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"They think we wear loincloths": Spatial stigma, coloniality, and physician migration in Puerto Rico

Mark Padilla[1] | **Nelson Varas-Diaz**[1] | **Sheilla Rodríguez-Madera**[1] | **John Vertovec**[1,2] | **Joshua Rivera-Custodio**[3] | **Kariela Rivera-Bustelo**[4] | **Claudia Mercado-Rios**[3] | **Armando Matiz-Reyes**[1] | **Adrian Santiago-Santiago**[3] | **Yoymar González-Font**[3] | **Alixida Ramos-Pibernus**[3] | **Kevin Grove**[1]

[1]Global and Sociocultural Studies, Florida International University, Miami, Florida, USA

[2]Research Department, Behavioral Science Research Institute, Coral Gables, Florida, USA

[3]School of Behavioral and Brain Sciences, Ponce Health Sciences University, Ponce, Puerto Rico

[4]Social Sciences Department, University of Puerto Rico, Medical Sciences Campus, San Juan, Puerto Rico

Correspondence
Mark Padilla, Florida International University, 11200 SW 8th Street, SIPA 320, Miami, FL 33199, USA.
Email: marpadi@fiu.edu

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Abstract

Puerto Rico (PR) is facing an unprecedented healthcare crisis due to accelerating migration of physicians to the mainland United States (US), leaving residents with diminishing healthcare and excessively long provider wait times. While scholars and journalists have identified economic factors driving physician migration, our study analyzes the effects of spatial stigma within the broader context of coloniality as unexamined dimensions of physician loss. Drawing on 50 semi-structured interviews with physicians throughout PR and the US, we identified how stigmatizing meanings are attached to PR, its people, and its biomedical system, often incorporating colonial notions of the island's presumed backwardness, lagging medical technology, and lack of cutting-edge career opportunities. We conclude that in addition to economically motivated policies, efforts to curb physician migration should also address globally circulating ideas about PR, acknowledge their roots in coloniality, and valorize local responses to the crisis that are in danger of being lost to history.

KEYWORDS
medical migration, colonial biomedicine, stigma of place, healthcare systems, Caribbean

INTRODUCTION

There is a growth in medical anthropological engagement with the varied expressions and ontologies of biomedicine in the global periphery, where the constraints of colonial histories and the sheer weight of

scarcity produce fundamentally distinct biomedical practices (Livingston, 2012; Minn, 2022; Roberts, 2012; Street, 2014). Drawing on nuanced ethnographic studies describing the "local biologies" (Niewöhner & Lock, 2018) that emerge in settings wrought by structural disadvantage, anthropologists have shed light on the contingency of Western biomedicine, emphasizing "the fluid, experimental, and improvised nature of biomedicine in contexts of institutional poverty" (Street, 2014, 16). In her work at a public hospital in Papua New Guinea, for example, Alice Street describes the material and relational contingencies that result in doctors and patients who learn to "live with" the perpetual absence of diagnosis, since infrastructural and technological limitations do not permit diagnosis to precede treatment in the vast majority of cases. This results in improvised treatments (such as routine use of broad-spectrum antibiotics without a clear pathogenic condition) or pluralistic use of local ethnomedical practices as patients struggle to become "visible" to doctors, and as doctors struggle to be responsive to a global biomedical regime in which they are often presumed inferior or backward:

> [T]he struggle to render the biological body visible and knowable to the clinical gaze becomes entangled with attempts by doctors, nurses, and patients to make themselves visible to external others (to clinical experts, global scientists, politicians, and international development workers) as socially recognizable and valuable persons. (Street, 12)

Attentiveness to the material and symbolic contingencies of biomedicine is critical for our research on Puerto Rican physicians and their decisions to migrate to the United States (US). The topic has been an increasing focus of media attention and political concern, as rates of excess morbidity on the Puerto Rican archipelago continue to soar, coinciding with an accelerating exodus of physicians from the island to the US. As in other peripheral locations, physicians in Puerto Rico (PR) navigate what it means to be a physician and develop a professional identity at the periphery, where a series of natural and political-economic disasters have battered a healthcare system that was once considered a twentieth-century model of community medicine in the Global South (Arbona, 1978). As the PR healthcare system has faced waves of neoliberal privatization beginning in the 1990s, combined with infrastructural abandonment due to its colonial status and accelerating natural disasters, physician migration to the US mainland has simultaneously accelerated.

As of 2009, it was estimated that 14,500 physicians practiced in Puerto Rico (PR); by 2016, there were only 9000 remaining. Many of those who have left are specialists in areas such as neurology or cardiology (Mora et al., 2017). Hurricane María in 2017 exacerbated the exodus. Physician migration data demonstrate that 365–500 physicians have left PR every year since 2014 (American Association of Medical Colleges, 2019). Resulting shortages of medical personnel, particularly dramatic in rural or remote areas of the archipelago, threaten an already vulnerable healthcare system and leave many Puerto Ricans without access to care or on endless waiting lists for appointments (Joseph et al., 2020; Respaut, 2016). Increasingly, these trends provoke the emergence of new medical landscapes, marked by fragility and abandonment, but also by creative responses, resurgent ethnomedical practices, and innovative community-level mutual aid initiatives (Garriga-López, 2020).

