

Treating ‘collective biologies’ through men’s HPV research in Mexico

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Abstract

Medical testing assesses individual bodies, yet its effects reach beyond their boundaries. Building on insights from medical anthropology and STS regarding the co-construction of medical technologies and bodies, I investigate how heterosexual Mexican couples used men’s HPV testing to understand and assert membership in collective ‘couple’s biologies’. I analyze interviews undertaken during men’s participation in a longitudinal, observational HPV study. Men underwent annual DNA-based HPV testing, often receiving unexpected diagnoses that led couples to deal with the possibility of HPV transmission and its possible harms. I argue that these couples drew on context-specific ideologies of gender and race in their understandings of and responses to men’s test results. I show how they understood HPV positivity as a condition of the couple’s biology, mediated by what participants viewed as potentially racially innate if problematically backward gender attributes. Couples then used the experience of medical testing to live out self-consciously modern forms of gender, marriage, and self-care, which they hoped would counteract the harms of HPV. I conclude by discussing the importance of considering context-specific collective biologies, rather than just individual bodies, in the use and social scientific study of medical technology.

Keywords

HPV, gender, race, biology, marriage, heterosexuality

Making nonindividual bodies visible in anthropology and medical research

The individual body is the primary and de facto unit of analysis within now-globalized Western biomedicine. Despite increasing attention to how people's relationships mediate their health (see Berkman and Glass 2000), patients are fundamentally defined as individuals, and testing and intervention are done on individual bodies. Even public health researchers who investigate community-level concerns conceptualize 'populations' as aggregates of biological individuals (Mason 2018). This idea has been scientifically productive. Yet, it also represents only one possible approach to healing. The notion of the individual as the fundamental unit of biological analysis and treatment reflects Western cultural emphasis on individualism as much as it does dynamics of health and sickness. In cultures that emphasize relationality, people might not only see relationships as equally or more significant for identity than individual attributes; they might also understand medical intervention and its effects through that lens. Just as researchers are furthering our understandings of biology and embodiment by challenging the naturalization of cultural tropes like Cartesian dualism (for example, Wilson 2015) and race (for example, Shim 2005), I argue that we also need to question the biomedical assumption that the body is only or is most significantly individual.

Social scientists have long analyzed social groups as bodies in a metaphorical sense and interrogated the relationships between metaphorical collective and material individual bodies (Wilkins 2015). Investigating the linked physical and social consequences of relationships among social, political, and individual bodies is also a foundational goal of medical anthropology (Scheper-Hughes and Lock 1987). I suggest that in addition to understanding collective bodies as helpful metaphors for apprehending the social, political, and experiential contexts that influence individual biologies, we can better understand human health experiences and determinants in some contexts by also understanding collective bodies in a literal sense.

Applying this lens to a case of medical research participation in Mexico, I build on Margaret Lock's key concept of 'local biologies'. Lock challenges the biomedical presumption of universal human biology, arguing that bodies could be more usefully understood as 'ongoing

dialectic[s] between biology and culture in which both are contingent'¹ (Lock 1993, xxi; Lock and Kaufert 2001). Investigating 'the way in which biological and social processes are inseparably entangled over time' (Lock and Nguyen 2018, 90) has enabled productive assessments of biologies as 'site[s] where difference registers' (Brotherton and Nguyen 2013, 290), in relationship to factors ranging from environmental pollution (for example, Wahlberg 2018) to the deployment of medical interventions based on universalizing ideas of biology that do not match local realities (for example, Towghi 2013). Scholars have also noted the danger that insufficiently dynamic conceptualizations of local biologies can inadvertently reify biologically essentialist and scientifically invalid ideas of race- or class-based difference (Yates-Doerr 2017; Meloni 2014). These warnings highlight the need to analyze local biologies' ontological as well as physiological aspects by investigating the perspectives and practices that make them not only exist but also become visible and valued or devalued (Gilbert 2013; Niewöhner and Lock 2018; Yates-Doerr 2017; Bharadwaj 2014). I build on these insights to think further about an aspect of local biology that is invisible in biomedical practice but both ontologically and physically present in some cultural contexts: biology as collective.

I define 'collective biologies' as biosocial groups whose interrelated behaviors and bodies can be influenced by the actions of those who form parts of these larger wholes. They are context-specific, shared understandings of what constitute the biosocial building blocks of a given society, reflecting and enfleshing that society's key understandings of personhood. Understandings of embodied personhood as inherently collective are business as usual in the diverse world cultures that give primacy to relationships and non-individual entities like family. I thus intend this term as useful shorthand for an already prevalent but biomedically invisible understanding of biology, with the hope of making nonindividual biologies just as anthropologically visible, and medically treatable, as individual bodies.

