes or regular meetings for this purpose?<br>3. Does the research team consider the lay views on the topics of study?<br>4. Has the research team assessed whether the use of concepts such as race, ethnicity, or culture (among others) in the study is adequate?<br>5. Have the research team's training needs in intercultural and structural competence been assessed?<br>6. Does the research team have cultural and social knowledge of the populations under study, including ethnic minoritized and marginalised groups and lay perspectives on the topics of study?<br>7. Has the research team considered the medical history of the country in which the research is taking place and the legacy that medical research has on ethnic minorities/hidden populations?<br>8. Has the research team established an advisory board which includes representatives of different cultural and/or ethnic groups, including lay participants representing civil society and/or minoritized collectives? |
| Study design, recruitment, data collection and data analysis | 1. Is the research team aware of cultural and social biases from previous research done on a similar topic/population that they are using as a research background?<br>2. Has the research team considered social and cultural sources of potential bias or imprecision? For example, if the research hypothesis, the objectives of the study, the theoretical-conceptual framework, or the sample gives rise to possible sensitive cultural issues or ethnocentric statements?<br>3. Has the association of missing data with sociocultural characteristics of populations under study been considered?<br>4. Are the informed consent and the questionnaires, scales, and instruments understandable to the participants and/or culturally validated or tailored to the population under study?<br>5. Has qualitative research or mixed methods been included in the design of the study, i.e. for the selection of the instruments or for the collection of qualitative data on the research subject?<br>6. Have cultural variables been included in the study design such as ethnicity, cultural identity, religious beliefs, or acculturation, among others? In addition, and following the Bridging Research Integrity and Global Health Epidemiology (BRIDGE) Guidelines, have the different causal mechanisms associated to these variables been considered and the limitations of using these variables as proxies for more complex categories been acknowledged?<br>7. Does the study address how symptoms, clinical problems, diseases and/or attitudes toward patients, populations and/or health systems are influenced by social determinants of health and structural vulnerabilities? For example, but not limited to discrimination, lack of financial security, lacking safe/stable place, risk environments, difficulty in food access, lack of social network, problems with legal status and/or lack of formal education.<br>8. Has local knowledge been considered in interpreting the results of the study, i.e. local ideas on aetiology and disease transmission?<br>9. Does the sample consider subsamples of cultural minoritized groups, groups subject to health disparities, and/or historically underrepresented? And if so, in what way, i.e. has the analysis been disaggregated for such variables or have they been considered as confounder/effect modifiers?<br>10. Have barriers to participation in the study arising from structural vulnerabilities been analysed? If so, has the inclusion of these participants been facilitated in any way? |
| Dissemination | 1. Does the dissemination plan include the groups under study? Does this plan include reflexivity and awareness on potential linguistic, cultural, and social gaps? |

(*Continued*)

**Table 2.** Continued.

| PHASES | Guide questions |
|---|---|
| | 2. As part of the dissemination of the results, has any output (i.e. publication or audio-visual document) been addressed and culturally tailored to the population studied (i.e. tested in a focus group)?<br>3. Have the cultural and social specificities of the studied groups been considered in the conclusions, recommendations, and in the implementation of the results?<br>4. Is there a dissemination or Responsible Research and Innovation (RRI) plan considering the active role of participants and stakeholders? If so, have barriers to participation been assessed and active participation been facilitated? |

In a now classic article, Krieger, one of the epidemiologists who has worked most extensively on the role of structural determinants such as race, gender and social class (Krieger, 2008, 2021; Krieger et al., 1993), suggests there are three current theoretical trends in social epidemiology: (1) the psychosocial theory, (2) the social production of disease/political economy of health theory, and (3) the ecosocial theory and related perspectives (Krieger, 2001). Although formulated several years ago, Krieger' typology is still very useful, as long as we understand that, like any typology, it is a generalisation. For example, the first theory seems quite incompatible with a structural competency perspective, since the major structures that shape lifestyles, risks and the unequal distribution of morbidity and mortality are virtually absent in this approach. Rather, it seems to chime with the neoliberal practice of citing the problem without thoroughly analysing its causes, which, in its most unreflective positions, interprets exposure to toxic agents, the risk of contracting HIV-AIDS or dying from cancer or Covid-19 as the result of 'bad-behaviours', thus helping to mystify and cover up the social inequalities in health. This is precisely the point the second theory would emphasise from a critical approach, assessing the excesses of the neoliberal regime and pointing out the state's responsibility to promote equity through redistributive policies, social justice and universal access to health care. In our view, the suitability of the third theory (the ecosocial model) for structural competency will depend on whether the notion of environment – and others such as One Health – ends up concealing a planetary reality of very unequal responsibilities, with logics of exploitation that condemn a large part of the world's population not only to exclusion but, to use a descriptive term from the Argentine sociologist Alberto Bialakowsky et al. (2006, 2007), to the purest and hardest 'extinction'. In fact, most public health professionals use a toned down 'social ecological' model that does not include the political or broad social structures; an oversight that can be associated with the coloniality of knowledge production in global public health (Richardson, 2020).

