Urban mobility and social determination of health, a reflection

Mobilidade urbana e determinação social da saúde, uma reflexão

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Abstract

Understanding the relationships between urban mobility and the health-disease process requires realizing that urban mobility is directly related to the type of city and society where it occurs. Thus, the different mobility conditions in cities, a phenomenon underlying the physical and social quality of urban space, may imply health inequities, especially in peripheral capitalist countries. In Brazil, the mobility model associated with precarious infrastructure for pedestrians and cyclists, long distances to be travelled, travel times, and the insufficiency and low quality of collective transport systems potentiates the deleterious effects on human health. This leads us to infer on urban mobility as a social determinant of health. This essay seeks to launch reflections on urban mobility beyond a positivist utilitarianism from a development of social justice based on Health Promotion and having as main strategy the strengthening of intersectorialities.

Keywords: Healthy City; Public Health; Health Promotion; Intersectoral Collaboration.

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Resumo

Compreender as relações entre mobilidade urbana e o processo saúde-doença requer perceber que a mobilidade urbana está diretamente relacionada ao tipo de cidade e sociedade onde ela ocorre. Assim, as diferentes condições de mobilidade nas cidades, um fenômeno subjacente à qualidade física e social do espaço urbano, pode implicar em iniquidades em saúde, em especial em países do capitalismo periférico. No Brasil, o modelo de mobilidade associado à precariedade da infraestrutura para pedestres e ciclistas, às longas distâncias a serem percorrida, ao tempo de viagem e à insuficiência e falta de qualidade dos sistemas coletivos de transporte, potencializa os efeitos deletérios sobre a saúde humana. Isso nos permite inferir sobre a mobilidade urbana como uma determinação social da saúde. Este ensaio busca lançar reflexões acerca da mobilidade urbana para além de um utilitarismo positivista a partir de um devir de justiça social alicerçado pela Promoção da Saúde e tendo como estratégia principal o fortalecimento das intersetorialidades.

Palavras-chave: Cidades Saudáveis; Saúde Coletiva; Promoção da Saúde; Colaboração Intersetorial.

Introduction

Understanding the relationship between urban mobility and the health-disease process requires understanding mobility as a process inseparable from human life in society. From collecting societies to complex post-industrial societies, we need to move, either to fulfill basic needs such as food and shelter or to fulfill more elaborate needs, such as those that are part of everyday life in the contemporary world (work, education, care, security, culture, entertainment, etc.).

The industrial revolution and the advent of urbanization imposed new ways of life in society and new forms of and needs for the movement of people and goods within cities. Bicycles, trams, trains, buses, cars, trucks and motorcycles gradually enhanced the modes of travel and, concomitantly, the urban infrastructure had to expand and become sophisticated. Not only the modes of transport (active or motorized) became part of the mobility system, but also public roads (streets, sidewalks, bicycle paths, viaducts, walkways, etc.), traffic rules and signs, route guidance signs, accessibility, and road safety devices became part of this functional complex in cities, which is urban mobility.

Cities in capitalist society and, consequently, their mobility systems, are focused on the production and reproduction of capital, converting into commodities the different dimensions of life: residing, working, studying, eating, and moving. Thus, with the industrial revolution and until the complex contemporary world, a hegemonic model of city and mobility was gradually forged in this mercantile logic, which concentrates, in areas with higher per capita income, the good infrastructure, the best supply of transport, the diversity of economic activities and services, and the best housing standards. In contrast to these areas prioritized by real estate capital, especially peripheral capitalism countries, such as Brazil, have seen the consolidation of poorer, often peripheral districts, neighborhoods, and communities, with precarious infrastructure, housing and sanitary conditions, and little supply and quality of transport. There is also an intermediate urban area from the point of view of infrastructure, housing and services, which integrates the urban fabric and sometimes geographically and

physically connects or separates these different socio-spatial realities.

Harvey (2012) defines urbanization as a class phenomenon, in which the decision about the surplus extracted from certain places and from certain people is in the hands of a few. Public and private investments that improve the urban space remain subordinated to the interests of the real estate market (Maricato; Colosso; Comarú, 2018), concentrating goods and services in areas that are strategic for speculation and reinforcing the logic of the city produced as a commodity and constituted spatially in a dispersed and unequal manner.

