Chapter 12

Embodiment

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12.1 Introduction

Embodiment is an established concept within the fields of medical anthropology and other social sciences. It has been used as a way of thinking and writing about the body and bodily experiences that challenge dualistic assumptions about the mind and the body. This chapter explores the various ways in which the concept of embodiment has been used in the social sciences and health sciences research with a particular focus on the 'first 1000 days' and the Developmental Origins of Health and Disease (DOHaD). By drawing on case studies and ethnographic data, this chapter illustrates how the concept of embodiment can be used as a heuristic or analytical tool to challenge the way we understand the body – particularly the ailing body, the sick body, and the birthing body. We draw on examples that illustrate how the concept of embodiment has the potential to contribute to DOHaD research. Using the concept of embodiment as a tool within DOHaD research allows us to show the ways in which challenging social environments and stressors have long-term effects on health and biology [1].

12.2 What Is Embodiment?

According to Musolino et al. [2], the conceptual framing of embodiment came into social science writing as a critique of the highly contested theory of Cartesian dualism, which continues to be the dominant approach to understanding and treating the body in other disciplines. René Descartes's theory of dualism asserts that the mind and the body are separate entities that exist independently of one another and that could not exist in unity. Descartes believed that '. . .Mind was unextended, an immaterial but thinking substance and body was an extended, material but unthinking substance' [3]. This theory had implications for science and, of interest to this paper, the practice of medicine. In medicine, the body is often portrayed as a biological fact, an object, a collection of cells and tissue, a '. . . machine, void of mind or soul' [4]. This can mean that the mind and its significance in one's experiences of health and illness are not accounted for. However, since the 1970s, anthropologists and other social scientists have challenged Cartesian dualism and have suggested different ways to think about the body, one of which is the concept of embodiment.

While the concept of embodiment has been used differently within various disciplines, we will draw on three notions of embodiment that are of particular relevance to DOHaD: first, the political economy approach within critical medical anthropology [5]; second, the phenomenological approach conceptualised by Csordas [6]; and finally, the biosocial approach, drawing on Nancy Krieger's work [7]. Thus, the first part of the

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chapter is a survey of how embodiment has been theorised and used within the social sciences. In the second half of the chapter, we argue that DOHaD should embrace social science concepts as biosocial collaboration compels cross-disciplinary legibility and a shared vocabulary. We provide a discussion of why embodiment (conceptualised in the three ways we present) is a useful theoretical tool for DOHaD science. In doing so, we illustrate why it is important to integrate concepts/tools from social sciences, in this case embodiment, to deepen our awareness and understanding of the kind of influence environmental experiences can have on the development of health and disease over the lifecourse. We suggest that employing the embodiment concept can make DOHaD research and interventions more socially just and socially sensitive.

12.3 Approaches to Embodiment

The political economy approach to embodiment is best described by Nancy Scheper-Hughes and Margaret Lock. In their seminal essay, *The mindful body: A prolegomenon to future work in medical anthropology*, Nancy Scheper-Hughes and Margaret Lock [5] conceptualise the body as something that is 'simultaneously a physical and symbolic artifact, as both natural and culturally produced, and as securely anchored in a particular historical moment' [5]. They propose the idea of three bodies. Firstly, the 'individual body' represents one's personal experiences, perception, and consciousness of their body. Secondly, the 'social body' focuses on the messages that the body sends and how the body is perceived and analysed by others. Thirdly, the 'political body' focuses on the regulation, control, and surveillance of bodies. This way of thinking about the body challenges the view that the body is simply a biological fact. The idea of the three bodies not only challenges mind–body dualism but also opens up a new lens of analysis in which illness is not experienced solely in the mind or the body but is crucially shaped by social and political structures. This is best illustrated by their concluding words:

> What we have tried to show in these pages is the interaction among the mind/body and the individual, social and body politic in the production and expression of health and illness. Sickness is not just an isolated event, nor an unfortunate brush with nature. It is a form of communication – the language of organs – through which nature, society and culture speak simultaneously. The individual body should be seen as the most immediate, proximate terrain where social truths and contradictions are played out, as well as a locus of personal and social resistance, creativity, and struggle [5]

The phenomenological approach to embodiment conceptualised by Thomas Csordas has also been widely influential within anthropology and social sciences discourses. Csordas [6] proposed the idea of phenomenological embodiment to move away from discourses that frame the body as a passive subject. Instead, he advocates for a conceptual framework that captures human existence as relational, temporal, embodied, and situated [8]. Csordas [6] sees the body as 'a biological raw material' that 'inherits its culturality through the process of embodiment'. This approach has allowed scholars to illuminate how culture and history shape bodily experiences. Used in this way, the concept of embodiment provides us with useful tools for thinking about everyday taken-for-granted bodily practices, about how bodily knowledge is acquired, and about how, in turn, this acquisition accounts for the differences in how people hold and use their bodies (gestures or accents) [2, 9].