To make collective health experiences and changes visible, I investigate the effects of individual medical research participation on collective biologies, specifically in the Mexican arm of a study titled 'Human Papilloma Virus in Men', or 'HIM' (for more on this, see Wentzell, forthcoming). All sites of this multinational research project, funded by the US National Institutes of Health, used the same experimental protocol (Giuliano et al. 2006). They repeatedly tested the DNA of men's genital skin over time to detect occurrence and clearance of human papilloma virus (HPV), a common and often asymptomatic sexually

1 Note that 'culture' is used in a comprehensive, anthropological sense here, to mean social and structural context as shaped by histories of human-environment interaction, rather than a more common non-anthropological understanding of cultures as sets of learned behaviors.

transmitted infection. At the US study site, male participants attended testing alone, discussed monetary compensation as a main reason for participation, and reported sharing little information about this experience with their partners (author's unpublished observation). In contrast, Mexican HIM participants were not financially compensated as per federal law, and engaged quite differently with this medical research project. Some made the experience a family affair, for example, bringing their partners with them to the clinic to discuss test results. Further, in our interviews HIM participants and partners revealed simultaneous adherence to the individualizing logics of biomedical testing and understandings of themselves as parts of nonindividual groups that were interconnected biologically as well as socially, and that would be affected on both fronts by men's HIM participation. My research investigated how these health research participants and their romantic partners used a medical technology applied to men's individual bodies to treat the physical and social ills of their 'collective biologies'.

Using data from interviews with these couples, I discuss here how HIM participants and their partners incorporated experiences of men's HPV testing into their understandings of the collective 'couple's biologies' which they formed. Spouses understood the experience of men's HPV testing as a tool for treating both biological and social ills, from preventing the development of HPV-related cervical cancer in women, to averting the potential failure to live out modern ideals of gender and marriage. Below, I first discuss local ideologies of collective biology and the cultural factors that inform them. These include Mexican popular racial ideology and related postrevolutionary political projects that promoted collectivist understandings of personhood by urging people to advance the race and nation through their own health and gender behavior. After discussing the broader cultural and HIM study settings, as well as my research methods, I then analyze how spouses used men's participation in medical research to treat simultaneously biological and social ailments affecting their shared couple's biologies. Specifically, I discuss how they saw men's test results as directly reflecting female partners' health status, and their efforts to use HIM participation to continue or begin living out local modern ideals related to gender and marriage that they hoped would minimize the biosocial risks of sexually transmitted infection (STI). The present case thus reveals how people's responses to medical research participation and STI test results can be influenced by their collective rather than individual understandings of biology.

Mexican ideas of collective biology

Mexican racial ideologies underlie people's understandings of themselves as biologically and socially interconnected. Assignment of people to races is not a scientifically valid identification of natural physical similarity; instead, it is a social practice that reflects and

promotes culturally specific understandings of human nature, similarity, and difference (American Association of Physical Anthropologists 2019; also see Marks 2017). These ideologies of race powerfully shape how people understand themselves and treat others, actions which then affect the biological and social courses of people's lives.

In Mexico, it is commonly believed that the Spanish conquest of Indigenous peoples produced a racially and culturally unique population. Governments since conquest have encouraged body practices and behaviors understood as cosmopolitan as ways for people to move out of the category 'Indian' into more privileged racial categories (see Carrera 2003). Following the Mexican Revolution, from the 1920s on, promoting *mestizaje* (racial mixing) became a key part of efforts to unify the national populace (Alonso 2004; Knight 1990; Manrique 2017). Intellectuals and politicians promoted the belief that racial mixing between indigenous peoples and those with Spanish ancestry would eventually create an ideal race, free of the problems associated with each group (see, for example, Vasconcelos 1997).

This ideology has profoundly influenced health campaigns and behaviors. Public health programs have long framed health practices as ways to both behaviorally and biologically embody modern *mestizaje* (see, for example, Bliss 2001; Soto Laveaga 2007). These programs cast people's actions as having inherently collective effects. Rather than promoting individual health, they hailed people as members of broader groups. For example, women understood as mothers were tasked with living out modern mestiza femininity as a way to instill hygienic behavior in their children and thus enhance population health (Stern 1999). Such programs have promoted the idea that the *mestizo* Mexican population shares a unique biological and cultural essence, which if tended through modern behavior can advance the progress of the Mexican race and nation. From this perspective, individual actions importantly influence both individual and collective health and well-being.

As demonstrated by this focus on women as mothers, promotion of the racial ideology of *mestizaje* has had specific consequences for gender ideologies in Mexico. Most famously it resulted in the notion that mestizo men were inherently susceptible to machismo, a form of masculinity based on violence, womanizing, and emotional closure. This view was cemented in the 1950s, when machismo was characterized as an inheritance from conquistador forefathers and their coercive reproduction with indigenous women (Paz [1961] 1985). Machismo has always been a cultural trope rather than an accurate descriptor of most men's behavior. Further, macho behavior has long been critiqued as a barrier to national advancement and modernization of gender roles (Ramirez 2009; Gutmann 1996; Amuchástegui and Szasz 2007). However, even critiques of machismo tend to assume that it is a natural, bio-cultural inheritance which mestizo men must struggle against (Amuchástegui Herrera 2008; Wentzell 2013; Everett and Ramirez 2015). It is thus both a racialized

stereotype and a prevalent lens through which Mexicans understand manhood (Domínguez-Ruvalcaba 2007; McKee Irwin 2003).