In this hegemonic model, investments in infrastructure are focused primarily on individual, motorized, and fossil fuel-powered transport. Although less than 30% of trips in the city use automobiles, more than 80% of the public area is allocated to them (IPEA, 2016). Meanwhile, pedestrians and cyclists (36%), as well as public transport passengers (36%), compete for less than 20% of the public area allocated for movement, which is, as a rule, the one that receives the least investment.

The different conditions of mobility, a phenomenon underlying the physical, geographical and social characteristics of the urban space, can represent greater or lesser risks of illness and death, depending on where people reside (downtown, suburbs, infrastructure-rich areas with supply of job and services, precarious urban areas), where and at what times they commute, and the manner by which they do so (on foot, by bicycle, motorcycle, car, bus, subway, etc.). The larger, more dispersed and unequal the urban territory, the more challenges are imposed on the population for their daily trips, especially on the low-income population, who live in suburban areas. In Brazil, one third of the population in large cities lives in suburban areas (IBGE, 2017). As a rule, the working populations, in addition to moving long distances to access the central areas of jobs and services—on average 16 km (Alelo, 2016)—depend predominantly on public transport systems that are insufficient in supply, precarious in quality, and generally restricted to the daily commuting movement from home to work and back home (Araújo et al., 2011).

With the great distances to travel, workers are forced to invest more hours of their days in traffic (on average 2 hours per day) (Alelo, 2016), exposing themselves more to risks of accidents, noise/air pollution, and suffering more the physical and psychological impacts of this extended journey and, often, under stress conditions. Brazil's Unified Health System (SUS), due to its universality, receives this impact on the care for urgencies/emergencies and chronic aspects, but with gaps regarding information on these conditions and the role of health care services in health prevention and promotion (Por vias seguras, 2023).

Despite the increased number of publications on the subject, most studies are still restricted to the perspective of social determinants, rather than social determination, that is, most studies associate urban mobility with environmental influences on health and analyze individual behavioral issues as risk factors per se, dissociating them from the historical and material processes that constitute the social, economic and cultural conditions of individuals and societies. In contrast to this article, such studies focus on the direct relation, for example, of the causes of accidents with human factors, attributing them to the emotional state, ability of drivers and pedestrians both positively and negatively (Ameratunga; Hijar; Norton, 2006; Vecino-Ortiz et al., 2022). There is also literature that is restricted to indicating a relation between feelings of anger, stress, anxiety and aggressiveness with certain accidents and risky behaviors in traffic (Bartholomeu, 2017), abstracting from the historical material conditions in which social relations and, consequently, the behaviors of individuals in society are forged.

Differently from this analytical focus, which tends to eclipse the causes (usually complex, structural, and multifactorial) with intermediate symptoms and attributing to them the status of cause, our study seeks to understand the complex structures that determine and are dialectically determined by social life and its relations with health, including mental health.

The World Health Organization (WHO) points out that 93% of traffic deaths occur in low- and middle-income countries, despite concentrating approximately 60% of the world's vehicles. Although men are at greater risk of dying from traffic accidents than women, the most vulnerable groups in which they intersect, including the dimensions of gender, sex, race, age

and disability, are the most affected by restrictive and unsafe conditions of mobility (WHO, 2018).

Thus, it can be seen that variables related to urban mobility, especially mode and time of travel, have different interrelations with the health-disease process of urban populations and that the class dimension not only underlies these interrelations but does so in a matrix-like manner. This situation evokes a set of questions, if observed from the perspective of health inequity. The first would be to delimit the epistemological theoretical model of urban mobility. The second refers to whether or not urban mobility is a social determination of health. A third could seek answers to the importance of intersectorality in addressing that, considering that these are two different areas: health and mobility.

