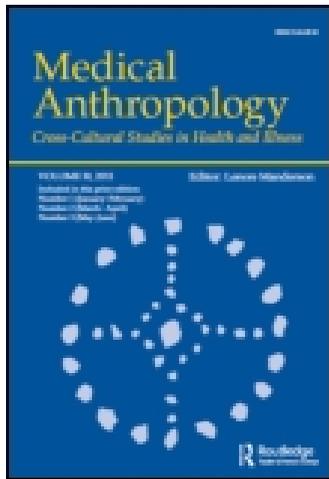


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Applying Syndemics and Chronicity: Interpretations from Studies of Poverty, Depression, and Diabetes

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Applying Syndemics and Chronicity: Interpretations from Studies of Poverty, Depression, and Diabetes

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Medical anthropologists working with global health agendas must develop transdisciplinary frameworks to communicate their work. This article explores two similar but underutilized theoretical frameworks in medical anthropology, and discusses how they facilitate new insights about the relationships between epidemiological patterns and individual-level illness experiences. Two cases from our fieldwork in New Delhi and Chicago are presented to illustrate how syndemics and chronicity theories explain the epidemic problems of co-occurring depression and type 2 diabetes. We use these case studies to illustrate how the holistic agendas of syndemics and chronicity theories allow critical scholars to attend to the macrosocial factors contributing to the rise of noncommunicable diseases while still honoring the diversity of experiences that make individual illness experiences, and actual outcomes, unique. Such an approach not only promotes a more integrative medical anthropology, but also contributes to global health dialogues around diabetes, depression, and their overlap.

Keywords *chronic illness, chronicity, health inequality, syndemics, urban health*

For more than a decade, medical anthropologists have sought to distinguish critical from biocultural approaches, and such divisions have resulted in two distinct theoretical and methodological orientations (Brown et al. 2009; Dressler 2005; Hruschka, Lende, and

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Worthman 2008). Critical medical anthropology is concerned with local experiences, identities, and behaviors within wider contexts of social forces and inequalities (Singer 2004), while biocultural anthropology explores “how sociocultural and political-economic processes affect human biologies, and then how compromised biologies further threaten the social fabric” (Goodman and Leatherman 1998:5). The emergence of theories around syndemics and chronicity in the 1990s stemmed from critical medical anthropological discourse (Estroff 1993; Singer 1994), but their application demonstrates that they bridge biocultural methods and theory (Leatherman and Goodman 2011; Mendenhall 2012; Weaver, forthcoming). By considering both individual experience and sociocultural context, syndemics and chronicity provide more inclusive alternatives to the subjectively oriented perspectives that characterized medical anthropology in the 1970s and 1980s, when there was a great deal of focus inward and introspection on individualized experiences within specific cultural contexts (Corbin and Strauss 1985; Estroff 1993; Kleinman 1988; Strauss and Glaser 1975; Williams 1984). Chronicity and syndemics theories accomplish a central goal of medical anthropology: exposing and evaluating the interaction of social, psychological, and biological factors that contribute to illnesses across cultures and across time. We do not argue that syndemics and chronicity are equivalent concepts or that they have the same goal; but they do serve similar functions in terms of promoting holistic analyses of disease processes that draw on both critical and biocultural strains of thought.

A syndemics framework describes situations in which adverse social conditions, such as poverty and oppressive social relationships, stress a population, weaken its natural defenses, and expose it to a cluster of diseases (Singer 2009; Singer and Clair 2003; Singer et al. 2006). With a focus on the meaning-centered aspects of illness experiences over time, chronicity describes both the identity-related and social changes that occur in a person’s life along with a long-term illness or disability, particularly with respect to relationships and social roles (Estroff 1993). Together, syndemics and chronicity approaches challenge medical anthropologists not only to deconstruct how macrosocial forces shape individual suffering and disease but also to attend to how such forces become embodied.

In this article, we discuss how theories of syndemics and chronicity push the boundaries of medical anthropology, using the comorbidity between depression and type 2 diabetes (hereafter, “diabetes”) as a case study. We examine interactions between depression and diabetes for several reasons. First, structural forces like poverty, urbanization, and the global marketing of processed foods are associated with increasing global rates of diabetes and depression (Patel and Kleinman 2003; Popkin 2002; Ruel, Haddad, and Garrett 1999). Second, microsocial stresses in individual lives increase risk for long-term diabetes and depression complications by compromising the abilities of individuals to control their diabetes (Ciechanowski, Katon, and Russo 2000; Mendenhall et al. 2010; Rock 2003). Third, a large body of medical research indicates a bidirectional relationship between diabetes and depression (Egede and Ellis 2010; Golden et al. 2008; Mezuk et al. 2008; Talbot and Nouwen 2000). Fourth, diabetes and depression are characterized by biomedicine as behaviorally grounded diseases whose treatments should involve both pharmaceuticals and behavioral modifications. Despite the culturally specific nature of behaviors surrounding these illnesses, most diabetes management programs assert a single model of therapeutic behavior change that tends to overlook cultural differences (Weaver, forthcoming). Finally, poor access to mental health care contributes to a disproportionately high burden of diabetes-related disability and death among socially disadvantaged groups (de Groot et al. 2001, 2007; Lustman et al. 2000). This last point is particularly relevant to the emerging

call for integrated mental health programs for socially disadvantaged groups around the world (Patel et al. 2007; Prince et al. 2007).