What does the increasing precarity of Puerto Rican biomedicine mean for our understanding of the physician migration crisis? Most scholarly and journalistic commentaries on the exodus of healthcare personnel have pointed to an economic calculus driving migration decisions for physicians, such as the lower Medicaid reimbursement rates on the island that result in much lower income potential for PR-based physicians in comparison with the mainland US (Downer et al., 2018; Fernandez 2021; Joseph et al. 2020). While these factors are significant among the determinants of physician migration, in this article, we consider the extent to which globally circulating meanings about PR, its biomedical infrastructure, or its practitioners may drive, exacerbate, or inform physician migration from the island. In the context of PR's collapsing healthcare system and legacies of colonial governance that hobble possibilities for resurgence, how do physicians conceive of the island as a place to live, work, and progress as "modern" health professionals? Puerto Rican physicians must navigate distinct biomedical possibilities in the core

and periphery, both material and symbolic, in creating professional and personal identities, accessing training or leadership positions, and leading what they consider a good life. This process involves the intersection of numerous factors at individual, community, and global levels. Here, we argue that one such phenomenon involves what we refer to as *spatial stigma*.

Socio-spatial approaches to health inform our conceptual approach to spatial stigma, which is a means of focusing analytic attention on how social meanings are attached to places, sites, or territories. Scholars from medical anthropology to political geography to social epidemiology have described how peripheral or marginalized places are fundamentally shaped by the intersection of local cultural contexts and global economic processes, and their net effects can have profound implications for health and illness (Felner et al., 2018; Sultana, 2012). For example, critical medical anthropologists have traced how racial, ethnic, and class-based inequalities shape the social organization of vulnerable populations, their patterns of movement, and their use of social space (Biehl, 2013; Bourgois, 1998; Holmes 2013; Singer et al., 2006). Political geographers have similarly described the deep imbrication of social hierarchies of race and class with geographic health disparities, with some quantifying these relationships formally through geospatial analysis (Delaunay et al., 2016; Dummer, 2008). A key insight that unifies this diverse literature is the notion that social geographies can be laden with meanings, and that when these are degrading or dehumanizing, they can also shape and maintain health disparities.

Prior research has posited that spatial stigma shapes health in multiple ways, including (1) constraining access to health-related resources in stigmatized areas (e.g., limited investment in quality medical facilities or healthcare personnel's avoidance of stigmatized locations); (2) contributing to stress and coping of persons who occupy stigmatized spaces (i.e., by layering place-based stigma on top of existing social and material challenges); and (3) shaping processes related to identity formation and management (e.g., contributing to social isolation or alienation from socially esteemed communities) (Keene & Padilla, 2014). Spatial stigma also works conjointly with other axes of stigma, such that individual identities, like race and class, interact with or exacerbate spatial dimensions of stigma (ibid.). A key finding of the public health literature on spatial stigma that is relevant to the present analysis is that it can function to alter patterns of movement and migration. Keene and colleagues describe ways in which lateral stigmatization (i.e., the avoidance of others within one's own social group) can be spatialized, resulting in people leaving areas they associate with negative social perceptions (Keene & Padilla, 2010; Keene et al., 2010). Spatial stigma has not been studied explicitly among physicians, as far as we are aware, nor has it contributed to theories about physician loss in PR.

Lacking from the public health literature on spatial stigma are the effects of these processes on the relatively more privileged social classes, such as the PR physicians in the present analysis, whose migratory decisions can dramatically affect patterns of health and disease due to the fundamental role they play in population health and access to care. Here, the medical anthropological literature on physicians' identity formation within the periphery is particularly useful. Biomedical practitioners in postcolonial settings must navigate a fractured reality: they function as brokers for metropolitan biomedicine while coping with material scarcities and cultural constraints that result in biomedical practices that are localized and unstable (Livingston, 2012; Minn, 2022). But what happens to their projects of modernity and professionalization as the healthcare system crumbles?

In PR, health professionals are imbued with long-held notions of biomedical modernity deriving from a colonial regime while increasingly facing infrastructural and environmental decay. As anthropologists have stressed in other postcolonial settings, PR's expression of biomedicine is thus multifaceted. Notions of improvisation in the context of scarcity may be viewed as a deviation from biomedical modernity or as an innovative response grounded in *Puertorriquenidad* (see also Rodríguez-Madera et al., 2024). In this study, we explore how physicians' migratory decisions and biomedical experiences are shaped by perceptions of the island, globally circulating notions of its medical system or practitioners, and the intersecting crises affecting the island. We argue that spatial stigma is resonant with physicians' migratory narratives and is an understudied dimension of physician migration that should be addressed by decolonial approaches and policy initiatives.

SPATIAL STIGMA AND BIOMEDICINE IN THE CONTEXT OF PUERTO RICAN COLONIALITY

Examining how spatial stigma may operate among Puerto Rican physicians requires, at the very least, a socio-historical context of the various uses of the island in US colonial policies and discourses around "modern" biomedicine and public health since PR became an unincorporated territory of the US in 1898. The US invasion of the island marked a transition in medicine and public health from the Spanish colonial municipally run health care system to a highly militarized public health infrastructure emphasizing disease eradication, hygiene, and modern medicine under US administration (Arana-Soto 1974). Through common tropes of Puerto Ricans as dirty and diseased, US colonization in the early twentieth century focused on sanitation and venereal diseases, with officials often lamenting the tendency of local populations toward laziness and "backward" medicinal practices (Flores Ramos 1998; Suarez Findlay 1999; Santiago-Valles 1994). "Cleaning up" the island and curing the local population of communicable diseases, such as hookworm, were viewed as preconditions of successful colonization (Trujillo-Pagán, 2013).