In short, we can understand that the second theory of Krieger's typology is the closest to the paradigm of structural competency, because of its critical and comprehensive emphasis, and because it mobilises a curiosity and interest about inequality that the other theories do not foreground. However, the picture Krieger describes can be broadened by including other paradigms that are often overlooked in the English language epidemiological and public health literature and that are useful for rethinking the role of structural competency in this field, as in the case of collective health in Brazil (Ceccim, 2007; Paim et al., 2011; Paim & de Almeida Filho, 1999), Argentina (Liborio, 2013; Spinelli, 2004) and other countries in the Latin American region (Breilh, 2013; Menéndez, 2009).

Collective health can be defined as both a 'scientific field' (*campo científico*) in which different biomedical and social disciplines collaborate, and an arena of practice in which actions are carried out by various actors (specialised or not) within and outside the space conventionally recognised as the 'health sector' (Paim & de Almeida Filho, 1999). At its core is a theory of conflict that is not limited to highlighting health problems, their seriation and distribution, but aims to investigate the determinations of the social production of disease and the organisation of health services, as

well as the study of the historicity of related knowledge and practices. In this approach, health is inseparable from the structure of society, including its economic and political-ideological structures, and for this reason it has a historicity.

Collective health is also a social and political movement to advocate for the right to health and social justice. It has many points in common with the theory of the social production of health, although it has enhanced some aspects in a more practical way, such as creating a broader transdisciplinary field of knowledge (Almeida Filho, 1997), including social groups not associated with the health sector as agents of practice, and political contestation both at the academic level and in health services and public arena. An illustrative example of its greater political and practical orientation is its expression in Brazil's health councils (*conselhos de saúde*), which are deliberative bodies of the Unified Health System that operate at municipal, state and federal levels and are made up of policy managers and implementers, health professionals and representatives of civil society, including social movements (Ceccim, 2007).

Within the framework of collective health and critical social epidemiology, the inclusion of structural competency in epidemiological research becomes feasible. For example, several of the points in the SICES guidelines (see Table 2) fit quite clearly with these paradigms, such as points 3, 4, 6, 7, 8, 10, 12, 15, 16, 19 and 22. Other points fit less clearly, but are quite congruent, such as 1, 3, 14, 17, 20 and 21. However, structural competency is a unique perspective that is not subsumed in the above paradigms, as it addresses the process of epidemiological research itself, including the design of the study, and emphasises the skills and attitudes of researchers and research teams. Briefly, it concerns what to research (i.e. social determinations), but especially the question of how to research and with what attitudes and skills. In this sense, it is a strategy that shows the limitations of positivist epidemiology from another angle. This explains our earlier response to the question of whether structural competency was already included in social epidemiology that this was a half-truth. In fact, hypothetically, the model of structural competency that we propose here could be applied to any population-based epidemiological study, regardless of its baseline theory. Yet, it would have the capacity to transform that same hypothetical study. For example, if an initially biomedical study includes in its research design the reflexivity of the team, structural vulnerabilities, historical knowledge of the participating communities, minoritised and hidden populations, and the active role of these communities in the whole research process, it is obviously no longer the same biomedical study. This turn changes everything. But is it too good to be true?