METHODS

Next, we present two case studies from our original research projects among women with diabetes and depression. We use these case studies as a jumping off point in order to discuss the theoretical constructs of syndemics and chronicity in depth, and to explore the shared and complementary aspects of each analytical framework. We conducted mixed-methods research on type 2 diabetes and depression among Mexican immigrants in Chicago, USA (Mendenhall and Jacobs 2012; Mendenhall 2012), and among women in New Delhi, India (Weaver, forthcoming; Weaver and Hadley 2011). The first study was conducted in 2010 with 121 Mexican immigrant women seeking diabetes care at the largest safety-net hospital clinic in Chicago. The second study was conducted in 2011 with 280 diabetic and nondiabetic Indian women seeking care at private and public clinics in New Delhi.

We combined critical and biocultural approaches from medical anthropology in our research design and analysis, in order to evaluate the larger political-economic and social processes that shape individual experiences through narrative, and to evaluate how such experiences become inscribed in mental and physical health outcomes. Such mixed methods approaches are a growing trend among anthropologists (Worthman and Costello 2009) and speak to an increasing interest across the subfield in the integrative approaches we demonstrate in previously published work (Mendenhall and Jacobs 2012; Weaver and Hadley 2011).

We collected and analyzed illness narratives, administered surveys about demographics and adherence to diabetes management, took body measurements such as body mass index (BMI), blood pressure, and waist-to-hip ratio, and collected blood tests to measure diabetes management. In addition, Weaver used locally derived measures to assess mental health and impairment in daily tasks associated with chronic illness. Mendenhall's study applied a standard acculturation scale and examined narrative histories of common social stressors, such as interpersonal abuse and violence.

Both studies evaluated type 2 diabetes control using finger stick blood sample hemoglobin A1c (HbA1c), which indicates blood sugar fluctuations over time and, ideally, should not exceed 7.0% (American Diabetes Association 2011). Mendenhall assessed depression using the Center for Epidemiologic Studies Depression Scale (CES-D), a 20-item questionnaire in which respondents are asked to what extent they experienced a list of mood-related items in the past week. The CES-D has been validated for use in Spanish-speaking populations (Radloff 1977; Soler et al. 1997), and a total score greater than 16 indicates clinically significant levels of distress. Weaver measured depression using the Hopkins Symptoms Checklist (HSCL), a 25-item questionnaire in which respondents are asked to score the intensity of each mood-related item in the last week (Mollica et al. 2004), and which she validated for use in Hindi-speaking populations (Weaver and Hadley 2011). Responses are averaged, and a score greater than 1.75 is considered a clinically significant level of depression or anxiety symptoms. We present the mental health and blood test scores as part of the case studies, to communicate each woman's severity of depression and degree of diabetes control.

The women in Mendenhall's study were, on average, 54 years of age, with a mean BMI of 35 ($SD \pm 7.6$), indicating obesity, and HbA1c of 9.1 ($SD \pm 2.1$), indicating poor diabetes control.

Forty-nine percent reported clinically significant levels of depression according to standard cut-offs, and nearly all women in the study belonged to low socioeconomic groups. The women with diabetes in Weaver's research sample were on average 54 years old, with a BMI 28.1 ($SD \pm 8.7$), representing a high health risk for South Asian groups (World Health Organization Expert Consultation 2004), and HbA1c 8.5% ($SD \pm 1.9$), also indicating poor diabetes control. Only 8.2% reported clinically significant depression symptoms; 75% fell into middle or lower socioeconomic groups.

The two cases presented next, one from each research sample, were selected because of their striking similarities to one another and their potential to best illustrate syndemics and chronicity theories. While neither woman embodies the mean of the sample on all demographic characteristics, they are not statistical outliers among our research informants. Maria, the Mexican immigrant case, is more overweight, slightly older, and of average socioeconomic status compared with the rest of the Mexican-American sample. Sita, the Indian case, is underweight, younger, and more socioeconomically disadvantaged than the average Indian participant.