Focusing primarily on the Hookworm Campaign in the early twentieth century, Trujillo-Pagán argues that US occupation began a period of "colonization through medical intervention" (2013). Puerto Rican doctors were gradually professionalized through a US military-imposed biomedicine focused on modernizing the island's infrastructure through vertical programs, and through which some "native doctors" were granted certifications to practice "scientific" (colonial) biomedicine. A requirement for inclusion in the colony's biomedical regime was an agreement to rescind political party affiliations, thus cleaving off PR physicians' anti-colonial sentiments from their professional identities and further binding the practice of biomedicine to the colonial metropole. This fused the biomedical model to colonial governance, and disparaged PR's local medical practices as anti-colonial and primitive. As Acosta (2023) summarizes in her analysis of medical morality in Puerto Rico, "Denying employment to physicians with political aspirations weakened Puerto Rican elites' ability to challenge the US administration and 'Americanized' Puerto Rico's medical field by eliminating a distinctly Puerto Rican focus on anticolonial political involvement from the medical professionalization process" (Acosta, 2023, 75).

In 1953, PR launched a regional public healthcare system that was upheld as a global socialized model for peripheral postcolonial nations (Arbona 1978; Ferrer, 1960). The publicly funded system established six health regions, each providing varying levels of service aimed at extending primary health services to underserved areas through municipal health centers while maintaining low costs at regional hospitals by carefully managing referrals. Some evaluations of the program marveled at the primary health improvements from the system through the 1970s, which achieved mortality rates comparable to the US despite much higher overall poverty (Ferrer, 1960; Pagán-Berlucchi & Muse, 1983). Yet due to rising healthcare expenditures, by the 1980s, the public healthcare system was increasingly insolvent. In 1993, under President Pedro Rosselló, the country launched a systemic healthcare reform known as "La Reforma" that introduced private insurance providers, following the US market-based approach. While La Reforma is partially funded by Medicaid, US assistance is capped in PR and relies on a local tax base that can no longer sustain it (Park, 2021). La Reforma resulted in a large population of uninsured for the first time in the country's history and has spurred the unprecedented exodus of health care providers from the island. In 2018, less than a year after Hurricane María devastated the island, the Fiscal Control Board enacted additional austerity measures that have further undermined the crumbling healthcare system (Benach et al., 2019).

Coloniality creates and defines the symbolic conditions for spatial stigma to thrive and gives the basic shape of its expression, ultimately informing patterns of physician migration as a modern project of professional identity formation that is connected to metropolitan biomedicine and an internalization of colonial metaphors of Puerto Rican biomedical backwardness. This symbolic process exacerbates the

structural decay of the healthcare system wrought by extractive coloniality. At the same time, physicians provide an opportunity to resuscitate the image of PR biomedicine by pointing to the innovation, adaptability, and pluralism that characterize Puerto Rican medical history and even its resurgent landscape of care practices today. Indeed, as Street describes of "unstable" biomedicine in Papua New Guinea, "The adaptive and experimental qualities of biomedical 'tinkering' in such places are vital to making sure that lives are saved" (Street, 2014, 16).

Methods

Our analysis stems from a National Institutes of Health (NIH)-funded mixed methods study (1R01MD014188) that aimed to document the factors associated with physician migration from PR to the US mainland and its impact on the Island's healthcare system. We used semi-structured interviews (SSIs), surveys, and ethnographic observations as our primary data collection procedures. This article focuses on SSI data with physicians throughout the US and PR.

The study was approved by the Institutional Review Board of Florida International University. The SSIs were carried out from November 2020 to December 2021. Through a collaboration with the Puerto Rican College of Physicians and Surgeons, we recruited and interviewed 50 Puerto Rican physicians (26 who had migrated to the US mainland and 24 who still resided in PR). We used a purposive sample to ensure diversity in terms of area of specialty in medicine and the region in which physicians provided services (rural or urban), see Table 1.

All SSI participants were licensed physicians currently providing biomedical services in PR or the US. Interviews lasted roughly 30–60 min and participants received $75 as incentive. The interview protocol asked questions around factors that fostered (or would foster) migration to the US, including specific attempts to probe on experiences of spatial stigma or personal stigmatization; work settings, populations and biomedical experiences in the US and PR; and any prior experiences with migration.