## What's tricky

We are aware that there are some difficulties preventing the SICES guidelines from fitting easily into the more positivist and biomedical tradition. These difficulties also provide a different answer to the question of why there were no initiatives to systematically include structural competency in epidemiology. The most obvious answer now is that such contributions could be seen as anecdotal to the goal of producing 'scientific evidence', and therefore superfluous or even unscientific. Here again we are faced with the epistemological gap between explanation and comprehension or interpretive understanding mentioned at the beginning of this article. From a certain epidemiological view, knowledge that does not derive from sophisticated and precise measurement techniques deserves little attention. However, accuracy does not imply truth and conjecture does not exclude scientific rigour. Indeed, a simple observation exercise in the field can produce more evidence and resources for the interpretation of what is at stake in the health of a community than an apparently precise methodological design that falls far short of asking the relevant research questions or with a clear sampling bias, for example by ignoring people who are not included in the census, who cannot participate because they have reduced mobility or who simply do not have a smartphone or internet access. Here we would like to draw attention to three difficulties of incorporating structural competency in epidemiology.

(1) The first difficulty is the contradiction between the comprehensive, holistic and relational approach of structural competency as opposed to the atomisation and disaggregation of reality into variables of the more conventional epidemiological perspective. As Menéndez (1998) points out, the random selection of a sample generates an artificial effect that disaggregates individuals from their social groups when these same individuals are defined as such by their social relationships, which are not random. Indeed, relational dimensions are one of the first victims of the atomisation of reality, but not the only ones. In the absence of a relational perspective, the behaviours and meanings associated with health/illness/care processes may be incomprehensible, because the context of the structural forces that shape these processes will be missing. Of course, we can fragment these forces and processes into *a priori* variables in epidemiological design but understanding them requires observational and ethnographic analysis of social practices to discover what these 'variables' mean for a given social group and what structural forces shape them. For example, we can hardly understand the processes that lead to later diagnoses of breast cancer among Muslim than non-Muslim women or why Catalan adolescents with symptoms of frank depression do not seek professional help by atomising the behaviours, structural conditions and cultural meanings that shape these phenomena. At best, we will have a set of indicators that may be contextualised in previous epidemiological and biomedical studies, but will be decontextualised locally, socially, and historically, with the risk of creating tautological ideal types (Mason, 2019). In the SICES guidelines we include criteria such as points 3, 6, 7, 10, 11, 13, 14, 15, 16 and 18 to help draw that social context. Nevertheless, this kind of contextualisation can only take place if we include a holistic and relational perspective, and the increasing technicality and pseudo-sophistication of epidemiological research is certainly not conducive to this, as its aim is to produce evidence in biomedical, but not social, terms.

(2) The second difficulty stems from reflexivity, or rather its absence. Reflexivity can be defined as the ability to examine one's own beliefs, judgements, and practices during the research process in order to assess their influences on the results (Bourdieu, 2001; Lichterman, 2017). It includes the structures of knowledge production that are shaping our assumptions as researchers. In this sense, it is a fundamental instance of the structural competency that makes the researcher visible, as well as the effect on his or her point of view of elements such as research policies, relations of hegemony-subalternity of academic narratives and subjective and cultural ascriptions and assumptions. In fact, reflexivity extends the process of contextualisation to include the subjectivities of the researchers and the researched and the intersubjective relations between them. In a field such as anthropology it can include co-theorising between researchers and participants by incorporating native categories as part of analysis and theory. In the SICES guidelines it forms a cross dimension to the different criteria, and is clearly explicit in points 1, 2, 4, 9 and 13. Nevertheless, reflexivity is not easily applicable in a study based on a positivist epistemology that tends to make the researcher invisible in order to create an aura of scientific neutrality (Mishler, 1981).

One way to overcome this second difficulty is to include the ethnographic approach or one of its sisters as a complement to the research design (i.e. criteria 13 of Table 1). Indeed, the use of ethnography for the interpretative enrichment of epidemiological findings has proven to be a fruitful form of interdisciplinary cross-fertilisation. Interdisciplinary work requires an epistemic humility that is not easy to achieve, but without which it is difficult to move forward and to create new knowledge. At this point, we agree with Béhague et al. (2008) that, referring to the relationship between epidemiology and ethnography, until researchers recognise that methodology is nothing more than a tool designed by human beings to interpret reality, disciplinary inertias will continue to alienate one methodology of knowledge from the other.

