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What constitutes a syndemic? Methods, contexts, and framing from 2019

Emily Mendenhall^a and Merrill Singer^b

Purpose of review

The purpose of this review is to describe what methods were used for 60 articles on HIV syndemics in 2019, where they took place, what syndemic clusters emerged, and why this matters.

Recent findings

Most articles published in 2019 used regression analyses, and fewer used higher level modeling techniques, frequencies and descriptive, longitudinal cohort study, and social network analysis. Some employed ethnography, qualitative interviews, or were simply reviews. Most syndemic co-factors were substance abuse, risky sexual behavior, depression, intimate partner violence, stigma, sexually transmitted infections, and trauma and non-communicable diseases. Half of the studies were conducted in the United States and mostly in urban areas. Other contexts were Canada, Kenya, Uganda, Liberia, Nigeria, South Africa, and Botswana, Jamaica, Dominican Republic, India, Indonesia, China, Peru, and Romania.

Summary

Most recommendations suggested that people living with HIV need interventions that address other factors situated within their life, such as their mental health, social stigma, experiences of trauma and intimate partner violence, and social stigma and sexual risk taking. Many took an intersectoral approach and emphasized the need to consider the various factors that shape experiences with HIV, from sex, sexuality, class, race and ethnicity, and past trauma.

Keywords

HIV/AIDS, integrated care, quantitative, syndemics

INTRODUCTION

Striving to understand what drives HIV infection and the covariates in which HIV is experienced was at the center of conceptualizing syndemic theory 30 years ago. The idea of syndemic – or *synergies* of co-occurring epidemics – was developed through ethnography around the social realities and structural drivers of HIV. At the same time, the salience of synergistic epidemics was becoming visible within and between communities in the United States, and particularly in the inner city. The syndemic concept has added a great deal to understanding HIV ‘risk’ – not as an individual feature but rather ‘as the space – whether social or physical – in which a variety of factors exogenous to the individual interact to increase the chances of HIV transmission’ [1] (p. 1027). In this sense, thinking syndemically brings together the environment and individual embodied experience to think about what types of interventions matter – from social policy to clinical practice. The syndemics concept, thus offers a framework for identifying and gathering of critical information for

prevention, prognosis, treatment, and health policy.

Situating syndemic thinking requires that we adhere to three overarching tenets of the theory. These rules have been published extensively [2,3], however, there continues to be some confusion of what constitutes a syndemic [4^{***}]. Syndemics theory unites three core features. First, two or more diseases cluster together within a population – often this relationship is well documented epidemiologically, although often described as comorbidity or multimorbidity. Second, there is some type of biological, social, and/or psychological interaction of those

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KEY POINTS

- Syndemics is increasingly dominated by epidemiologists as opposed to anthropologists.
- Most articles published in 2019 were quantitative, but still most considered additive effects.
- The most common co-factors were substance abuse, risky sexual behavior, depression, intimate partner violence, stigma, sexually transmitted infections, and trauma and non-communicable diseases.
- Most studies are in urban United States contexts, with increasing work on syndemics around the world.
- People living with HIV need interventions that address other factors situated within their life, such as their mental health, social stigma, experiences of trauma and intimate partner violence, and social stigma and sexual risk taking.
- Syndemic studies emphasize how sex, sexuality, class, race and ethnicity, and past trauma affect those living with HIV.

diseases, which may include anything from well documented interactions in the biological literature (such as inflammation) to ethnographic documentation in empirical anthropological study (like stigma). Third, there are recognizable large-scale social forces that precipitate disease clustering in the first place, from systemic oppressions, such as colonialism, enslavement, and segregation to neoliberal prioritizations of profits over people.

The second rule of syndemics – the one that emphasizes interactions – has provided some of the most salient disagreement among scholars [5–8]. This is in part because syndemics draws so widely on diverse scholarship and because what constitutes an interaction – from cells to society – may seem diffuse. On the one hand, adverse, disease promoting interaction at both the biological and biosocial levels is central to creating a syndemic. Without an identified interaction, such as between inflammation or stigma [9], it is difficult to argue that a syndemic occurs; this is in part as the interaction itself significantly worsens the health of people experiencing the clustered conditions [2]. HIV syndemics inherently involve the deleterious interaction of multiple diseases, from the longstanding co-infections that are sexually transmitted covariates to pesky environmental ones, such as malaria and tuberculosis. More recently, scholars have suggested chronic noncommunicable diseases, including mental illness, have become critical companions to HIV, and have suggested consequential syndemic relationships that are important to understand for

HIV-related policy and clinical practice. In this way, utilization of syndemics theory provides an approach for identifying the conditions that cause or exacerbate sickness as well as targeting underlying patterns of multidirectional disease causality to design better clinical interventions.