SSIs were carried out in Spanish via Zoom and were audio-recorded (with an audio-recording device or on the Zoom platform) and transcribed by trained research assistants. For thematic analysis of the SSI data, coding occurred in three stages, all within NVivo Qualitative Data Analysis Software. The first stage used "in vivo" coding, an open coding technique used in conjunction with analytic memos on five randomly selected transcripts to develop a focused codebook. The second stage applied the focused codes to all the transcripts. Two independent coders coded the same transcript and compared their coding decisions to ensure consistency. In the third stage, the research team created and discussed analytic memos for reflection with the goal of conducting coding queries to discover the relationship between and across codes. For this article, the goal of the coding queries was to extract and refine themes related to migratory decision making and to discover instances that suggested spatial stigma or experiences with interpersonal forms of stigmatization in PR and the US. Our analysis served to interpret physicians' narratives regarding: (1) how structural conditions and circulating ideas about PR shaped the stigmatization of PR, its medical system, and its physicians; (2) how spatial stigma was internalized or experienced by Puerto Rican physicians in the US and on the Island; and (3) how spatial stigma could lead to personal aspirations of perceived "modernity" or professional growth through migration abroad. Through this analysis, we discovered that 40 out of 50 physician interviews were coded with themes referencing 11 unique thematic domains of stigma.

SSI transcripts were analyzed in the original Spanish by the bilingual team, and excerpts were translated into English for this article by the first author and verified by the full team. All proper names in the following narratives are pseudonyms to protect participant confidentiality.

TABLE 1 Socio-demographic data of participants.

Variable	Frequency		% (of total *N*)
	US ($n = 26$)	PR ($n = 24$)	
Gender			
Men	11	11	44%
Women	15	13	56%
Sexual orientation			
Heterosexual	25	23	96%
Lesbian	1	1	4%
Marital status			
Single	8	5	26%
Married	16	16	64%
Living with partner	1	1	4%
Divorced	1	1	4%
Widowed	0	1	2%
Medical specialty			
General medicine	4	7	22%
Specialty medicine	12	12	48%
Sub-specialty medicine	10	5	30%
Top states (US) or towns (PR) where they practice medicine			
Florida (US)	12	-	24%
Texas (US)	4	-	8%
New Jersey (US)	2	-	4%
Other (US)	8	-	16%
San Juan (PR)	-	13	26%
Carolina (PR)	-	3	6%
Caguas (PR)	-	3	6%
Other (PR)	-	5	10%

Note: $n = 50$.
Abbreviations: PR, Puerto Rico; US, United States.

RESULTS

"They think we wear loincloths": Metropolitan ideas about Puerto Rican medicine

Given the colonial discourses and policies on the island described previously, a question for our research involves the effects of this legacy on how physicians conceive of the island and the decisions they make regarding migration. In the narratives of physicians, as with PR more generally, this involves perceptions about PR and its people within the imaginary of "*allá*" ("over there," or the metropolitan "outside")—that is, the minds of a (presumptively white) US. In this section, we consider whether Puerto Rican physicians expressed aspects of spatial stigma in the characteristics they associated with the island, its people, and its medical system, and to what degree these were consistent with experiences of coloniality.

To guide our conversations with physicians toward topics relevant to spatial stigma and coloniality, we began interviews by asking participants to describe what they believed people in the US imagined or

believed about PR. In this open-ended discussion, physicians commonly referred to circulating transnational stereotypes of the island and its people as unmodern or primitive. These statements recall colonial discourse about PR and are relevant to our examination of the broader structural and symbolic context of physicians' experience.

An illustrative example of this pattern is provided by "Álvaro," a psychiatrist practicing in metropolitan San Juan who described perceptions about PR he had encountered during professional and personal travel in the US:

> I've been living in Puerto Rico practically my whole life, from 9 years of age, and I've traveled in diverse situations. For me, people don't know what Puerto Rico is. If you haven't had encounters with a Puerto Rican and don't know its culture and its history, some people think that we use loincloths ("*taparrabos*"), others think we don't have cars, others say, 'Your English is so elegant!'… The reality is that people know nothing.

The image of "loincloths" was echoed by "Orlando," an internal medicine physician practicing in Louisiana, who also emphasized the ignorance of Americans about PR:

> People have asked me how long it takes to drive here [from Puerto Rico]. Those people don't even know that Puerto Rico is an island. This was not when I was in Louisiana but when I was in Florida. They asked me if I had to buy clothes as if we lived in loincloths.

Many physicians referred to similar tropes in interactions with their colleagues in clinical settings. "Marta," a gynecologist practicing in South Florida, described the following interaction with a US-trained medical resident who relocated to PR for training:

> He was a guy that I went out with that was studying medicine. He was doing a specialization in emergency medicine; I mean, he isn't ignorant… And I start talking with him, and he was like, when he arrived in Puerto Rico, he didn't know that Puerto Rico was so advanced. He and all his friends thought that here people walked around like—not really in loincloths, but something really— And he says: 'But you guys have everything! You have—' And he kept mentioning businesses, chain restaurants, and he says, 'You have "everything here!" And I said, 'uh-huh.' And this that I'm telling you, it was in two-thousand something, you know? We're not talking about in the seventies or forties. This was a person that doesn't even know where this island is, okay?

The stereotype of Puerto Ricans on the island living in a pre-modern society without access to modern clothing or technology is an expression of spatial stigma that distinguishes medicine on the island from modern medicine practices on the mainland. The racialized reference to the loincloth is fraught with colonial metaphors that construct Puerto Ricans as frozen in pre-modernity—unable, perhaps constitutionally, to advance. But the symbolic effects of this metaphor supersede the use of that specific term in physicians' narratives. Physicians generally described outsider perceptions consistent with coloniality—they invoked a pervasive notion of Puerto Rican inferiority and backwardness.

