THE FIRST THOUSAND DAYS:

MOTHERHOOD, SCIENTIFIC KNOWLEDGE, AND LOCAL HISTORIES

Michelle Pentecost and Fiona Ross

ABSTRACT

Since 2013, South African nutrition policy focuses on "the first thousand days," (conception to two years), informed by Developmental Origins of Health and Disease research. Drawing on ethnographic research, we show how policy foregrounds certain categories of persons and casts "the maternal" as a time frame for interventions to secure future health and argue that this constitutes a "knowledge effect" - the outcome of framing questions in a particular way and with specific knowledge horizons.

Keywords: *South Africa, DOHaD, epigenetics, first 1000 days; futures; HIV.*

Running title: The first 1000 days

Media teaser: Is it fair, in the historical and social context of South Africa, to say that you are what your mother ate?

BIONOTES

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First 1000 Days. Right Start, Bright Future.

(Campaign slogan, Western Cape Government, 2017)

On February 17, 2016, Nomafrench Mbombo, the Provincial Minister of Health for the Western Cape in South Africa, , launched the province's "First 1000 Days" campaign. In her speech, the minister drew on an African idiom, stating: "We believe that the healthy early development of a child, and the well-being of the mother, is the responsibility of the community. It takes the whole village to raise a healthy child." The campaign poster included the logos of the Departments of Health and Social Development, along with hotlines for substance abuse, violence and abuse, early childhood development, and health-related queries.

The province's focus on the first thousand days of life - the period between conception and a child's second birthday - was introduced in 2013 as part of the national nutrition policy. The Roadmap for Nutrition in South Africa 2013-2017 states:

> Missing the "window of opportunity" – the thousand-day period from conception to two years of age – to improve nutrition can result in long-term permanent damage. There is a clear window of opportunity for addressing nutrition, and after age two, this window closes rapidly and the effects of undernutrition are largely irreversible. It is therefore critical that interventions to prevent undernutrition reach mothers and young children during this period. (Department of Health, South Africa 2013:8).

The imperative to "reach mothers" in the first thousand day period is based on the premise that interventions in this critical window, especially with regards to nutrition, will decrease the risk of early childhood stunting, improve cognitive outcomes, and decrease the likelihood of adult onset diseases such as cardiovascular conditions and diabetes mellitus (Black et al. 2013).

The “first thousand days” concept was coined after a *Lancet* 2008 Series on Maternal and Child Undernutrition recommendation to focus nutrition interventions on the period from conception until the age of two years (Bryce et al. 2008; see also Thurow 2016). The Lancet's 2013 follow up series, *Maternal and Child Nutrition*, adds that interventions in the first thousand days also impacts on potential future burdens of overnutrition and chronic disease. The possibilities for action are seen as both radical in their future potential and singular in the opportunity for intervention (Pentecost, Ross and Macnab 2018). The United Nations Scaling Up Nutrition (SUN) program “1000 Days: Change a Life, Change the Future,” launched in 2010 (Thurow 2016), now has a membership of 60 countries and 80 non-governmental organizations. South Africa has never formally joined, but has adopted similar nutrition policy recommendations to those of the UN's “Road Map to Scale Up Nutrition” - an outcome of collaboration between the Nutrition Directorate of the National Department of Health, UNICEF, World Health Organization regional affiliates and the Global Alliance for Improved Nutrition (GAIN) (Department of Health, South Africa 2013:9).

The thousand days focus has been highly successful in mobilizing resources directed at ending early life malnutrition, focusing policy attention on the long overlooked problems of maternal and child health and nutrition, and more recently on drawing attention to the importance of investing in early childhood development. The intervention comprises a perinatal nutrition package that includes both vertical strategies to target maternal and child undernutrition and behavior or “lifestyle” modification tools adopted from chronic disease management frameworks. Targeting interventions during this critical window seems to be a simple, effective, and feasible way to achieve a host of outcomes: decrease child undernutrition; prevent adult chronic disease; and increase future human capital through improved population health. Maternal education is a central feature of these interventions, which aim to offset future ills and create a better future.

Yet as previous anthropological work has made plain, “there are profound discrepancies between how global health policies and campaigns are envisaged to work and the concrete ways in which they are actually implemented or received” (Biehl and Petryna 2013:10). Global policies are often incongruent with local realities (Manderson and Whiteford 2000). Universal theories may overlook local contingencies (Kleinman 1995) or entangle them in complex ways (Cousins 2014). Policy ideologies inevitably privilege some perspectives and overlook others (Nichter 2008).