This was the focus of Singer and colleagues who first designed the ‘SAVA Syndemic’ to describe how the interactions among substance abuse, violence, and AIDS emerged from the ground up, showing how these factors worked together to affect ill health and define people’s illness experiences [10,11]. SAVA demonstrated why, at the population level, AIDS disproportionately affected people residing in the United States’ inner cities and how substance abuse and violence were inextricably linked to AIDS in this context. This argument is based on the notion that AIDS is not best understood as a singular phenomenon but rather a result of mutually reinforcing components of a syndemic health crisis characterized by poverty, high unemployment, and structural violence, which together increase risk-taking behaviors, such as substance abuse and interpersonal violence. Hence, this early work argued that the crisis in the inner city must be understood as a critical triangulation of substance abuse, violence, and AIDS, manifested at the individual level but revealed at the population level [10–12].

Over three decades, syndemic theory has diffused and gained growing utility in public health, medicine, psychology, nursing, oral health, chronic illness management, infectious disease prevention, and sexual and reproductive health, among others. This is evident in ever increasing numbers of publications employing the concept ‘syndemic’ in research as well as in recommended policy and practice. Previous to 2011, for example, PubMed listed less than 10 citations per year that included the term ‘syndemic/s’ in the publication text. For 2018, this number rose to 89 and in 2019 to 93. New applications of the syndemics approach to disease continue to emerge [13¹⁴,15¹⁶].

Despite being initially theorized through ethnography, syndemic research has swiftly shifted toward more quantitative approaches. Yet, there is some contestation around what and how well these quantitative studies are evaluating syndemic interactions at the heart of syndemic theory [4⁵,6,7,16¹⁷]. First, this may reflect the rigorous methods required to move from ethnography, an approach critical for unpacking how syndemic factors emerge and interact, and epidemiology, which requires building locally oriented tools to evaluate what syndemic cofactors exist and how they emerge and interact within a certain context. Second, still few sources have described a methodology for

evaluating syndemics within certain contexts or describing how a syndemic model should be tested [4¹¹]. Finally, because syndemic theories are applied to contexts around the globe by a growing number of researchers, it is important to understand how people currently are approaching syndemic thinking, syndemic models, and the implications of such framing. As syndemic thinking began with HIV, this area has the most publications to draw from. Thus, in what follows, we discuss the 60 articles indexed in Medline as published in 2019 that used the words 'HIV' and 'syndemic/s' (1 March 2020); this was two-thirds of all articles published using the term syndemic last year.

2019: PUBLICATIONS ON HIV AND SYNDEMICS

Table 1 shows that we found the most common co-factors explored in these articles addressed substance abuse (67%), risky sexual behavior (60%), depression (60%), intimate partner violence (58%), stigma (32%), sexually transmitted infections (27%), and trauma (23%). Six articles mentioned a noncommunicable condition, such as diabetes, hypertension, cancer, or cardiovascular disease. Thirty-seven percent focused on MSM, and many of these articles (but not all) were inclusive of people who were transgender. These articles demonstrate how relevant the original theory of SAVA among inner city population in the United States [10] is today, and potentially how current studies of HIV syndemics use SAVA framing to understand local phenomena and the co-occurrence of SAVA with other co-conditions.

Most articles on AIDS-involved syndemics published in 2019 used regression analyses ($n = 25$) and many of these articles considered the additive effects of additional syndemic co-factors. Four articles used

higher level modeling techniques, such as structural equation modeling, six evaluated frequencies and descriptive, and one observed a longitudinal cohort study. Four of these studies used a form of social network analysis. An article by Scheer and Pachankis [17¹²] argued, 'by testing whether the joint association of having one, two, three, four, or five syndemic risks was greater than additive [...] this study found preliminary evidence that the number of syndemic risks not only additively but also synergistically increased the relative risk of physical health conditions among SGM' (sexual and gender minorities) (p. 383). This approach represents a movement toward creative ways to address synergies within syndemic factors. For example, Jain *et al.* [18¹³] used a latent-class analyses to evaluate how perceived healthcare and financial barriers to pre-exposure prophylaxis (PrEP) use affect behavior among women working as sex workers along the US–Mexico border, with the syndemic cofactors of polydrug use, hazardous alcohol consumption, client-perpetrated violence, depression, and sexually transmitted infections. Those with more syndemic cofactors related to higher perception of barriers to accessing or adhering to PrEP. Logie *et al.* [19¹⁴] used structural equation modeling to show complexity within and between syndemic co-factors mediated nonlinearly: these researcher show how psychosocial factors play a crucial role in mediating social dynamics that affect HIV vulnerabilities in Jamaica, where LGBT criminalization facilitates enhanced stigmatization. Lee *et al.* [20¹⁵] used a network analysis among young Latino MSM to examine risk of engaging in condomless anal sex.