(1) The third difficulty is the inclusion of social participation in epidemiological inquiry, which derives precisely from the ability to create ties not only within the research teams, but also between them and the studied populations. Structural and intercultural competency demands proximity to the communities and a dialogical model of communication and interaction that makes it possible to reclaim such important dimensions as local knowledge and the analysis of the material conditions of life. Here we understand dialogic models as those that foster:
   (a) Two-way communication between researchers and populations in such a way as to overcome the idea that there are communities 'under' study rather than communities actively 'participating in' or 'doing' the study. The two-way dynamic allows for the creation of shared knowledge between expert and lay systems and can be reflected in the incorporation of civil society and minority representatives in research teams, but also in the dissemination of results.
   (b) Multidimensional analysis of and reflexivity on the determinants and structural forces that are shaping health needs and research needs, as well as the local knowledge and human experiences related to these structural forces.
   (c) Horizontality in communication and research practices, which overcomes implicit and explicit hierarchies, such as those derived from notions like 'target population', through cultural and epistemic humility.

However, the implementation of participatory and dialogical epistemologies shapes a research logic that requires different procedures and temporalities from the usual epidemiological endeavour. In the participatory approach, communities are no longer objects, but intersubjective realities; they are no longer just data, but social ties. It is laborious and difficult to implement in a framework geared to the speed of obtaining 'evidence'. Adams et al. (2014) have criticised the 'celebration of speed' in global health research and interventions and have proposed the notion of 'slow research' as an alternative. In our case, we could speak of slow and dialogical research that transcends the idea of research as simple data collection and analysis to conceive it as the collective production of health.

## The benefits of a structural turn

In this article we have presented some reflections on the possibilities and challenges of applying structural competency in epidemiology. These are reflections that emerged during the preparation of the SICES guidelines. They focus on how certain predispositions of structural competency encounter some epistemic pitfalls and methodological routines in epidemiological research that limit the opening up of new horizons of knowledge.

One of the main contradictions of positivism is that, while on the one hand it tries to objectify the world in order to explain it, on the other hand, in this objectification it introduces limitations to the understanding of that same world. For example, one limitation is its failure to provide knowledge about social forces, both on the side of the object (health, illness, care) and on the side of the researcher. Indeed, positivist models can often fall into mere scientism, understood as the dogmatic faith of science in its methods, which is a *contradictio in terminis*. As Seppilli (2011) liked to point out, the most radical criticism that can be made of positivist and biomedical approaches is not that they are excessively scientific, but the opposite, that they are not sufficiently so because they exclude the forces of the social world. To this we can add that they exclude other research methodologies that, from other angles, promote complementary knowledge to biomedical research.

The main benefit of structural competency in the field of epidemiology is that it is an instrument for mobilising 'wonder' (in its Aristotelian sense of the beginning and driving force of knowledge) about the structural forces that shape inequalities in health, whether in the production of morbidity and mortality, in unequal access to health care, or in the creation of ideologies that naturalise and

conceal these same inequalities. Clearly, structural competency is not the only instrument for this. As we have seen throughout this article, social epidemiology, collective health and social medicine, among others, are moving in the same direction. But structural competency introduces a different angle: that of the skills, attitudes and sensitivities of the clinician or researcher. In this way, it appeals to their subjectivities to discern the scenario, to develop skills to detect the relationships established between large structures, local realities and the small subjective worlds of affliction. Unlike the neoliberal ideology that only speaks of what individuals do 'with' and 'in' the world, and which in the epidemiological field is projected in the individual attribution of risks and lifestyles, structural competency speaks of what the world does with individuals.

Another benefit of structural competency is that it introduces reflexivity and cultural and epistemic humility into epidemiological research, and this leads to greater community engagement. When the researcher recognises a kind of knowledge in lay individuals and populations, the analysis of disease becomes an intersubjective endeavour and health a collective production. Far from the illusion of dealing exclusively with biological objects, in this new framework the narratives of affliction and its social world become visible. Sickness involves not only a universe of facts, but also of meanings and values, of inequalities, naturalisations, and contestations of these inequalities.

The challenge of structural competency is to foster a scientific arena of collaboration, debate, and openness, both in the expert field and in its relationship with local knowledge. We believe that this is feasible in a scientific field such as epidemiology, where there is a long tradition of social epidemiology and paradigms that have pursued similar objectives. It is what we can define as a structural turn. In a time characterised by the pre-eminence of so-called 'evidence-based medicine', perhaps we should remember that what is quite evident is suffering, and that to address it is to restore the human and social dimension of sickness; it is also to think about health from an ethical and political perspective.

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## Contributors

AM-H conceived the idea, designed the study and wrote the manuscript. DB and AM-H reviewed the various drafts of the article. All authors discussed the results and contributed to the final manuscript.

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