In many cases, these perceptions of pre-modernity were expressed in assumptions that physicians encountered about the inferior nature of medicine on the island. As in the case of Marta, interviewees often told stories of interactions with medical colleagues who expressed a combination of geographic, cultural, and technological stereotypes about Puerto Rican healthcare. An example is provided by "Sharon," an obstetrician practicing in San Juan who received training and practiced medicine for a short time in upstate New York, who described in detail the perceptions of US-based colleagues who openly stigmatized Puerto Rican medicine:

> [US-based colleagues were] thinking that medicine here in Puerto Rico is a different thing. Once, someone said to me, within the hospital, something like, "And what is medicine like there?" As if it were different. I mean, it's true that there are technological things that are lacking here, but it's like they think that in other countries it's like *Vudú*, you know, like what we do is cure people with medicine—with traditional medicine. It's like 1950. There are no antibiotics.

The reference to "*Vudú*" underlines this association and references traditional practices often disparaged in Western biomedicine. A similar example was provided by "Ricardo," a medical school administrator in San Juan, who described how he and his Puerto Rican colleagues joked about perceptions of Puerto Rican physicians in the minds of US-based practitioners:

> Well, the joke amongst my colleagues is that they imagine us in loincloths, with very little technology and poorly educated. That is the first thing in the joke that we always talk about… It's not thinking that we are equals, definitely. My idea is that they think we are inferior. And in addition, all this drama that Puerto Rican politics have brought with United States politics… Maybe they have begun thinking that we, in general, have poor management of North American funds or that we are corrupt.

Ricardo's allusion to the "undesirable circumstances" of Puerto Rican medicine makes an implicit reference to the broader context of colonial disadvantage in which the island's health care system is embedded—a result of coloniality. Many physicians made similar contrasts, referencing the infrastructural decay or lack of personnel in some of PR's healthcare facilities.

For example, a pain management specialist practicing in New Jersey noted, "As we say in PR, 'we make hearts out of intestines,' meaning you are trying with all you can to provide the service to the patient." His reference underlines the barriers Puerto Rican providers face when practicing in the context of scarcity and structural abandonment, which require medical creativity and improvisation.

Another physician, a psychiatrist practicing in New York City, contrasted the quality of patient care in the US and PR. After mentioning his experiences with rude providers in PR, he explained their behavior as follows:

> I feel like in Puerto Rico, it [patient care] is a little bit worse. And again, that's just me basing it off of [participant names a Puerto Rican hospital]— Like a patient load there… they just have so many patients, they're probably underpaid, they're probably understaffed. So, it's like, not a nice facility; everything's always a mess. When I was there as a medical student, they were still using paper charts. So, just not the best system to work in. So, I can see why people would be burnt out or rude, um… but yeah, I feel like that, that doesn't happen as often here [in New York].

While conceding that some aspects of medical care may be different in PR—even going so far as to suggest some facilities are "a mess"—this physician attributed the causes of this deficiency to the challenges faced by an overly strained medical system that cannot adequately address the needs of the population. At the same time, however, his narrative also replicates certain metaphors of an inferior Puerto Rican medical system, based partly on his own experience and his values regarding the kind of technologies used in medical practice. "Paper charts" simultaneously references infrastructural deficiencies and echo long-standing notions of backwardness and technological inferiority.

When viewed through the prism of metropolitan biomedicine, PR is an amorphous, unspecified distant place frozen in a pre-modern time with presumably primitive forms of medicine. However, it is important to note that some physicians resisted these notions discursively, describing them as resulting from North American ignorance and stereotyping. Although these physicians recognized medical

challenges in PR, they interpreted these as resulting from challenging political-economic circumstances and structural disadvantages in relation to the US. Some also pointed to the greater emphasis among PR physicians on social relationships, solidarity, and serving the local community while "making hearts out of intestines," that is, sources of resilience in "making do" despite structural deficiencies. In sum, when viewed from the "outside" colonial gaze, physicians in our study experienced strongly stigmatizing discourses of PR's backwardness, which permeated discussions of the island's medical professionals, infrastructure, and technology. At the same time, some referenced a creative, improvisational Puerto Rican response in the context of scarcity.

The internalization of stigma among Puerto Rican physicians

Whether it was resulting from personal experiences or from stories that these physicians had heard from growing up in PR, from their professional colleagues, or from the media, many physicians expressed a kind of internalization of stigma that replicated in certain ways the presumed contrast between the US and PR, or as one physician said, "high class" versus "low class" ways of life. "Roberto," a pulmonary and critical care doctor living in the northeast US, for example, contextualized his attitudes about PR within the hierarchical relationship with the mainland US:

> When I was younger, I did have a chip on my shoulder, you know. I went to like a federal school on the island and West Coast Puerto Rico, and it was always my thought that 'Oh, you know, they're American. There they speak English.' They were an American family, you know, 'They must be smarter than me or smarter than us [Puerto Ricans].'