Of the remaining articles, three were reviews, two commentaries, and one consideration of a clinical case. Fewer were qualitative papers ($n = 10$), including three ethnographic studies and seven in-depth qualitative interviews. Six articles evaluated randomized control trials, or some type of intervention with either large or small samples. One presented recommendations for engaging, retaining, and delivering transdiagnostic cognitive-behavioral therapy/motivational interviewing, another used mapping, and two assessed the effects of multifactorial interventions over time.

A novel article by McLuckie *et al.* [21] used maps to identify areas with disproportionate local health department services among those with elevated opioid overdose, HIV, and hepatitis C diagnosis in rural counties in Illinois. Although visualizing rates of disease burden show common discordance with healthcare provision, they also show that highest discordance between disease burden and health services available were not consistent across disease categories, suggesting that politics were at play and

Table 1. Frequent syndemic co-factors to HIV in 2019 publications

Common co-conditions	N (n = 60)	%
Substance abuse	40	67
Risky sexual behavior	36	60
Depression	36	60
Violence (IPV or in childhood)	35	58
MSM (often but not always including transgender)	22	37
Stigma	19	32
STI	16	27
Trauma	14	23
NCDs (diabetes, hypertension, or cancer)	6	10

STIs, sexually transmitted infections; NCDs, non-communicable diseases.

that jurisdictions could prioritize certain interventions over others. Using maps to creatively show overlapping co-conditions with potentially impactful policy-decisions provides an important way to uncover impacts of syndemic thinking. However, where data comes from and how it conveys syndemic relationships requires additional thinking as currently syndemic studies of this scale have only been conducted with existing data. Such studies, while benefitting from awareness of syndemics do not seek to demonstrate the dynamics of syndemic interaction.

The articles under review exhibit a bias toward studies conducted in urban areas and in the United States. Half (32) of these articles were conducted in the United States, with 10 of these studies representing national samples. Four studies were conducted in Canada and another at the US–Mexico border. Beyond these areas, HIV syndemic studies were conducted in Kenya, Uganda, Liberia, Kenya, Nigeria, South Africa, and Botswana, Jamaica, Dominican Republic, India, Indonesia, China, Peru, and Romania. Although most studies were conducted in urban areas, there were some that were carried out in rural areas, such as Appalachia in the United States and Rakai in Uganda. One study did not actually specify the context in which it took place and five others were reviews or case studies.

Most recommendations suggested that disease focused interventions are not effective. In contrast, every article described how people living with HIV need interventions that address other factors situated within their life that affect their HIV disease, such as their mental health, social stigma, experiences of trauma and intimate partner violence, and social stigma and sexual risk taking. Many took an intersectoral approach [22] and emphasized the need to consider the various factors that shape experiences with HIV, from sex, sexuality, class, race and ethnicity, and past trauma.

CONCLUSION

Forward thinking about studies of HIV syndemics that can affect policy requires more collaborations among anthropologists, epidemiologists, and other health researchers and practitioners. Ethnographic work cannot be exported from one context to the next without considerations of how a disease sits in the social lives, behavioral patterns, and political systems of a particular population. Recognizing what and how syndemic co-factors generate interactions is vital in a world of overlapping diseases and provides rich contexts for building locally designed ethnographic tools for epidemiological research. This brings us to question exactly what tools are

utilized and how what is known and what is measured align.

On the other hand, methodological innovation is well underway. Path analysis and structural equations modeling provide opportunities for more nuanced analyses of how syndemic cofactors coexist, interact, and drive health and disease. Moving toward this more nuanced framing is critical to advance syndemic theory as opposed to depending on previous additive models that focus on co-occurrence of an undifferentiated list of disease and social factors without a focus on the interactions. Disease maps also provide an opportunity for thinking about syndemic co-occurrence (although, not necessarily interactions), and provide visuals to understand how policies or programs may influence syndemic cofactors within particular contexts. This emphasizes the importance of thinking about place, time, and experience from individuals to populations.

In sum, research on HIV syndemics demonstrates how rapidly syndemic thinking is growing and having an impact on understanding the complexities of living with or preventing HIV infection. Most of these studies unpack how psychosocial factors, from depression to violence and substance use, are to living well with HIV. Continuing to unpack the nuances of these dynamics should be a focus of future studies of syndemic and HIV more broadly. Of special importance is increased focus on the specification, description, and explanation of disease-disease and biosocial interactions in syndemics. In this regard, it is critical to identify the pathways of syndemic interaction.

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Conflicts of interest

There are no conflicts of interest.

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- of special interest
- of outstanding interest

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