The biosocial approach to embodiment goes beyond 'considering' how culture and politics influence health and illness experiences to show the detrimental implications of not

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considering embodiment. A failure to consider embodiment can lead to deeply unjust experiences of health and illness as the social becomes biological. Scholars such as Nancy Krieger have described embodiment as 'a concept referring to how we literally incorporate, biologically, the material and social world in which we live, from conception to death; a corollary is that no aspect of our biology can be understood absent knowledge of history and individual and societal ways of living' [7]. Embodiment for epidemiology grapples with the implications of how global and local social, political, and economic structures shape people's lives and become embodied in individual sickness and suffering [10].

We now move onto three case studies that illustrate the usefulness of the above approaches to embodiment. It is important to note that we do not advocate for any one approach to embodiment; we see all the approaches we have surveyed here are equally useful. The case studies below show us an alternative to the DOHaD tendency to individualisation and blame that is often directed towards women for negative outcomes with regard to reproduction. For example, Manderson and Ross [11] suggest that DOHaD research and the interventions born from it tend to over-emphasise the maternal role in keeping the fetus safe and healthy. As a result, there is a tendency to focus interventions on women with the assumption that a woman's body is 'an incubator of population health, both in the immediate present and, according to current understandings of epigenetics, for two generations (at least) into the future' [11]. This has the unintended consequence of leaving other bodies such as those of men underexamined and puts the responsibility of the health and well-being of future generations solely on women, leading to the surveillance of particular bodies in order to control population health [11]. The following case studies provide insight into how the experience of pregnancy cannot be adequately grasped by focusing on the individual mother. Instead, they illustrate how an embodiment approach can better illuminate the environmental and structural conditions surrounding pregnancy.

12.4 Case Studies

Anthropologist Emily Yates-Doerr's [12] work in Guatemala effectively illustrates how health and illness are shaped by social and political structures. Yates-Doerr [12] provides an insightful multi-layered analysis using embodiment to trace the relations and material conditions that shape the worlds of mothers and their infants. In 2006, the Central American Free Trade Agreement came into effect. This resulted in Guatemalan markets importing an influx of US market foods, which included unhealthy and highly processed foods that were not a staple commodity prior to the implementation of the international trade agreement. Furthermore, the liberalisation of the Guatemalan food economy meant it became more expensive for the country to locally produce staple commodities, thus resulting in the proliferation of supermarkets that could mass import food into the country. Yates-Doerr [12] notes that the rising rates of diabetes, heart disease, hypertension, and other illnesses associated with dietary practice within the country are in part due to the transformation of the region's food economy brought about by the international trade agreements [12, 13]. Like Yates-Doerr, many other scholars have noted that the introduction of the Western diet, especially the emergence of highly processed foods in particular countries, corresponds to the rising rates of cardiovascular diseases and hypertension [14]. Thus, in the case of Guatemalan women, the high rates of obesity and diabetes in infants cannot be solely blamed on a mother's individual lifestyle choices. The political economy of Guatemala is embodied in the lives and bodies of women and

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their infants; in Rubin and Hines' words [15], political economy 'enters the body', transforming the bodies of women and their infants, and affects their health outcomes.

The second example we draw on is from Mutsawashe Mutendi's [16] work on maternal health among South African platinum mineworkers. Mutendi [16] shows how platinum mining makes mineworkers vulnerable to various occupational health-related problems, particularly reproductive health-related problems. The exposure to toxic chemicals while mining underground can potentially be harmful to the health of pregnant women and the health of the fetus. Her work shows how women opt to evade mining policies that stipulate that when a female mineworker discovers that she is pregnant, she should report her pregnancy to human resources so that an alternative and safer job can be found for her. Under such policies, if the number of pregnant women exceeds the number of available alternative jobs on the surface, the remaining pregnant mineworkers are sent home by the mining company until they give birth. In such cases, women will only be compensated for four months of maternity leave, as stipulated by the Basic Conditions of Employment Act (BCEA) of 1997, Section 25 [17]. Hence, pregnant mineworkers in this context opt to conceal their pregnancies and continue working underground despite the reproductive dangers that this potentially poses to the mineworkers, their fetuses, and subsequent generations. Mutendi highlights the complex political and economic realities and multiple forms of vulnerability faced by female mineworkers during pregnancy. These include how pregnancy, mining policies, the fear of being economically redundant, motherhood, exposure to toxins, and the in utero experience shape one another.