INTRODUCING SYNDEMICS AND CHRONICITY

Syndemics Theory

Proposed by Merrill Singer in the mid-1990s, the portmanteau word *syndemic* combines the terms 'synergy' and 'epidemic' to conceptualize the mutual exacerbation of concurrent epidemics, including both diseases and social problems such as poverty. Implicit in syndemics theory is that (1) clustering of two diseases exists within a specific population; (2) contextual and social factors such as structural violence promote the clustering of these diseases; and (3) disease clusters create the potential for adverse interactions that increase the disease burden of impacted populations beyond a simple comorbidity of two distinct maladies (Mendenhall 2012). Syndemics theory addresses not simply the 'sum' of two illness parts, but considers their 'multiplicative' interactions with each other and with social adversities. It therefore promotes a holistic conception of the social, political, economic, and psychological factors that interact with diseases.

Syndemics theory has been used primarily to illustrate how harsh social realities exacerbate poor health among marginalized and impoverished populations around the world, and was first used to explore the relationships between substance abuse, violence and gang activity, and AIDS among low-income Puerto Ricans in the United States (Singer 1996, 2009). In this original work, Singer (1996) asserted that the inner-city AIDS epidemic was inextricably linked with a social context dominated by poverty, low rates of education and employment, and concurrent alcohol and drug addiction. These social problems fueled youth participation in gang activity, drug trade, and violence, and further perpetuated unstable life conditions that exposed them to needle sharing, unprotected sex, and other risk factors for HIV/AIDS. Associations between substance abuse and AIDS were not simply related to needle sharing practices, but were related to a larger social context of extreme disadvantage that promoted the conditions for a host of risky behaviors.

The second author coined the term *VIDDA Syndemic* (Mendenhall 2012) to describe the political-economic and social processes that shape the clustering of depression and diabetes among Mexican immigrant women in Chicago. The VIDDA Syndemic models five core dimensions that shape diabetes and depression interactions: violence, including structural, symbolic,

and everyday forms; immigration and associated feelings of social isolation; depression; type 2 diabetes; and interpersonal abuse.

The complex macro- and microsocial forces that shape depression and diabetes clustering converge around their shared causes and outcomes. Overly active stress responses, which occur in chronically stressful environments, can desensitize the body to insulin and therefore promote the development of diabetes (Bjorntorp, Holm, and Rosmond 1999; Geronimus et al. 2006), and such chronic stress also adversely impacts mental health. Likewise, diabetes involves blood sugar fluctuations that may, over time, erode mental health (Talbot and Nouwen 2000). Depression often leads to reduced physical activity and weight gain, which are risk factors for diabetes, while the lifestyle changes required by diabetes management regimens may themselves act as a depressive force because they require self-limiting activities that may be stressful or unpleasant (Golden et al. 2008).

The VIDDA Syndemic conceptualizes these shared causes and outcomes as part of an interactive system that acknowledges the effects of social forces. For example, social inequalities (such as interpersonal abuse and feelings of isolation) and structural and symbolic forces (such as violence and subjugation) would cause distress in any context; but they also create risk for diabetes by limiting access to healthy foods, knowledge about disease prevention and early detection, and preventative health care. Mendenhall argues that these conditions are experienced as a single multifaceted syndemic that generates poor health among Mexican immigrant women in Chicago. The VIDDA Syndemic framework is valuable in part because it provides a framework for conceptualizing the broad social forces shaping the distribution of each disease, through which individualized narratives of social, psychological, and physical distress can be understood.

The need for attention to the social dimensions involved in syndemic clusters is especially important because many scholars have used syndemics theory uncritically to emphasize the interacting and mutually augmenting effects of two diseases, without evaluating the social forces that are equally at play in this complex dynamic (Singer 2009). Medical anthropologists must set the agenda for the appropriate application of syndemics theory, and particularly for its integration into programs and policies aimed at mitigating the mutually reinforcing effects of epidemic social and health problems.

Chronicity Theory

The concept of chronicity first appeared in medical anthropology in 1993, when Sue Estroff used it to discuss schizophrenia. Chronicity, according to Estroff, incorporates symbolic and meaning-centered processes, such as inter- and intrapersonal conflicts that stem from struggle to reinscribe who 'I am' in the face of illness. At the same time, chronicity theory accounts for a political economy of disability, while maintaining a focus on the biological and epidemiological dimensions of chronic disease (Estroff 1993:249–250). By taking a life-course perspective on illness experiences, chronicity underscores the fact that many aspects of life become implicated in chronic illnesses, including (1) biological processes; (2) interpersonal relationships; (3) subjective and intersubjective perceptions of time; and (4) broader social conditions such as racial discrimination or systematic poverty, which are the roots of much ill health (Manderson and Smith-Morris 2010). This inclusivity is one point of similarity between syndemics and chronicity theories.