However, as with other physicians we interviewed, Roberto did not uncritically replicate the dominant narrative of PR but instead recognized that he had been inculcated with stereotypes of the island. Upon migrating to the US and encountering colleagues who made comments such as "Puerto Ricans aren't real Americans" but rather "Americans on paper," he noted he had "matured," which he believed has been common throughout the island in the post-María era:

> I do feel that as tragic as it was, I think hurricane María really opened some people's eyes to Puerto Rico. I think they had opened their eyes that, you know, we are American citizens, and, you know, it created, I think, kind of like a national conscience. [We are] American citizens as well, at least that was the feeling I got, you know, post-hurricane María. Because I think if you talked to any Puerto Rican, I think there is this mentality of pre-hurricane María and post-hurricane María, and it's, you know, … a turning point in our collective consciousness.

Roberto articulates the ongoing contestations and evolving nature of Puerto Rican coloniality, which was evident in our interviews. The fundamental substrate of Puerto Rican' collective consciousness' entailed long-held global hierarchies—of modernity, language, wealth, and opportunity—that physicians had to navigate in making migratory decisions.

This powerful hierarchy contributes to the pervasive desire to leave PR for higher pay, prestige, or professional validation, partly as perceived compensation for the years of hard work these professionals put into becoming doctors. As one physician explained, "In medical school, I would often hear, 'No, we need to stay here and fight for our island,' and blah blah blah, and I was like, 'Well, that's nice, but we also need to make money.'" Another explained, "You have to understand that a young physician, a doctor that is dying of hunger, who doesn't have money… who's getting food stamps, asking for money from their father to pay for electricity and water… So, you understand, [that's what drives a physician to leave PR]." Many similar narratives have been described in our team's analysis of decisions

to leave among physicians (Varas-Diaz et al., 2023). It is worth noting in this context that economic opportunities and professional advancement through residencies or fellowships were the most cited reasons for physician migration in our sample and are the most common explanations for physician loss in the existing literature on the crisis (Downer et al., 2018; Fernandez 2021; Joseph et al. 2020). Nevertheless, often below the surface of their narratives, physicians expressed the importance of stigma in driving their decision-making.

As suggested by Roberto's encounters with what he calls "ignorant" colleagues in the US, many of those physicians who had migrated to the US felt that, as one physician put it, they were "always a little on the social margins." They frequently encountered micro-aggressions, such as doubts about whether they belonged in the US or questions about their citizenship. Many physicians described moments when they were asked if they had US passports or, as Roberto also explained, "offhand comments [like] people saying, 'oh when you immigrated from Puerto Rico.' I didn't immigrate from Puerto Rico! I moved *from* Puerto Rico! I migrated from Puerto Rico to the US. I didn't immigrate because I'm, you know, [not] foreign-born!"

Again, many physicians had been asked to speak English, or, as described by "Marcia," an obstetrician practicing in PR who had received training in the US, patients and other doctors would make comments such as, "Don't speak Spanish with your Puerto Rican colleagues… This is the U.S., and you should speak English." For Puerto Ricans, who have long been held to outsiders' expectations of assimilation that can never be fully met, such comments echo familiar colonial discourses.

These circumstances were exacerbated if the physician was darker-skinned or had a heavier accent when speaking English. And, consequently, physicians were able to navigate these circumstances a little easier if they had lighter skin—and therefore didn't fit the stereotype of what a Puerto Rican person *should* look like—didn't have a thick accent, or if they had names that helped them pass as a (white) American. Indeed, "Rosa," a psychiatrist practicing in the northeast, recalled a moment when she was told: "Oh my goodness, your English is so good, how is that possible? You're from Puerto Rico!" To which Rosa replied, laughing, "Well, we're bilingual." Later in the interview, she elaborated:

> A lot of people here think that Puerto Ricans look a certain way, and you probably noticed I'm a little bit on the lighter skin side. So, people don't immediately think I'm Puerto Rican. People think I'm American [implicitly, white]. And if they hear my last name [name omitted for confidentiality], they think Italian. I've [also] gotten Portuguese, things like that because of my last name. So, because of that, I feel like I've been protected from racism because people don't think I'm Puerto Rican immediately.

For another physician, taking on her spouse's last name also helped them manage the stigma of her Puerto Rican origin, noting, "My second last name is [Caucasian-sounding name]. And [name] is a last name that [people] here in the U.S. feel more comfortable saying. They think it's a more common last name or a last name that sounds more American… I've done an experiment a few times where I introduced myself as Dr. [name], and people had a bit more rapport [with me]."

Circumstances like these led some physicians to acknowledge the effects on self-esteem, feelings of inadequacy, or a sense of alienation from the US mainland. As one physician explained, "Look, for example, my two [physician] friends who decided to stay [in PR] made that decision because of their fear of English." Many physicians practicing in the US expressed strong desires to return to PR, even if they frequently described the tensions of when and under what conditions they would be able to return. The desire to stay in PR among our sample is described in detail elsewhere (Rodríguez-Madera et al., 2024). Nevertheless, our findings underscore the impossibility of overlooking the relationship between spatial stigma and migratory decision-making among physicians—past, present, and future.