This notion of machismo is reflected in similarly longstanding, and similarly if less vocally critiqued, ideas regarding the nature of mestiza femininity. While calls for gender equity are now common, ideas of women as resilient sufferers of men's bad behavior and as predominantly defined by their caregiving relationships remain common. Women are expected to be strong, yet this strength – as well as their increasing ability to earn money and participate in the public sphere – is expected to be deployed in familial care, loyalty, and the ability to *aguantar*, or 'suffer through', adversity, including maltreatment by men (Melero 2015; Haney 2012; Crowley-Matoka 2016).

Gender roles and expectations have, however, greatly changed in Mexico over the past several decades, becoming more egalitarian and opposed to the persistent belief that mestizos are inherently predisposed to specific gendered traits. As in many other regions of the world, most people now expect to have a 'companionate marriage', centered on love and intimacy rather than economic production or social reproduction (Wardlow and Hirsch 2006; Padilla et al. 2007; Hirsch 2003). While people's gender and relationship expectations vary greatly within that framework, they now usually define them in contrast to 'traditional' forms, which have commonly become understood as barriers to happiness and national modernization (for example, Wentzell 2013). With these changes, ideals of manhood have broadened to incorporate expectations for emotionally engaged partnering and fathering, fidelity, and self-care, while continuing the longstanding valorization of economic provision, in a masculine ideal of 'companionate responsibility' (Wentzell and Inhorn 2014).

It is thus common for mestizo-identified Mexicans to understand their participation in such social changes, and their own actions more broadly, as affecting the well-being of the broader collective biologies to which they belong. Elsewhere, I have discussed how people draw on this ideology to incorporate men's ostensibly individual medical research experiences into efforts to enhance the biological and social well-being of collective biologies, on levels ranging from the family to a society plagued by government corruption and narcotic trafficking violence (Wentzell 2015, 2017b, 2017a). Here, I focus on how HIM participants and female partners use men's HPV testing as treatment for biosocial ills affecting the smallest level within the nested set of collective biologies to which they felt they belonged: the couple's biology.

The HIM study in Mexico

The Mexican branch of the HIM study was located in Cuernavaca, a city about ninety minutes from the capital that has experienced rapid growth over the last few decades, and that houses a largely mestizo-identified population. The study was run by a research unit of Instituto Mexicano del Seguro Social (IMSS), a national social security institution that provides free health care to the almost half of the Mexican population comprised of formally employed private-sector workers and their dependents. Its participants came mainly from the IMSS employee and patient pools and thus skewed toward formally employed middle- and working-class men with levels of education and job stability that were higher than the average of the local population. In accordance with federal law, participants were not paid, although STI testing and treatment along with some additional medical tests for participants and their partners was framed as in-kind compensation.

Participants had twice-annual clinical visits for four or more years. Each time, they were genitally swabbed to test for the presence of HPV DNA; they also provided other samples and completed sexual and health history questionnaires. At each visit, they were informed about the results of their test taken at the previous visit in a private consultation with a medical staff member. They were offered follow-up care as needed, and clinicians always offered to explain any diagnoses to men's partners. Staff also told HPV-positive men to send their female partners to undergo cervical cancer screening at their IMSS primary care center. Since HPV is common and often asymptomatic, many men received unexpected positive diagnoses. Some men's positive results remained stable over time, while others received changing diagnoses. HIM researchers could not determine whether those men's infections were cured and they were then reinfected with HPV, or whether they had ongoing infections that shifted between detectable and undetectable with the technology used. Learning about this phenomenon was a key goal of the HIM study. Despite these areas of ambiguity, participants generally understood the results to be accurate and meaningful. For instance, only in one case did a participant consider his test results to represent a 'false positive'; in even that case, his wife understood the results to reflect biological reality.

The HIM study was the only place in Cuernavaca where men could get HPV testing. In this central Mexican city, knowledge about HPV was low but increasing with public education campaigns (Lazcano-Ponce et al. 2001; Wentzell et al. 2016). However, cervical cancer, a disease caused by some HPV strains, was the target of decades of screening campaigns and was very well known as a major local cause of death in women (Lazcano-Ponce et al. 1999; Palacio-Mejía et al. 2009). These programs' shift to HPV testing as their main screening

method, together with the 2011 initiation of a federal HPV vaccination campaign for girls, had increased the visibility of HPV (Centers for Disease Control and Prevention 2011).² However, such programs have often framed HPV as a women's health issue (e.g., García 2013), despite emerging knowledge about the cancers that HPV can cause in men and discussion of expanding vaccination to boys (Wadas 2012).