An emphasis on *time* and life-course perspectives is a necessary part of chronicity theory. In particular, a concern with perceptions, therapeutic functions of, and social responses to time is a hallmark of chronicity studies. Chronicity scholars have long noted that time plays a role in the physician's office, where it may become an unwitting instrument of biomedical dominance over patients (Frankenberg 1988), but it also shapes everyday illness experiences outside the clinical encounter. The unexpected onset of a serious illness or disability may create interruptions in one's *social clock* (Bury and Holme 1991), upending expectations about how and when one should proceed through life stages. Young women with early-onset arthritis, for example, may feel a sense of injustice that they have been afflicted by what is usually perceived as an illness of aging (Bury 1982). Time and timing also become politically charged, or "chronopolitic[al]," when they are used clinically to exert control over patients (Ferzacca 2010:158). Such politically charged negotiations around illness and control emerge repeatedly with diabetes, the management of which depends on regimented timings of medications and food.

Personal identity and a sense of life continuity are often at stake in unexpected intrusions of long-term illness (Becker 1994, 1997). Efforts to manage illness flare-ups over time can become a guiding principle as individuals struggle to regain a sense of normalcy, and may alter people's participation in key social roles such as parent, career woman, and friend (Becker 1994, 1997; Bury 1982; Charmaz 1991; Greenhalgh 2001; Maynard 2006; Murphy 1987). This is particularly true for diabetes; ethnographic research in various global settings shows that intensive identity work is involved in overcoming the disruptions created by diabetes' lifestyle requirements, self-monitoring, fluctuating test results, and sometimes unclear diagnostic categories (Manderson and Kokanovic 2009; Naemiratch and Manderson 2008; Smith-Morris 2005, 2006). Chronicity emphasizes how the accumulation of physical symptoms over time has concomitant accruing psychological, identity-related, and social ramifications.

The concept of chronicity was historically linked to Western societies where individualistic identities prevail, but it has been applied cross-culturally to explore both chronic and infectious diseases. Manderson and Smith-Morris's 2010 edited volume advanced chronicity theory by including studies from non-Western contexts. For instance, Good and colleagues (2010) reported that culturally specific models of psychosis etiology, spiritual beliefs, and family care in Yogyakarta help schizophrenia sufferers stabilize or recover from their symptoms, rather than experiencing the illness as a degenerative condition. Inhorn and Birenbaum-Carmeli (2010), in contrast, found that the marginalized political situations and violent histories of Palestinian men exacerbate their suffering from infertility. These and other pieces demonstrate that cultural contexts and chronicity dialectically shape one another, sometimes for the betterment of one's health, but other times for the worse. The ways in which people experience and understand chronic illness over time are a corollary of cultural context, but also have important implications for their health outcomes.

SYNDEMICS AND CHRONICITY IN CONTEXT

In this section we unpack one case study from each field site to illustrate how syndemics and chronicity frameworks explore experiential, psychological, and biological intersections between social experiences, depression, and diabetes. The first case study introduces Maria, a 64-year-old Mexican immigrant woman residing in Chicago who struggles with depression and diabetes.

The second case study describes 60-year-old Sita's experiences as a poor woman living in New Delhi with depression and diabetes.

Maria, Chicago, United States

Maria spent the first 56 years of her life in Vera Cruz, Mexico. As the eldest of eight children, she had to care for her siblings rather than attend school, and as a result, she has no formal education. At 16, she married and began a family of her own, and she eventually had eight children. She describes her married life as stressful rather than happy, primarily because of extreme poverty and her husband's prolonged battle with alcoholism, which resulted in his emotional neglect and recurrent physical abuse. He also had diabetes and suffered complications because he avoided visiting the doctor and continued to drink heavily, "killing himself with his diabetes," Maria said. Eight years ago, he hanged himself. Thereafter, Maria's children secured her passage from Vera Cruz to Chicago, where she moved in with her daughter and son-in-law and began caring for her infant grandson.

Now 64, Maria works in Chicago as a nanny and is paid under-the-table because she is undocumented. Although Maria appreciates the opportunity she has had to earn money in America, she resents the restrictions on her mobility resulting from her undocumented status, and remains preoccupied with trying to figure out how to return to Mexico. When asked if she envisions remaining in Chicago for many years to come, she says, "No, not anymore. In a year or two, I will go. I'll go back and live with my aunt."

Two years ago, Maria was hospitalized for an intestinal infection associated with diverticulitis, and was diagnosed with type 2 diabetes. She had suffered from hypertension for many years, but after her diabetes diagnosis, her motivation to move back to Mexico began flagging. After watching her husband suffer with diabetes, Maria says, she is "really afraid of diabetes." Yet, she has not been able to bring her blood sugar under control (HbA1c: 10.8%), and she remains severely obese (BMI: 41).

Recently, Maria discovered that her son-in-law was physically abusing her daughter and grandson. Outraged by the fact that this abuse has extended from her own generation to her daughter's, she took her grandson and moved into a small apartment. For the first time in her life, Maria is now self-sufficient, but her salary is barely enough to cover the rent, support her grandson, and pay for her own health care. She has extended her work hours to try to make ends meet. Maria has been struggling with depression (CES-D: 25).