"The colonized mind": Becoming a doctor at the margins

While existing explanations of PR physician migration have focused on economic factors, our interviews—which intentionally probed physicians on circulating perceptions of the island, its medicine, and its people—found that economic motives provide only part of the picture. As with all Puerto Ricans, PR physicians participate in broader, global systems of meanings surrounding the island, its ongoing colonial neglect, its crumbling infrastructure, and its general disadvantage in relation to the US. It is perhaps not surprising that research on PR's failing medical system, particularly pronounced post-María, have emphasized the vast inadequacies in US federal assistance and safety-net programs, such as Medicaid and FEMA (Benach et al. 2019; Bonilla 2020; Padilla et al. 2021). These create structural disadvantages that pervade the medical system in PR, where patient wait times are intolerably long, medical facilities and personnel are chronically underfunded, and private insurance providers reimburse physicians at much lower rates than in the mainland US. But in addition to these structural constraints, and perhaps more importantly as a result of them, physicians struggle with how to "become a doctor" at the margins. This involves more than coping with economic woes but also the *meaning* of being a medical professional in the global periphery, despite the structural and technological deficiencies resulting from PR's chronic neglect.

Physicians we interviewed described a mentality often expressed among biomedical personnel in PR that leaving the island is the only or the most desirable path for a successful career. When probed about the reasons for physician migration, interviewees often stressed social and lifestyle factors in addition to economic motives. Some even sought to debunk the notion that physician income was substantially higher in the US. When asked about why so many physicians were migrating from the island, "Irene," a neonatology specialist practicing in Texas, explained:

> It is the colonized mind. 'The grass is always greener on the other side.' And you see, you see them there [in PR] not getting work, but they work in the US on disgusting things [*porquerías*] that they could work on there. But they feel that they are better paid, but in truth—nothing. It's the colonized mind. Everything is better over there. They give more benefits. The rent is cheaper. But what nobody says is that there they take 40% of your salary. That's what they pay federally. That is, you pay more, but in the end, it doesn't compensate.

The notion of the colonized mind is an apt metaphor for our analysis of physician stigmatization and coloniality, as well as resistance to the notion of advancement through migration expressed by some physicians in our study, such as Irene. Many physicians mentioned the pervasive desire among their colleagues to access "cutting-edge" medical technology, specialized training on new procedures, or a more "organized" healthcare management system presumably available in the US. Again, these desires extended beyond the purely economic and involved the internalization of a normative medical career trajectory that was predominantly outward-looking and oriented toward "modern" technologies and medical advancements.

"Laura," a psychiatrist practicing in PR, explained why these technologies would be exciting for physicians who were considering migrating:

> So, let's say, a surgeon. 'Ahhh, there in that place, in that [US-based] facility, they have this machine, a robot that is doing it. And you can literally do the operation with that robot machine that allows you to go during the neurosurgery—a surgery of twelve hours or more—and you can eat a sandwich and be calm knowing that that robot machine is working. It's an example… I mean, physical resources like that for some specializations are very important. 'Wow, I can do things like that!' [in the voice of a hypothetical medical colleague]… 'Ahh, they have such-and-such machine, the such-and-such laser or what-

> ever, and in Puerto Rico, they don't have that.' And it's true that those people have the opportunity to train in that and learn from it.

For some physicians, the relative paucity of certain technological advancements and medical training opportunities on the island fostered the broader perception that migration was necessary to remain at the vanguard of their profession. "Manuel," a gynecologist practicing in Florida, expressed this rationale when describing how he believed his career would have unfolded had he chosen to remain in PR:

> The practice here in the US, well, one is more on top of the technological developments, you know? I don't know how advanced the Puerto Rican thing is. I imagine that it is—that a given center has, for example, robotic surgeries that I do many of now. But one thinks a lot, 'If I went there [to PR], how accessible would technology be for one to do what I'm used to doing here with no problem?' For me, that has been the thing that I've been able to enjoy through the years. The technological advances that have made things much easier. Adapting them. Because here, the hospital is very interested in the doctors maintaining a good level in terms of the technological advances. And I don't know if that would have happened in Puerto Rico if I would have stayed all those years there… And that, for me, has been an incredible thing because the technology has changed how one practices gynecology.

While structural disadvantage in PR provides the broader context for some of the presumably lower technology available on the island, it is important to note that Manuel equated "good" medicine with high-technology medicine in his narrative. This kind of elision was common in our interviews and is consistent with a biomedical script that validates itself with reference to "cutting-edge" techniques preferably mediated by the most modern technologies, such as surgical robotics. As in Laura's narrative, Manuel considered a medical procedure to be "better" because the physician could eat a sandwich while the robot conducted neurosurgery.

In the context of the stigmatization of Puerto Rican physicians described in the prior sections—such that some may perceive medicine on the island as backward or primitive—access to US-based training and cutting-edge technologies are essential in legitimating one's status as a physician. Participation in global biomedicine allows physicians to mitigate the associations with backwardness that are inherent to coloniality on the island. Indeed, lateral stigmatization, in which one avoids association with one's own social group as a means of managing stigma, may motivate physician migration for some of our sample. Illustrating this, Marcia, the gynecologist practicing in PR cited in the prior section, lamented in her interview that physicians trained in PR are often associated with the "dozens and dozens" of inferior medical schools throughout the Caribbean region, even as they are accredited by the US. "None of those schools are accredited, and their academic program is not solid," she observed. "They are not well-trained. And we are being dragged along as if we were 'that group from the Caribbean'."

DISCUSSION

Puerto Rico, a territory of the United States since 1898, is positioned within a global political-economic system that has contributed to a new migratory crisis that parallels the island's financial and environmental woes. While these apparently recent processes have been linked to climate events such as María and the more recent Hurricane Fiona in September 2022, their asymmetrical and enduring impact reflects long-existing colonial hierarchies of race, class, citizenship, and migration (Bonilla 2020).