The anthropological study

My anthropological study of HIM participation included thirty-one heterosexual couples, who were interviewed together, and comparison groups of ten male HIM participants and twelve female partners of HIM participants, who were interviewed alone. HIM staff recruited these participants from a group of men who referred their female partners to a planned but never executed study of HPV in women. Anthropological research participants were thus selected from the subgroup of HIM participants who were involved in long-term heterosexual relationships, and who wanted to discuss their research experiences together with their partners. The sample included in this study is thus intended to achieve data saturation within the particular group of Mexican HIM participants who shared this orientation. As I discuss in detail elsewhere, many of these participants incorporated their HIM experiences into broader everyday attempts to be modern and progressive citizens and spouses, and saw themselves as models of appropriate gender and health behavior (Wentzell 2015).

The data analyzed here comes from three annual rounds of semistructured, Spanish-language interviews with those participants held between 2010 and 2013.³ I understand interviews with couples as spaces where spouses collaborate in the construction of a joint narrative, rather than providing a journalistic accounting of events (Linde 1993). That makes this methodology well suited to investigating the social aspects of care for collective biologies. I held interviews privately, took written notes, and recorded audio with participants' permission; recordings were later transcribed by native Spanish speakers and translated by myself. Interview design incorporated best practices for addressing sensitive topics and interviewing couples together, such as avoiding normative assumptions and language, and

2 The HIM study is not a vaccine study. However, participants sometimes imagined its benefits in terms of vaccine development and even occasionally misinterpreted it as a vaccine-related study given the emphasis on vaccination in educational campaigns about HPV.

3 This research protocol was approved by the institutional review boards of the University of Iowa and IMSS. All names used here are pseudonyms. Participants gave written informed consent, were assured that their involvement would not affect their HIM status, and were not compensated.

addressing questions on all themes to both partners (Arksey 1996; Herdt and Lindenbaum 1992; Parker, Barbosa, and Aggleton 2000). I analyzed interview notes and transcripts to identify common themes regarding social experiences related to HIM participation and HPV testing, diagnosis, and follow-up medical treatment. After each annual round of interviews, I generated codes reflecting these themes, noting patterns that emerged across participants' experiences or over time. I applied these codes to the Spanish-language transcripts and my field notes using qualitative analysis software.

In my analysis I also sought to account for how my identity as a White, female, Euro-American researcher also influenced this process, likely facilitating narratives expressing solidarity along the identity axes of femininity, middle-class status, and high educational attainment (see, for example, Reinharz and Chase 2002), while discouraging other kinds of speech. Being a foreign woman also likely facilitated Mexican men's discussion of potentially stigmatizing sexual topics (González-López 2005; Hirsch 2003; Wentzell 2013), while the presence of people's partners deterred them from sharing information they hoped to keep secret within their relationship.

While I was able to collect narrative data on spouses' joint experiences of caring for couples' biologies, the limitations of using this data to understand complexly biosocial phenomena are clear. Narratives reveal people's understandings of relationships between bodies and behaviors, including their expectations for the physical as well as social effects that men's HIM participation would have on others. It does not offer the ability to assess biological change. My analytic goal here is thus to identify the existence and dynamics of a specific kind of collective biology in the ethnographic case of the Cuernavaca HIM study.

Findings

Sharing the HIM experience

Many HIM participants and partners experienced being involved in the HIM research as a shared project from the start. Female partners were often the first to hear about the HIM study and suggest that men join. Some couples saw this as a way to access additional health care for an issue that affected both partners. For instance, a video editor in her fifties was herself undergoing HPV testing when, she recalled, a 'doctor friend told me about' the HIM study. Her husband joked that it was his wife who 'pulled me by the ear to the eleventh floor' of the hospital where the study was based. Other couples had already begun participating in other research projects and added HIM into the mix. For example, fifty-six-year-old taxi driver Andrés said that his wife María, a forty-three-year-old IMSS nurse, often

heard about studies at work and suggested that they join. She had attended a talk by HIM study staff about HPV in men and encouraged her husband to enroll.

That such decision making involved living out a companionate marriage in which spouses listen to and care for each other, as well as a self-consciously modern investment in self-care, was even more evident in the narratives of couples who saw participation and HPV testing as furthering both the metaphorical and literal health of their marriages. When I asked fifty-year-old bartender Mario why he had enrolled, he said that his wife Paty, a thirty-year-old IMSS nurse, had suggested it. He explained that this suggestion provided a way to further their shared efforts to live out an egalitarian marriage and progressive gender roles. He continued, 'Here in Mexico, we're machos. But we're [Paty and I] against machismo; you need to take care of your health'. For Paty, Mario, and many other HIM participants and their partners, men's self-care was a way to embody anti-macho masculinity and companionate marriage. Thirty-seven-year-old clerical worker David similarly articulated that he decided to participate 'to be surer of our partnership. We decided together, my wife and me. She saw a talk about the study at work, and I was easily convinced. She told me about the consequences that HPV can have, so I entered the program to get checked out'. So, HIM participants often enrolled not just to seek individual health screening but also to engage in ongoing, shared efforts to maintain relationship as well as shared biological health.