Maria's daily routine is hectic, involving a long commute by public transport, household and childcare at work, and more of the same when she returns home in the evening. She states, somewhat defensively, that this routine makes it impossible for her to take care of her health: "I could do a marvelous job controlling my diabetes, but I *have* to work. . . . I think I don't take my medicines because I have to take care of [my grandson]. But before in the mornings I would do my exercises . . . and prepare *nopales* [fruits believed to control diabetes] and eat them." Now that she works longer hours, Maria often skips her morning medicines because she has no time to eat breakfast before work, and she knows she is not supposed to take them on an empty stomach. Most evenings, she only has enough energy to eat something and watch TV with her grandson. When asked what she does in the evening, she shakes her head slightly and sighs, "I just go to bed. Every day is like this. Every day."

Maria's story exemplifies the VIDDA Syndemic, demonstrating how structural violence, immigration stress and feelings of isolation, depression, diabetes, and abuse are interconnected. First, structural violence plays a central role in Maria's story, from her impoverished childhood, lack of education, and her husband's alcohol dependence, to the financial and legal restrictions on her mobility now in Chicago. Second, Maria's feelings of social isolation after immigration are a fundamental source of stress; at once she grieves for the loss of social support in Vera Cruz

and struggles to make sense of family discord in Chicago, but is constrained from moving freely between these two places by her undocumented status and financial insecurity. Her dependence on the hospital clinic where she learned about her diabetes diagnosis, and her fear about uncertain access to diabetes care in Mexico, limits her ability to consider leaving Chicago. Third, Maria reports depression. Fourth, Maria faces challenges as she learns to care for her diabetes. Finally, Maria reports a history of interpersonal abuse.

Beyond her diabetes, Maria's major concern at the time of the interview was to support her grandson financially and to protect her grandson from her abusive son-in-law. As Maria acknowledges, "I could do a marvelous job controlling my diabetes, but I *have* to work." Yet, her physical and mental health status (including her depression, extreme obesity, and poor diabetes control) portend future health complications, which will undoubtedly add to the stress she is experiencing over her family troubles if they remain unaddressed. The family and financial stressors in Maria's life increase the likelihood that her health will continue to decline by making it difficult for her to take care of herself.

Finally, significant physical aspects of Maria's narrative cannot be ignored. Maria describes her everyday life as a blur of city commuting, childcare, and food preparation. Her routine affords her neither time nor energy to take care of herself; instead, she collapses in front of the TV in the evening before falling asleep to do it all over again, remarking that "Every day is like this." Maria's obesity, which could be both a cause and a consequence of her diabetes, marks her visually to others as unhealthy. Her lack of attention to her own health is reflected in her high HbA1c level.

Maria's narrative also illustrates several aspects of chronicity. She reports parallel accumulations over time of social disadvantage in her past and physical symptoms in her present. Her narrative, and her illness management choices, seem to take place somewhere between these past and present worlds, exemplified by her constant shifting back and forth between the two as she tells her story. The abuse she endured from her husband in Mexico continues to haunt her, and is resurrected by the discovery that her daughter and grandson are being abused. Her memories of watching her husband suffer with diabetes influence her feelings about her own diagnosis now. Maria is ambivalent about whether to stay in America or return to Mexico—whether to remain in the less-than-ideal present or to return to a past which may or may not have changed for the better in her absence.

Maria struggles to reconcile her social roles with her illnesses. Since her diabetes diagnosis, Maria has taken on the *additional* role of the main caregiver for her grandson. This contrasts with many accounts of chronic illness, in which the sufferer is compelled to withdraw from social roles (Becker 1994, 1997; Charmaz 1991; Greenhalgh 2001; Maynard 2006; Murphy 1987). These additional responsibilities create self-care challenges that will eventually harm her health, but she needs to hold onto them for both personal and practical reasons.

Maria's caretaking and working roles also serve important symbolic functions involving her identity and sense of self. Maria's work appears to be a source of pride and a symbol of her ability to persevere in the face of difficulty; her social roles provide a sense of continuity in an otherwise disordered life narrative. Since she was young, Maria has cared for children—first her siblings, then her own children, and now her grandson. Maria's new responsibility as her grandson's primary caregiver allows her to intervene in a family-wide cycle of abuse, which she was not able to stop when she herself was the victim.

Maria's story shows us that the stress of diabetes cannot be separated from the other struggles in her life. As opposed to focusing on the role of diabetes in depression or depression in diabetes, the VIDDA Syndemic analysis emphasizes the interaction between context and clustering of the

two chronic conditions. Hence, in a chronically stressful context of financial insecurity, social isolation, and internalization of past abuse, the interaction of diabetes and depression becomes not only possible, but common.