Some of the groundbreaking research conducted on the biosocial approach builds on Krieger's work on embodiment, to show how racial inequality can result in poor health outcomes for particular groups of people (see Meloni et al. in this volume). For instance, the work of neonatologists David and Collins [18] illustrates how racial oppression can be embodied and influence the health outcomes of infants. In *Disparities in infant mortality: what's genetics got to do with it?*, David and Collins explore the differences between infants of African American women and white women in the United States, with a particular focus on the disparities in low birth weight between the two racial groups. Their research shows that low birth weights of infants were not a result of genetic predisposition but rather the socio-economic and environmental influences that African-born women were exposed to, which changed their biology, putting them at a higher risk of birthing infants with low birth weight. Their research speaks to the ways in which structural racism is embodied: it enters the bodies of women of colour, and the stressors associated with racism lead to women having unfavourable maternal health outcomes and their infants also having bad outcomes such as low birth weight and premature birth. Thus, the social issue of racism manifests itself in biological ways. Although research that is framed within the biosocial approach of embodiment is largely Euro-American as is shown in the example above, there have been some recent strides in this topic within South Africa. Kim et al. [19] look at the intergenerational mental health impacts of prenatal stress in South Africa, focusing on a longitudinal birth cohort in South Africa called Birth to Twenty Plus (Bt20++). Their research illustrates how the trauma caused by apartheid conditions, coupled with other societal ills such as poverty and inequality, can be inherited and embodied by children in utero and affect their mental health in the future. Kim et al.'s key findings are that trauma and stressors caused by apartheid conditions have had enduring biological effects that continue to influence socio-emotional behaviour and mental health across the lifecourse [19].

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12.5 Discussion

As the definitions and case studies that we have used in this chapter make clear, the conceptual framework of embodiment allows us to connect the subjective experiences of the body to broader social contexts and also shows us how the body is inscribed with history, politics, and culture. That is, individual bodily experiences are shaped by social, political, historical, and cultural forces [5, 20]. Furthermore, the concept of embodiment has allowed social scientists and health scientists to incorporate more nuanced approaches to quantify stress or other social, cultural, and material circumstances that could influence one's illness or sickness [21]. As Buklijas et al. mention in this volume, DOHaD research is based on the premise that conditions experienced in the womb, infancy, and childhood could potentially predict adult biological and health outcomes [21]. In the same vein, Krieger [7] argues that the clues to the current changing health population patterns can be found in the dynamic social, material, and ecological contexts in which people are born into, develop, and interact within.

While the focus is on interventions that aim to modify the behaviour and lifestyle of pregnant women might be useful, there are much larger structural forces at work beyond the control of the mother. The case studies we have presented demonstrate that we cannot divorce the body from politics and cultural context. Thus, to understand health and disease, DOHaD research needs to go beyond looking at what is present in the body, or the personal decisions made by an individual. Considering these case studies, we would want to look beyond the pregnant women who choose to work underground or pregnant women who eat processed food. Instead we want to consider the amalgamation of socio-economic-political factors that influence the decision-making of pregnant women and, ultimately, their health and that of their unborn babies. Such a deepened awareness can bring about more socially aware representations of women in DOHaD research and more socially just DOHaD interventions. In the Kim et al. case, for example, the health outcomes of pregnant women and future generations must be understood in the context of the racial inequality and injustice that occurred during apartheid South Africa; these have biological implications for Black maternal bodies. This awareness of how racial inequality and injustice can be embodied demands DOHaD research and interventions that take seriously the health impacts of racial inequality. In bringing attention to broader contexts, an embodiment approach would also encourage DOHaD interventions to focus on other reproductive actors and caregivers beyond pregnant women, including men and adolescents, as well as attending to broader contexts.

Adopting an embodiment approach in DOHaD research is challenging but vital. Such an approach widens the scope and focus of intervention, takes racial discrimination, political issues, and structural violence into consideration, and investigates how those socio-economic-political issues may enter the body and cause disease. An embodiment approach to DOHaD research navigates questions such as: how do bodies experience pregnancy and childbirth? How do certain contexts produce particular kinds of experiences of pregnancy? How do the circumstances under which women are pregnant enter their bodies and cause disease or ill health? Under what circumstances are bodies learning how to be pregnant and how to then feed an infant? How do others relate to certain pregnant bodies? What kind of power relations play out in the pregnant body, and how does this affect the health outcomes of the mother and child? Our hope is that using embodiment as a tool will help DOHaD researchers heed Krieger's call in her latest work,

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to use what we know about how injustice and inequalities shape people's health to guide our actions and direct resources into 'prevention, redress, accountability and change' [22].

12.6 Conclusion

This chapter has defined and illustrated embodiment as a crucial concept for theorising the body and illness in social and health sciences. These perspectives highlight that the body is relational, temporal, embodied, and situated. Using embodiment as a conceptual tool allows us to go beyond highlighting how structural inequality can literally be embodied and trigger sickness and move towards emphasising the transgenerational implications of health as a result of the previous generation/s embodying social ills. DOHaD science provides the scientific backing for the embodiment concept as it clearly shows that environmental factors impact health. This chapter calls for DOHaD research and interventions that not only acknowledge the environmental impact on health but also consider and include that wider environment and wider social structures in the interventions proposed. Embodiment is an insightful analytical tool that allows for conducting DOHaD research that can attend to social, political, cultural, and material processes and ultimately produce socially aware and socially just research and interventions. Embracing social science concepts such as embodiment also allows for shared vocabulary between DOHaD scientists and social scientists, which is vital for biosocial collaboration.

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