HPV as a shared diagnosis

As David's allusion to the shared biological consequences of HPV suggests, couples often saw HIM participation as not just a shared social experience but also as medical testing for a shared biological status. Most couples assumed that if one partner had HPV, the other would as well. They thus saw men's diagnoses as proxies for women's viral statuses. Thirty-three-year-old IMSS clerical worker Vicente said that his wife first heard about the study and together they decided that he should enroll as medical surveillance for them both. Like many others, he held a belief that 'it's only us [men] that transmit the disease', and explained, 'I think that since they haven't detected it in me, my wife is safe'. This assumption underlay men's frequently stated desire to participate in HPV testing as a health screening for their partner. For example, forty-year-old IMSS facilities worker Diego explained why he had joined: 'My principal concern is that she doesn't have the virus, right? That is what worries me'. His participation served as care for his wife since he believed his own test results would mirror hers.

Diego further explained that he had received a positive HPV diagnosis, and saw this as concerning but not nearly as significant for himself as it was for his wife. This reflects a common belief among participants that women could be more significantly harmed than

men by HPV infection. This was even true from men who had suffered HPV-related genital warts. For instance, thirty-two-year-old IMSS lab technician Jaime saw these as ‘no big deal’ for his own health but feared for his wife because he thought that HPV ‘can advance further in women’. This belief profoundly shaped how participants made sense of information from the HIM study about the risks HPV infection posed for men. For example, María, the IMSS nurse who had encouraged her husband Andrés to join, told me that her husband ‘had no idea about’ HPV ‘because it only affects the woman’. Andrés protested that, ‘No, the doctor said also [it affects] the man’. While María agreed with the idea that men could have HPV, she maintained that women were those most threatened by diagnosis. She responded, ‘Well, yes, but I’m referring to who it affects, that men are those who transmit it to the woman. The woman, in the end, is at a higher risk for uterine cancer’.

Many participants echoed this idea of men as transmitters or carriers of HPV and women as HPV sufferers. In this understanding of the (heterosexual) couple’s biology, men and women are differently functioning halves of a shared biological whole. As Vicente’s quote above makes clear, participants conceived of HPV as a shared status: if present in one partner, it was present in the other. However, they also thought the virus functioned in gendered ways that mirrored longstanding ideas of gender complementarity, in which men and women play fundamentally different but necessary roles, which characterized the ‘traditional’ forms of marriage that participants now rejected. Further, even in a context where macho infidelity and the harm it did to long-suffering women was critiqued, male HIM participants and their female partners imported these ideas about gender into sex-specific explanatory models of HPV transmission and risk. Such ideas represented a local take on the globally prevalent feminization of HPV risk that has been created by vaccination, screening, and education campaigns’ focus on women (Daley et al. 2017).

Beyond simply viewing women as facing more HPV risk than men, participants generally saw men as HPV transmitters or carriers and women as victims. For instance, David, quoted above, said in our first interview that he thought the study focused on men ‘because I think that it’s only us who transmit this disease’. He maintained this view after two additional years in the study, which included explanations of the harm HPV can do to men. He explained, ‘It’s always the woman who has the problem, and then when that happens to her is always when they detect [HPV] in the man, now we see that we are like the provider [of the infection]’. His word choice reveals the links among the trope of men as providers, the fear that mestizo men were naturally predisposed to harming women, and his understanding of how HPV works within a couple’s biology.

Men often voiced gendered guilt about being an HPV ‘carrier’ (*portador*) that was linked to both fundamentally relational, and socially damning, ideas of men’s individual bodies as

components of joint couple's biologies. For example, thirty-five-year-old factory worker Roberto stated, 'I'm the carrier, the problem that causes the virus, for all the deaths there have been and why my wife is in this position'. When I said that it sounded like he felt guilty, he agreed. Roberto maintained that even though he did not knowingly infect his wife, 'It's my fault, right?' He added that the man 'is the one that carries and you [the woman] only get hurt. [The man] is the one that transmits. It's easy because nothing happens to me. I go on infecting'. This view caused anguish in men who hoped to perform companionate responsibility but saw their male bodies as betraying that goal by innately posing a 'danger' to their female partner. For instance, a thirty-five-year-old wholesale company worker said that being a carrier 'is a really worrisome problem. It lowers your self-esteem. You think, "Am I dangerous?"' This characterization of men as carriers even held true even for some participants who internalized the information that men could also be harmed by HPV, as when a thirty-five-year-old IMSS lab technician explained, 'It's important to know if you're a carrier, since you can give it to the woman, and also get cancer'.