Maria's case study also demonstrates how a life-course perspective on suffering and illness give us clues about why she prioritizes various aspects of her life, and how they contribute to her identity. By shifting repeatedly between past and present, Maria's own telling of her story underscores the almost seamless connection between the various phases of her life. In particular, her history of abuse at the hands of her husband informs her present strong feelings about her grandson's abuse and her fears about her diabetes. Although she does not explicitly connect the two, her depression is probably partially related to her history of abuse. In the present time, the practical necessity of Maria's social roles does not elide their symbolic importance, or their direct impact on her physical health. Maria's distress is defined by its chronicity: an unending burden of financial insecurity, struggling to fulfill the roles of caretaker and employee, and concurrently trying to care for her own illness.

Sita, New Delhi, India

Born in a village to a low-caste family in the eastern state of Orissa, Sita and her three sisters were orphaned as children when her parents died in a vehicle accident. Soon after, a salesman came from a nearby town selling kitchen goods, and informally adopted Sita and her infant sister because they had only sons. The baby died from severe jaundice shortly after their move, and when the family faced financial hardship, the salesman decided to enroll Sita in a Christian missionary orphanage in the state capitol. Sita studied there until the fifth class and was transferred to the orphanage's main branch New Delhi. At 19, the orphanage arranged her marriage to a young man who was also their ward, and within five years they had a son and a daughter. Sita never again saw the two sisters who had remained in the village.

At the time we met, Sita was extremely thin (BMI 16.8), frail, and full of despair.¹ She and her husband were working as fulltime domestic help in a large *kothi*, or wealthy estate, in central New Delhi, where they had been employed for years. Their pay is extremely low, even by Delhi standards, but they receive a one-room servant quarter to live in as part of their job benefits. Although they want more lucrative jobs, they cannot otherwise afford rent anywhere in New Delhi. Crying when asked why she could not quit her job, she states, "I have no one here [in Delhi]. I don't have any relatives we could stay with. Where would we go?" Sita reports high levels of depression symptoms (HSCL: 2.4), and suicidal thoughts. When asked if she feels hopeless or lonely, she states, "Yes, that happens. That happens all the time."

At age 32, Sita began having recurring yeast infections, feeling chronically tired, and losing weight which she has never been able to regain. Her family doctor diagnosed diabetes, and she has taken oral diabetes medication intermittently in the eight years that have elapsed since her initial diagnosis. "If I have money, I take medicines. If not, I don't," she states matter-of-factly. Her pills cost about Rs. 1300 per month (around \$26.00), over one-third of their total monthly income. She also lacks time to maintain a regimented eating, medication, and blood testing schedule. "When I'm working inside the *kothi*, I don't pay attention to the time," she explains, "so I don't eat on time. Sometimes I don't eat anything till four o'clock. When I'm free from work in the afternoon, then only I eat." She also does not attempt to maintain a diabetic-friendly diet, saying, "I think, I'm going to die anyway, so I might as well eat what I like." Her diabetes is very poorly controlled (HbA1c: 13.0%) and her ongoing fatigue and numbness in her hands and feet sometimes interfere with her work. She reports that she often wakes up hungry in the middle of the night, is very thirsty, and has to urinate frequently, all signs of uncontrolled diabetes.

Sita is aware of her diabetes, especially when asked about its effect on her life. “I did everything before, but now I don’t feel like doing anything. Everything I do, I have to force myself to do,” she says. “Because of diabetes and these hand [numbness] problems, after I do some work, then I have to sit down for a while.” Despite these physical reminders of her illness, more pressing concerns related to livelihood and housing security dominate Sita’s thoughts. “I do think about [diabetes], but—well, I don’t really think about my illness. I just think that I should have my own house, my own room, my own home. If I died, at least my children would have a permanent place to live. This is the only thing about which I have tension; I have no other worries.”

As an impoverished urban migrant with no extended family and little education, accumulated structural violence predisposes Sita to a lifetime of poverty and limited opportunity, which now interacts syndemically with her physical and mental health. She feels trapped in her present situation, including her low-paying job, because of the number of years she and her husband have invested in working for the family, her awareness that she lacks the education and training for any other kind of work, and especially because of the servant quarters they receive as domestic help for this specific family.