Also questions about actions or strategies capable of reducing health inequities resulting from mobility; the possibility of a trade-off with urban mobility becoming part of collective health strategies and many others can be raised when we observe the phenomenon of urban mobility and its implications on the health-disease process of populations. However, in this article, starting with an overview of urban mobility in Brazil, we will present some reflections on the first three questions raised. We will work on elements of critical theory and follow with interdisciplinarity in a conceptual and factual theoretical essay format.

Overview of mobility in Brazil

Understanding the relationship between urban mobility and the health-disease process requires understanding mobility as a process inseparable from human life in society. From collecting societies to complex post-industrial societies, we need to move, either to fulfill basic needs such as food and shelter or to fulfill more elaborate needs, such as those that are part of everyday life in the contemporary world (work, education, care, security, culture, entertainment, etc.).

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Urban mobility: epistemological theoretical construction for addressing inequities

Until the 1970s, the concept of mobility was characterized by a utilitarian view that was predominantly focused on the issue of providing transport services. The main aspects to be addressed by public management and traffic engineering were focused on how to match the supply of infrastructure to the demand for transport, both for goods and passengers. The answers to this issue emphasized road transport, prioritization of individual and non-collective transport, limited efforts to promote non-motorized modes of transport and, finally, a separation between the design of urban planning and transport (Silva; Costa; Macedo, 2008).

From the 1980s—mainly with the environmental movements, but also with the growth of the precepts of Health Promotion and social justice—the planning and management of cities were required to respond to the growing inequities and loss of quality of life in urban territories (Buss et al., 2020).

Thus, some theoretical lines and some organizations and institutions began to adopt a view that considered the precepts of sustainable development, as in the case of the 2030 agenda, which goes beyond utilitarian logistics and starts to articulate three pillars, namely environmental protection, economic sustainability and social justice, which become important conditions in the process of political conceptualization and action (IPEA, 2016).

In this context applied to Brazil, the *Política Nacional de Promoção da Saúde* (National Health Promotion Policy) acted as an interconnection device for health and urban mobility agendas, reaffirming the importance of intersectorality and interdisciplinarity for the development of healthy cities (Brasil, 2006). Although this paradigm shift has enabled changes in the way of acting, thinking and planning cities and their functional complexes, such as urban mobility, in the areas of public planning and management and—why not say so—in private professional activities, the sectorialized and deterministic hegemonic model still prevails, requiring an enhanced effort to produce and share interdisciplinary and intersectoral knowledge. This inspires us to overcome challenges—especially inequities and their social determination of health—to the answers presented, even in interdisciplinary agendas such as the 2030 agenda, which have not yet reached effectively structural issues.

Thus, it is ratified our reflection on urban mobility as a social determination of health and our criticism of the insufficiency of the term social determinants of health, which appears to lack the theoretical and political framework necessary to unravel this tension between urban mobility and the health-disease process, requiring not only a social criticism, but more sensitive methods capable of challenging the hegemony of the fields of knowledge that approach the phenomena related to the subjects addressed here.

Social determination of health, a reflection

Before starting the reflection on the social determination of health, it is important to demarcate which concept of health we claim, being aware that, whatever the concept defended, it would be neither categorical, nor static, nor ahistorical. Respected theorists on the history of health, such as Almeida Filho (2011), provide us with plenty of material to understand this. Treating health as something that is based on given conditions, determined mechanically, without understanding the complex processes that structure, give meaning and signify human and social relations, separating them from the object, would constitute a positivist view that we do not partake. Thinking about it in a Hegelian way, as something to be constituted from ideas,

without the material and historical foundation that determines its present reflection, will also not be our way. Here we will work with the concept presented by Juan César García, according to which health constitutes a condition of "maximum development of man's potential, according to the degree of advancement obtained by society in a given historical period" (García, 1989, p. 13, our translation). Consider that this conceptual demarcation can lead us to a hypothesis of determination that, in our interpretation, would be: when observing a specific historical period, the degree of advancement obtained by society until that period would determine a certain social, psychological and even biological potential to be enjoyed by human beings and that health would be in the maximum development of this potential, being, therefore, determined by factors that can restrict, limit, validate, potentiate, or even extrapolate this "maximum."