HIM participation treats gendered ills

These gendered understandings of HPV risk and transmission reveal the middle-class, often self-consciously progressive research participants' fears that their mestizo bodies were prone to reproduce problematic gender roles on the microscopic level of viral transmission. In this context, the social aspects of HIM participation served to counteract those biological predispositions. Their engagement with the HIM study was a way to act out progressive masculinity and companionate marriage, and thus to care for the couple's biology even in the face of traditionally gendered viral risk.

For example, men often framed undergoing intimate genital testing as a way to demonstrate difference from the machismo to which they feared they were predisposed. Fifty-year-old driver Emilio explained that he had had to work to overcome the 'shame' he felt during the genital sampling because, 'unfortunately our gender can be a little macho'. However, he said with pride that he had eventually come to see the testing as 'not a big deal'. David similarly recalled feeling 'shame' about the testing, but added that 'it's worth it to feel secure, for me and my wife'. He thus framed overcoming his embarrassment as caring for his couple's biology and living out companionate responsibility.

A few couples even attended men's appointments together, as an even more visible way of incorporating HIM participation into their collaborative performance of companionate marriage and progressive gender. Mario, who also discussed the importance of overcoming shame to accept the medical testing, explained that his wife aided in this process by going with him to his first HIM appointment. Expanding on the theme of incorporating support

for health behavior into their intimate relationship, she added, ‘There’s a lot of communication between him and me’. Later, he added that using medical experiences to live companionately was not limited to the HIM study. He recalled, ‘There have also been occasions when she’s going to get her Pap smear, when they put in the little camera, and I’m there every time’. They discussed how this kind of experience enabled them to know each other better, physically and emotionally, to the point that, in her words, ‘There aren’t many taboos between him and me’. Some other couples tried to do everything together and saw no reason to except medical research. For instance, thirty-nine-year-old engineer Raúl explained that he and his wife attended together ‘because we’ve only been married for three years!’ and so this level of togetherness was part of an extended honeymoon phase. For such couples, joint HIM attendance became a collaborative, biosocial intervention into both HPV disease risks and the threat of problematically traditional gender and marriage.

HPV diagnosis as an opportunity for companionacy

Beyond clinical experiences, partners often used their ongoing social interactions relating to HPV diagnosis and disclosure to perform, shore up, or adopt self-consciously modern companionate marriages. This was the case for Imelda, a twenty-one-year-old student, who had encouraged her husband to participate in the HIM study because she had been diagnosed with genital warts before they had even met. She called the disclosure process, which had begun with her telling him of the warts when they began dating and continued through his sharing of HIM test results, ‘a test to see how much we loved each other’. Imelda described being depressed when she first received her HPV diagnosis, but coming to see it ‘as something normal’ when her mother and now husband were supportive. She recalled that, nevertheless, the road had not always been smooth. Although her husband was not judgmental when she first disclosed her HPV positivity, and they proceeded by carefully using condoms once they began having sex, they experienced emotional difficulties when he later showed signs of HPV infection. She said that caused mistrust, since she had [incorrectly] assumed that condoms would prevent HPV transmission. Given that belief, Imelda assumed that, ‘I couldn’t have given it to him, since we always used protection. ... We argued and at one point he said, “You gave this to me”. ... Thank God, we addressed it, and now there aren’t arguments and we accept it for what it is’.

Bodily closeness regarding health issues became a way they embodied companionate marriage and care. Imelda said they not only discussed sexual and health issues openly but also checked each other’s genitals for signs of outbreak. She explained, ‘If I get a pimple that gets inflamed, or a swollen gland, or whatever, he himself checks me. ... And if he has anything abnormal, he tells me, “Look, I have this”’. The year after she made that statement, her husband had another outbreak of warts and she worked to allay his concerns about

transmitting them to her. She said, 'That's why we're here [in the study], right? Now, as a couple, we support each other through whatever, and never say "Oh, it's your fault that I'm also going to catch this". No, no, no, it's clear that now we know this [condition] is for life; it will appear or not appear, and we're going to support each other in whatever'.

Through such practices of communication, couples often converted medical experiences that initially challenged their ability to live up to their relationship ideals into opportunities to be mutually supportive. When asked if it was difficult to learn that her husband was HPV positive, twenty-four-year-old IMSS nurse Nayeli said it was 'very difficult, because then he didn't know what type or difficulty or dangers the number [HPV strain] he had represented'. Her husband, thirty-year-old IMSS clerical worker Martín, added, 'But we have trust and we talk, and that's really why we're in this project'. While they were relieved that he was consistently positive only for low-risk HPV strains, when Nayeli had a positive HPV test before our third interview, she became angry and depressed, and Martín grappled with feelings of guilt. They reported coping through intentional communication, including discussing and sometimes jointly attending her medical appointments. She said, 'Yes, we got angry, but we just calmed down and discussed things. Now we both are finding solutions. Or I just go to my appointments. He accompanies me, and we talk about it together'. For them, the HIM study became a source of marital conflict, which they were able to collaboratively work to reframe as a forum for performing the intimacy and mutual care that they both valued.