Sita has neither the resources to pay for medicines, nor the ability to test or interpret her own glucose. Although she is irritated by her diabetes-related symptoms, she is more concerned about the immediate need to secure permanent housing for her children. Her complacency about her diabetes is fueled, to some extent, by a sense of resignation that “I’m going to die anyway;” this statement is one of several allusions that Sita makes to her own death during the interview. This conception of the inevitability of decline and ultimate death from diabetes has been noted among other marginalized groups where diabetes prevalence is high and complications are common. (Kozak 1997)

Structural violence and depression contribute to Sita’s suboptimal diabetes control, and the symptoms she experiences because of her uncontrolled diabetes cyclically fuel her depression, augmenting the severity of both conditions. Like many members of poorer groups in Delhi, Sita is confronted with challenges linked to her diabetes that are less common among people of the upper economic echelons. Poorer people with diabetes, like Sita, experience more extreme forms of social stress, elevated depression, and poorer access to health care when compared to higher income groups (Mendenhall et al. 2012). Mendenhall and colleagues found that low-income women in Chicago and India experience shared social factors (such as abuse, poverty, and isolation) that promote the co-occurrence of depression with diabetes. With economic transitions occurring in present-day India, the country’s epidemiological landscape will likely, over time, shift to reflect that of high income countries, where the poorer groups, like the one to which Sita belongs, bear the burden of diabetes. Recent epidemiological studies of diabetes and other chronic diseases in India have documented the increasing prevalence of these illnesses among poor groups (Leone et al. 2012).

The chronicity of Sita’s illnesses is also key to understanding her health management choices. Time is relevant for Sita in several ways, not least of which is the accumulation over her lifetime of the structural inequalities mentioned earlier. These inequalities intersect with her nearly decade-long experience of living with diabetes in such a way that her health is compromised.

Sita’s narrative raises several other time-related points. First is the question: To whom does Sita’s time belong? When she is at work, she stays so busy that she loses track of time and does not eat anything until late afternoon. In many ways, her time is not her own, belonging instead to the people for whom she cares: her employers and her own family. Her apparent inability to attend to even the basic need for food appears to have serious consequences for her blood sugar, which fluctuates dramatically, judging from her extremely high HbA1c blood test. The consequences of unregimented time and timing are especially dire for diabetes because, as Ferzacca

(2010) noted, its management depends on “diligent and even disciplined attention from both the medical clinic and the sufferer” (158). This demand for discipline is a crucial part of biomedical management (Frankenberg 1988), but is incompatible with both Sita’s and Maria’s responsibilities to others.

A chronicity-focused analysis also underscores Sita’s altered perceptions of time and timing. Her multiple references to her own mortality suggest that she is keenly aware of impending death, an impression that contrasts markedly with her physical appearance as a youthful (albeit tired), active, and capable woman. She longs for housing security not for herself, but so that her children will have somewhere to stay should she die unexpectedly. She figures she will eat what she wants because “I’m going to die anyway.” This sense of impending doom is likely related to Sita’s persistent physical weakness as well as her depression. The outcome is that both the amount of life Sita has remaining, and its value, appear diminished. A compression of time occurs here, but also an apparent change in the intrinsic value of that time for Sita, who seems to feel that it is not worth the effort to actively try to prolong her life with healthy eating habits.

DISCUSSION

Maria’s and Sita’s narratives provide important individual-level insights to help us understand population-level interactions between distress and diabetes. Syndemics theory allows us to examine the multiple layers of suffering experienced throughout the life course and to consider implications of such suffering on concurrent depression and diabetes. By emphasizing both the processes and the outcomes of illness, chronicity theory is uniquely positioned to produce analyses that are sensitive to the various life narratives, life circumstances, and physical health outcomes that comprise individual experiences. The differences in Sita’s and Maria’s lived illness experiences are important, but so too are the similarities.

Maria’s and Sita’s physical and mental health outcomes are very similar—depression and uncontrolled diabetes. A VIDDA Syndemic analysis illustrated how violence, immigration, depression, diabetes, and abuse interact in both Maria’s and Sita’s lives. First, both women suffer from poorly controlled diabetes and clinically significant levels of depression symptoms. Second, their social conditions are similar, characterized by high levels of disadvantage relating to their ethnicities, their levels of education, and their gender, which leave them qualified for few jobs except working in the informal sector as domestic help. Both are responsible for the well-being of many people, including their own families as well as those for whom they work, and partially because of these responsibilities to others, they neglect themselves. Third, both are migrants who feel isolated; they receive minimal social support in their present circumstances. For Maria, this isolation takes the form of widowhood, loneliness for her family in Mexico, and her recent move out of her daughter’s household. For Sita, this loneliness is a persistent fact of life resulting from her and her husband’s orphanhood. These are fundamental sources of psychological distress for each woman, and contribute to their lack of self-care, since neither has a supportive network of individuals who might encourage them to take care of themselves.

The VIDDA Syndemic framework helps us understand how social distresses undergird the etiologies of psychological and physical problems, and how such problems may loop back to cause further social and emotional disturbance. Each woman’s life stress is embodied in her diabetes and depression, and each woman’s embodied illness cyclically creates more life stress.

Although neither Maria nor Sita nominates diabetes as the key stressor in her life, their uncontrolled diabetes and high depression scores suggest that diabetes has had a profound impact on their physical and mental health and may eventually cause serious complications. Sita already reports symptoms of neuropathy (numbness in her hands), which may be irreversible.