We add to this interpretation the dialectical view between "what determines" and "what is determined," having as a point of view the category "reflexive determination" worked on by the Hungarian philosopher Lukács by revisiting the ontological question proposed by Marx and thus interpreting it::

> In materialist dialectics, in the dialectics of the thing itself, the articulation of the really existing tendencies, often heterogeneous among themselves, presents itself as contradictory solidarity of the categorical pair. When logical determinations are removed and ontological determinations are given their true meaning again, an immense step forward is made towards the realization of this one and double relational complex. (Lukács, 2018, p. 415, our translation))

Reflexive determinations elucidate that what can and should be investigated as social determination of health, although perhaps containing, is not with you in the definition institutionalized by the WHO of the social determinants of health as described: circumstances in which people are born, grow, work, live, and age, and the broad set of forces and systems that shape the conditions of everyday life. It is, on the other hand, a complex paradigm that articulates singularity, particularity and universality and does not dissociate human beings from nature, following a continuous and cumulative movement in which what determines is also determined by that which it determines with these relationships being neither equivalent nor random.

We corroborate, therefore, part of the reflections of Minayo (2021) when arguing about the uncritical use of the expression "social determination of health" and raising a possible conceptual inflection based on the work of contemporary thinkers and theorists, such as the physicist-philosopher Ilya Prigogine and the biologist-philosopher Henri Atlan. However, we find, in the work of these authors, elements of intersection and not of opposition to the work of Lukács. In this sense, we affirm that our assumption to analyze urban mobility as a social determination of health is based on Lukács' reflexive determinations.

That said, in understanding the concept of health on which our work focuses, we resume the discussion of mobility as a social determination of health, already pointing out that understanding the relations between urban mobility and the health-disease process also requires understanding that urban mobility is directly related to the type of city and society where it occurs. This means that being born, residing, living, and working in a capitalist society—in which the city is a commodity and in a context where neoliberal policies have increasingly led to an exacerbation of inequality—are relevant components of reflexive determinations.

Within this complex continuous and cumulative movement, understanding that the mobility model to which we adhere—either spontaneously or compulsorily—reflects "the process by which the ideas of the ruling class become everyone's ideas, so to speak, become dominant ideas" (Chaui, 2001, our translation). Thus, despite what the statistics show about the deleterious effects of the hegemonic urban mobility model on the health of the population, addressing these effects goes far beyond the heuristic process of mapping risks and mitigating their "causes." It involves, among other issues, acting firmly according to the principles of universality, equity and comprehensiveness, through the human-social praxis of health promotion as an

ethical, aesthetic and political guideline and by facing the neoliberal pressure to focus and privatize services (Mattioni et al., 2022; Miranda, 2021)..

Intersectorality, Urban Mobility and Social Determination of Health

Contemporary Western society operates by fragmentation and super-specialization. The neoliberal fundament of individuation that departmentalizes structures and fractionates reality is mirrored in our daily lives. Justice is now paired with meritocracy, assigning value to competitiveness and not to cooperation and complementarity. Deprived of our subjectivities, we see the world through the reflection of what we assume it to be and lose sight of the reflection of the world (complex, articulated and non-linear) about what we really are.

About various aspects of our lives, this individuation and fragmentation can be identified and described, we just have to look beyond the wall of dominant ideas. In mobility, for example, the worker's dream purchase (as an individuated and universal being) is their "own car." The better the income of this worker, the more sophisticated and technological will be their dream car, the object of their desire for freedom, through which they imagine themself "separated and protected from the world outside, dirty, harmful and disorganized." Passengers on a crowded bus at 6 am may also cherish a dream of this nature while the "big box" increases its capacity at each stop on the way to work. And what does this have to do with the health-disease process? A lot! The anecdote of one's own car, courted by the capitalist model of mobility, is an illustrative resource for us to talk about reflexive determination in the health-disease process that involves mobility and health. In the Metropolitan Area of São Paulo alone, in 2020, vehicle emissions put more than 88,000 tons of carbon monoxide in the air (Cetesb, 2022). In addition, the almost 6 million automobiles in the city of São Paulo (IBGE, 2021) represent almost 8,000 tons of steel produced with iron removed from nature in extraction processes, such as the one Vale do Rio Doce operated in Brumadinho. This set of impacts is compounded by the already presented situation of diseases, issues, violence, and deaths resulting from the hegemonic model of city and mobility. Still, in our individuation, the car is the object of desire and this dream purchase is pursued obliviously to the complex entanglement of risks and consequences underlying it.