Emilio, the driver quoted above, did this over a longer span of time. He incorporated HIM participation into a response to a failed relationship and into efforts to build his current companionate relationship around a rejection of traditional gender roles. Emilio told me that he had joined the HIM study because of guilt and blame resulting from a prior female partner's HPV infection. He said, 'My previous partner complained that I had infected her with the virus, because unfortunately they had to remove part of her uterus. So I felt, you might say, guilty, for not knowing about the disease at that moment'. When invited to join the HIM study while waiting for an IMSS dental appointment, Emilio said, 'I liked the idea of participating in order to understand the disease. And to learn in reality what I had to do with my previous partner's sickness'. He met his current partner during his HIM participation, and his disclosure of that to her became one basis for their mutual trust. He said, 'I explained to her that I was participating in a study intended to understand the virus to look for a possible vaccine, but what I understood at the moment is that I could be a carrier'. She looked at his test results, which had all been negative, and said that made her feel 'secure'. While guilt and blame surrounding HPV-related disease had been part of the demise of Emilio's prior relationship, he incorporated his study participation into a growth-oriented form of masculinity that supported a new, companionate relationship. His

disclosure and their mutual discussion of results enabled partners in that new relationship to perform openness and communication.

Some partners incorporated an HPV diagnosis into changes in emotional interaction and gender expectations within their current relationships. In our first interview, forty-one-year-old homemaker Yolanda described her husband Javier's positive diagnosis and her dismay about the infidelity that had caused it. She said, 'It made me really angry because obviously I could get an infection, contracted because of something that happened outside [our relationship]'. However, by our interview the next year, they had incorporated those difficulties into a wholesale change in their marriage and his way of being a husband. Javier reported that when faced with the guilt and shame associated with the potential of harming his wife through transmission of an STI contracted through casual extramarital sex, he had decided to change his ways. This involved not only becoming faithful but also adopting a more companionately oriented masculinity and marriage in which faithfulness was a joy rather than a burden. Javier said, 'Now I don't go out alone. If I go out, I go out with her all the time. If I go to have fun, it's with her now'. Yolanda happily described the leisure activities they had begun to do together and explained how they had brought the couple closer. By our third interview, she bragged that he had become responsible for feeding the family one day a week; he noted that it was just a take-out meal, but he enjoyed making her happy by doing his part. They had used their HIM experience to spark a revision of his form of masculinity, from one centered on extramarital sociality and sexuality to one centered on emotional engagement with his wife and material support for his family.

Conclusion: The utility of the collective biologies approach

People sought linked biological and social benefits for their couple's biologies, derived from men's receipt of STI testing within a medical research study. Cuernavacan HIM participants and partners drew on context-specific ideologies of race, gender, and marriage to arrive at specific understandings of their collective bodies that could be aided by men's involvement in research. Understanding mestizo men to be innately predisposed to machismo, and mestiza women as predisposed to take on the relational role of strong-yet-suffering victim, participants who themselves rejected 'traditional' gender norms nevertheless understood those norms to play out on the biological level. They imagined heterosexual couples to be collective biologies comprised of male 'carriers' and female disease sufferers. Yet this gendered understanding of HPV transmission also enabled them to frame their pursuit of and interactions around men's HPV testing as joint efforts to live out companionate marriage and, often, progressive gender norms. For some couples, positive diagnoses even became tools to utilize in shifting toward these ideals. Crucially, they viewed these changes not only as socially beneficial but also as biologically consequential for the members of their

couple's biologies. My goal in presenting this analysis has been to make these nonindividual effects of men's HIM participation visible.

In so doing, I have sought to illustrate that the individual body is not always the only or most salient unit of biological analysis, for medicine and for anthropology concerned with biosociality. Building on Lock's denaturalization of universal biology through the concept of 'local biologies', this research draws attention to the existence of 'collective biologies' and thus denaturalizes the biomedical framing of individual bodies as the de facto unit of analysis. It is important to note that what I mean by 'collective biologies' is not a general phenomenon synonymous with 'populations' or 'groups'. Instead, these are particular sets of embodied relationships organized around a shared understanding that a set of people comprise an inherently interrelated collective. As such, collective biologies reflect the broader contexts in which they are created. For instance, HIM participants and partners' understandings of couple's biologies reflected specific sociomaterial histories of colonization, public health practice, and gender and marital expectations. Collective biologies might be understood implicitly, as in the couples' biologies analyzed here, or named explicitly, as I discuss elsewhere in terms of HIM participants' discussions of their place within a Mexican populace (Wentzell, forthcoming). They might also coexist with individually focused ideas about bodies and health. That was the case for the HIM participants themselves, who valued biomedicine, often worked as medical professionals, and seamlessly incorporated medical experiences into both individual and nonindividual understandings of bodies and health. In all these cases, they derive from culturally intelligible, embodied understandings of the particular nonindividual bodies that people comprise, within cultural contexts that highlight relationality over or alongside individuality as central to personhood.