Within this broader context of coloniality, the specific case of physician migration from PR to the US continues to ravage the island. In a departure from explanations for physician migration to date

that have been primarily economic in nature, our study sought to determine how spatial stigma—the attachment of negative meanings to the island, its people, or its medical system—may operate to inform physicians' migratory decisions. Physicians we interviewed elaborated extensively on the stereotypes associated with the island's medical system, represented in one of the most frequently mentioned metaphors cited by study participants: the "loincloth" (*taparrabo*), which embodies colonial assumptions about PR's backwardness and primitivity. Both within PR and during professional travel or work in the mainland US, interviewees described encountering pervasive "ignorance" about PR, confronting offensive notions that the island existed in a far-away land, and experiencing micro-aggressions related to their English accent or presumably inferior training. At the same time, and precisely because of their experiences of spatial stigma, many physicians internalized aspects of these narratives, informed by professional values that emphasize US-based training and remaining at the "cutting-edge" of medical technologies available in the US. Some interviewees who had immigrated mused about how their careers would have suffered had they remained on the island, despite having little direct knowledge of medical practice on the ground.

For doctors in PR, subject to the colonial gaze, "getting out" can be understood as a career requirement rather than a choice, particularly for early-career physicians. Modern technology, such as surgical robotics, is not only seen as a means of treating patients more easily—or "while eating a sandwich," as in one participant's assessment—but also as markers of modernity, which has been a key feature of biomedicine in PR since the outset of US colonization. Within this logic, being a modern physician entails using the instruments of contemporary Global North biomedicine: its technology, rationality, and newest innovations. As with ethnographic studies of hospitals in peripheral sites such as Botswana (Livingston, 2012) and Papua New Guinea (Street, 2014), physicians in Puerto Rico interact with biomedical technologies as a means to shape their professional identities and become visible to metropolitan biomedical actors.

Coloniality is the broader structural context in which spatial stigma operates in PR, and we suggest that it is an unacknowledged factor in the mass exodus of Puerto Rican physicians from the island to the mainland United States. While it is undeniable that the economic factors addressed by most analyses to date—artificially constrained budgets, disproportionately low insurance reimbursement rates, etc.—strongly shape the growing problem of physician migration, there are also symbolic processes at work. Coloniality has contributed to the kinds of metaphors, symbols, and narratives that manifest in physicians' descriptions of PR and its biomedical system. In turn, these circulating meanings inform physician experiences with US-based practitioners and their decisions to leave the island.

Addressing the deeply entrenched symbolic systems, rooted in coloniality, that are contributing to spatial stigma and the physician migration crisis involves re-thinking Puerto Rican medical practice within a decolonial framework. Policy interventions, which have focused primarily on economic incentives for physicians to remain on the island or to return under the auspices of low taxes, should also aim to counter dominant narratives that construct PR or Puerto Rican medicine as inferior or backward. The island has a history as a world leader in community medicine that is in danger of being lost to history. Medical innovations on the island, alternative and non-monetized forms of personalized patient care, and community-level organizations for mutual aid should be emphasized as valued medical resources indigenous to the island. While much of the structural decay cited by physicians is a reality wrought by colonial neglect, the island still possesses technological and human resources that are rarely acknowledged or championed. Indeed, some physicians in our study similarly stressed that, despite its challenges, Puerto Rican biomedicine possesses its own local strengths.

US-based physicians who hold assumptions about PR's medical system should be targeted with opportunities to interact professionally with physicians and patient groups on the island. Training programs focusing on US-based physicians could be developed and held in PR, where the exchange of knowledge flows from the south to the north and valorizes island-based responses to recent structural challenges and environmental traumas. Given that many Puerto Rican physicians who have migrated express desires to return to the island, such actions might help to overcome perceived barriers to moving

back to PR. Stigmatizing notions of Puerto Rico, Puerto Rican physicians, and Puerto Rican medicine and physician experiences of stigmatization within global biomedical culture should be openly discussed in public fora, as they are rarely addressed outside a study such as ours. Dialogic processes of collective reflection on the structural and the symbolic dimensions of physicians' migratory decisions—including examination of how coloniality frames biomedical knowledge and practice—could provoke more lasting changes than relatively subtle economic shifts in the medical terrain in which the physician migration crisis is unfolding.

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ORCID

Mark Padilla https://orcid.org/0000-0002-2532-6280
Nelson Varas-Diaz https://orcid.org/0000-0003-4695-1146
Sheilla Rodríguez-Madera https://orcid.org/0000-0003-1967-1341
John Vertovec https://orcid.org/0000-0002-7277-0245
Joshua Rivera-Custodio https://orcid.org/0000-0003-0149-667X
Kariela Rivera-Bustelo https://orcid.org/0000-0003-0378-4923
Claudia Mercado-Rios https://orcid.org/0009-0003-0218-9759
Armando Matiz-Reyes https://orcid.org/0009-0000-1190-5540
Yoymar González-Font https://orcid.org/0009-0004-2258-5924
Alixida Ramos-Pibernus https://orcid.org/0000-0002-2457-555X
Kevin Grove https://orcid.org/0000-0001-9114-5050

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