Through this lens, the complex multidimensionality and multicausality that resides in the real becomes explicit. Alienated from the view of the whole and socialized in the logic of individuation, we are cast into consumption, with the promise of freedom and happiness, while the destructive force of this model is made invisible by the prevailing thought. And, when crises and disasters arise, the same system blames individual behavior as a diversionary strategy that demobilizes struggles for structural change.

We employ this illustration to signal the indispensability and, at the same time, the challenges of intersectoralizing the different dimensions of mobility and health, understanding urban mobility as a social determination of health. Akerman (2014), by suggesting an exploratory roadmap for intersectorality to be defined as a mode of management, proposes systematic processes in which coordination, planning, and cooperation between different sectors of society and various public policies would act, in an intersectoral manner, on the social determinants (Akerman et al., 2014). We seek to examine this suggested roadmap attentive to what Wanderley et al. present to us:

> Intersectorality as a strategy for democratic public management to respond to sectorization and fragmentation presupposes political decision, coordination between sectors and complementarity of actions, seeking to observe the whole of manifestations of the social issue and citizens who demand public service. (Wanderley et al., 2020, p. 8, our translation)

We understand that observing the whole and enabling public policies to act in an intersectoral manner on social determination requires disputing with the state itself the universality, equity, and comprehensiveness in political decision, since this state, constitutionally responsible for protecting and guaranteeing rights to citizens who demand public service, often responds to and articulates with the

system that defends a minimum state and focused public policies.

Therefore, achieving intersectorality will be necessary and indispensable in order to act on the reality of mobility as a social determination of health. However, even while carrying out the reforms that intersectorality enables, if we do not have as a goal the revolutionary perspective for overcoming this hegemonic model of city and mobility, we will not promote health according to the concept presented by Juan César García and advocated by us in this study (García, 1989).

Finals considerations

Urban mobility, a functional complex of cities, is a process inseparable from human life and life in society, on which it has implications as social determination of health. To act on the social determination of health, it is necessary to bear clearly in mind which concept of health we embrace, as this will reveal much about the concept of "determination" underlying the phenomenon analyzed.

In this study, the concept of health requested by us imposes urgency in opposing the analytical focus that blames the individual for the deleterious consequences of mobility on health. Therefore, by committing to analyze mobility as a social determination of the health-disease process, we go through an analytical journey guided by the dialectical view between what determines and what is determined. It does not seem reasonable to speak of social determination without a critical study of "what society is this" and without understanding, in an ontological way, its material and historical constitution.

Accordingly, possible ways to act effectively on the social determination of health point to intersectoral processes. Intersectorality requires political decision, mobilization and social articulation. Not one and then the other, but all three, in a dialectical and procedural way. It also requires an integral view, without separating the observable implications from their multidimensional relationships.

In this sense, would it be possible to apprehend the totality if the observation lens were monothematic? No. The sectorialization of the view fractures and fragments reality, incurring the risk of once again—by alienation from the non-fragmented, complex, and non-linear reality—disguising as cause what is only a symptom and, through this bias, perpetuating inequities and preventing universality and comprehensiveness in health.

Addressing health inequities arising from urban mobility will also involve deepening the methodological theoretical framework, expanding studies that oppose the worldview not only of the traditional epidemiology, but also of the political action, which challenges us to continue this study with the expectation of contributing to a trade-off, with urban mobility becoming part of collective health strategies. To this end, as a concept, but also as a policy, Health Promotion can be a key device of the intersectoralities on which the relation between mobility and the health-disease process will be mapped, interpreted and disentangled, with the prospect of a becoming of social justice. Especially having in the outreach/materiality of the SUS health care network (mainly primary health care), and in its social actors, an opportunity for intervention already intersectoralized in the territory.

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