Despite the similarities in Sita's and Maria's life circumstances and health outcomes, the differences in their lived illness experiences point to the widely variable processes that have contributed to these outcomes. Analysis of Maria's and Sita's cases from a chronicity perspective highlights what is at stake for each woman over time. Time features prominently in both women's narratives. The accumulation of economic and family stresses adversely affect their ability to maintain their health. Her history of abuse is especially important as a catalyst for Maria's suffering, while for Sita, orphanhood and low social status appear to be the starting points leading to her lifelong social disenfranchisement. The duration of Maria's poverty directly connects her illness to the immediate crisis of her grandson's abuse, while Sita's perception of the passage of time appears to have accelerated with her worsening symptoms, such that she feels death is imminent. Time expands and contracts in each woman's story based on the rubric used to measure it—shortened in the hectic present of each woman's life, yet stretching across lifespans when we consider the fundamental causes of their illnesses.

Both women also experience disruptions in their personal identities resulting from altered family and social roles, a common feature of chronic illness experiences (Becker 1997; Charmaz 1991; Crooks 2007). They are keenly aware of the lack of social support resulting from being orphaned, geographic resettlement, and the restrictions placed on their activities by their illnesses. Major strains in Maria's family relationships exacerbate her ill health by creating a situation where she feels compelled to take on her grandson's care, thus necessitating longer work hours. Each woman's biomedical treatment regimen demands intensive self-care, but these expectations contradict dominant cultural models that emphasize family and women's service to others in Mexico and India (Finkler 2004; Donner 2008; Ray and Qayum 2009). Choosing to adhere to their diabetes management plans would, therefore, require on some level a disavowal of important identity roles, so perhaps we should not be surprised that neither woman is especially adherent (Weaver, forthcoming).

Third, each woman's present social, physical, and mental 'maladies' are, to a large extent, extensions of historic political and economic processes that have subjugated migrants in the United States and low castes in India for generations. These forces have been called "structural chronicities" (Wiedman 2012:585) by chronicity theorists and "structural violence" by those using a syndemics approach (as conceptualized in Farmer 1997), but they can index a nearly identical emphasis on the political and economic roots of ill health among disadvantaged groups. Wiedman further emphasized how structural chronicities shape individual and group-level health outcomes in significant ways regardless of socioeconomic status, a finding that underscores the broad applicability of chronicity theory. This shared concern with structural forces and their impact on health makes syndemics and chronicity theories compatible.

CONCLUSION

The shared holistic agendas of chronicity and syndemics theories allow for structural analyses of disease linkages and similarities, while preserving the individual-level differences that make illness

experiences unique. As we have demonstrated, the two theoretical frameworks can generate novel insights about disease interactions; in this case illustrating that ‘comorbid’ diabetes and depression do not, at least for the people experiencing them, manifest as two distinct conditions that merely happen to co-occur in the same body. Rather, diabetes and depression interact in complex ways with each other and with the social conditions in which they occur, and these relationships change over time. As many other scholars have noted (e.g., Kleinman 1988; Lock 2001; Luhrmann 2001; Smith-Morris 2005), biomedical nosologies that make sharp distinctions between diseases do not necessarily reflect the realities of human illness as they are lived from day to day.

Syndemics and chronicity theories add value by accounting for the differences in these everyday realities, which although often subtle, can have overt consequences for health trajectories. The two theories are like mirror images, each reflecting and complementing the other (and at times overlapping). While a syndemics framework is especially useful for exposing complex etiological pathways (broadly conceived as social, political, and economic conditions that combine to promote ill health), chronicity is particularly well-poised to explore every day coping behaviors and epistemological concerns surrounding identity in illness. A truly holistic exploration of illness should do both. The combination of chronicity and syndemics approaches, demonstrated previously, moves medical anthropology closer to this goal, providing a truly integrative understanding of illnesses with application to other fields, such as public health, medicine, psychology, and sociology.

Interpreting multiple levels of social, psychological, and biological interactions will be increasingly important as urbanization and rapidly changing lifestyles continue to transform global health problems. Medical anthropology’s study of diseases in multiple social and experiential registers must be communicated more fluidly into global health research as long-term, chronic, and noncommunicable conditions become the dominant forms of human illness around the world (Murray and Lopez 1996; Lopez et al. 2006). The inextricable linkages between individual biologies and the political-economic environments in which we live should not remain isolated within the terrains of critical medical or biocultural anthropology. Rather, an integrative medical anthropology that draws from our field’s rigorous theoretical convictions and methodologies should speak across disciplines, extending beyond the domains of our dialogue to improve the lives of the people with whom we work.

NOTE

1. One symptom of uncontrolled type 2 diabetes is extreme weight loss; Sita reports being “fat” before she was diagnosed. Furthermore, South Asians often develop diabetes and other diet-related chronic diseases at lower body mass indices than Euro-American populations do (World Health Organization Expert Consultation 2004).

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