The narrative methods used here enabled identification of the specific collective biologies within which HIM participants and partners situated themselves. Those methods also revealed people's expectations regarding how men's testing would affect those collectives through linked behavioral and biological changes.⁴ I hope that this analysis of the social elements of this biosocial phenomenon inspires the use of additional biocultural or bioethnographic methodologies for the investigation of collective biologies, which can assess their biological aspects directly (for example, Goodman and Leatherman 2010; Roberts 2015). The cautions against reification and essentialization developed around the 'local

4 Here I have focused on 'couple's biologies'; see Wentzell (forthcoming) for discussion of the full range of collective biologies participants comprised.

biologies' concept more broadly apply to such further investigations of the context-specific phenomenon of collective biologies as well.

Analyzing collective biologies, in the ethnographic contexts where they exist, can help to meet enduring theoretical goals within the anthropologies of medicine, science, and embodiment. Scholars in these fields have long sought tools for understanding the simultaneously material and social interactions that make up life; in other words, understanding nature and culture as aspects of dynamic relationships rather than separate, opposing realms (see, for example, Ingold 1990). In addition to the 'local biologies' concept, multiple other approaches have proven useful in this pursuit. These range from Nancy Scheper-Hughes and Margaret Lock's (1987) 'three-body model' for understanding relationships between 'the individual body-self' and specific nonindividual social phenomena, to the field of somatechnics that investigates the interdependence of corporealities and technologies, including the materialities and relationships shaping technological use (Murray and Sullivan 2016; Stephens 2012), to the study of human existence as intercorporeality (for example, Csordas 2008). Incorporating attention to collective as well as individual biologies as aspects of these interactions can enrich each mode of investigation. In ethnographic contexts where people understand themselves to comprise broader collective biologies, the three-body model could track relationships among a collective as well as individual body-selves and social phenomena. Somatechnic analyses could investigate the co-construction of technologies and collectives as well as individual bodies. Similarly, investigations of intercorporeality could track relationships among context-specific collective biologies. In sites where collective biologies matter, this kind of inquiry could enhance our understanding of the simultaneously material and social aspects of ethical engagement and care (see, for example, Al-Mohammad 2010; Buch 2013).

This approach for understanding nonindividual bodies can also be used in applied medical and public health work. Right now, the individual body is taken for granted as the fundamental unit of analysis in health research. Yet if health researchers took 'the body' as a variable rather than a constant, they could more faithfully understand the biosocial relationships involved in individual as well as collective biological change. They could use qualitative methods like those used here to assess whether research participants understand themselves to belong to collective biologies and how the members of those biologies are interrelated. Then, they could assess the results of individuals' medical testing not only in relationship to their own baseline but also to changes in other members of that collective biology. This would reframe the common circumstance of research participants' relationships influencing the study variables (see, for example, Montgomery 2012) – which now tends to be seen as a problem of confounding variables – as an opportunity to assess

how that aspect of a study's 'screening ecology' matters for the biological changes identified (Burke 2014).

Such an approach would also help us to understand health issues that both patients and healers understand as fundamentally influenced by embodied social interaction. For instance, STIs pose interrelated social and biological risks, as stigmas deter people from undergoing testing and treatment and thus influence the biological courses of infections through the webs of people interrelated through sexual partnering (Hirsch et al. 2007). Understanding these complexly biosocial dynamics is imperative for effective treatment of nonindividual bodies, from the 'dyadic interventions' that researchers note would aid HIV treatment to the couple's biologies discussed here (Montgomery, Watts, and Pool 2012).

This analysis reminds scholars, both those working within individualistically focused societies and in biomedical contexts which take the individual body as they key unit of analysis, to look beyond cultural assumptions of biological individuality. I have aimed to show how the concept of collective biologies can be used to denaturalize such assumptions. Further, it can operationalize what is, in many ethnographic cases, obvious: certain social bodies are not just metaphorically, but are also biologically interrelated. Acknowledging this phenomenon can thus make a wider range of people's embodied realities accessible to medical and social scientific study.

About the author

Emily Wentzell is Associate Professor of Anthropology at the University of Iowa, where she also directs the International Studies Program. Her research focuses on the relationships between changing gender norms and emerging sexual health interventions targeted at men, and draws on ideas from medical anthropology, gender/sexuality studies, and science and technology studies. She has long focused, using a life course perspective, on Mexican men's and families' experiences with these topics, and she is also researching how varied local ideologies of masculinity, aging, and health are being incorporated into the emerging global field of 'men's health' medicine.

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