Taking the present policy focus on the first thousand days in South Africa as our object of study, we explore the temporalities of mothering emerging as knowledge in the field of the Developmental Origins of Health and Disease reshapes health and nutrition policy. Building on work in South Africa that articulates 'the entanglement between state policies and the politics of subjects' (Mkhwanazi 2014a:328), the paper examines how the relationships between local histories, institutional cultures and popular conceptions of early life, heredity and parenthood materialize in practice. Extending scholarship that questions the logic of a “fetal politics” that casts women as the arbiters of intergenerational well-being in the South African context (Manderson 2016), we show how what we call *the maternal* has been cast as a key time frame of intervention for a range of health outcomes. We argue that new policy focused on the first thousand days of life foregrounds certain categories of person; and that the focus on *the maternal* can be described as a knowledge effect - the outcome of framing questions in a particular way and with specific knowledge horizons. The effect is to foreground categories of persons and background social conditions.

Our arguments are based on long-term ethnographic fieldwork by both authors in the Western Cape. The first author (Michelle Pentecost) has conducted on-going fieldwork in Cape Town since 2014 and has documented the rollout of 1000 Days policy and its uptake in clinical and public discourse since that time. This fieldwork has largely focused on

Khayelitsha, the largest of Cape Town's townships in a larger area known as the Cape Flats, and a site that comprises both formal centers and large informal settlements. Since 2014, Fiona Ross has conducted fieldwork with a group of young mothers in Manenberg, which forms part of the Cape Flats. Both Khayelitsha and Manenberg are parts of the city previously designated for non-white residents during the apartheid era, and the socioeconomic characteristics of these areas reflect the unresolved inequalities of the city. Our ethnographic methods included interviews with policy officials, academics and non-governmental organizations in Cape Town; participant observation in primary care clinics in Khayelitsha by Pentecost, and elsewhere by Ross's students; and participant observation and open-ended interviews with our participants - all pregnant women or young mothers - in our respective field sites.

Drawing on historical analysis and our ethnographic observations, our argument proceeds as follows: first, we consider the scientific literature that informs the first thousand days concept to contextualize the emergence of policy within current global health frameworks. We then discuss historical framings of motherhood in South Africa, showing how the first thousand days package of recommendations is inserted into a controversial history of nutrition and infant feeding policy, especially in the context of HIV exposure. The thousand days discourse communicates a quality of urgency that reshapes temporalities of motherhood, adding to a history of concerns about the maternal body as a social problem. We argue that attention to foregrounding within this discourse is crucial to make sense of the social uptake of Developmental Origins of Health and Disease imaginaries in local settings, and the ways in which this may reflect older histories. We conclude that the renewed focus on the maternal is a knowledge effect - the product of a specific way of asking and answering questions and anticipating knowledge horizons. To situate the discussion, we open with an ethnographic scene.

THE INDUSTRY OF MOTHERHOOD

It is a hot November day in Cape Town in 2014 when Michelle Pentecost visits Bathandwa, who is nearing the end of her second pregnancy. Bathandwa wears a fitted, patterned dress, a red headscarf, and matching hoop earrings. As is usually the case during visits, Bathandwa's first child - a rambunctious four year old boy - is only partially distracted by the blaring television and is running circles around the living room. Michelle's research assistant Nomsa is recently engaged to be married and Bathwanda immediately comments on her gold engagement ring:

"Hayi, shame, we'll welcome you to the industry soon," Bathwanda says to her.

"The industry?" Nomsa asks.

"The industry of motherhood," Bathwanda says wryly.

Bathwanda described "the industry of motherhood" as that set of duties that constitutes mothers' work. "Joining a family is our duty. Raising children is our duty. Making this family happy is my duty." For Bathandwa, the "industry" is about making families. "It's going to be about joining or breaking, and it is better to be joining," she explains. "Sometimes you know there's been some fight a long time ago, but one must overlook these things, and join the families." She speaks of four "families" that must be joined: her family, her partner's family, the extended families on both sides (who are interested in keeping in touch now that they are married, and perhaps have resources that can be called upon), and the new family that they create. "It is a big challenge to be a part of this industry, but it is our duty," she says, "It is something you are expected to feel."

Two months later, Bathwanda gave birth to her second child. Throughout her antenatal and postnatal follow up care, she was part of a new cohort of women in the Western

Cape Province who were educated about “the first thousand days” through the distribution of pamphlets and presentations in the waiting room and in antenatal and breastfeeding support sessions. In contrast to Bathandwa's description of the “industry of motherhood” as the making of families, in this formulation, mothers are newly exhorted to understand their *bodies* as the environment of the future health of the nation for several generations: they are encouraged to see themselves not just as responsible for the new life that is the making of kinship, but also as bearing a responsibility for the bodily health of the population to come.

DEVELOPMENTAL ORIGINS OF HEALTH AND DISEASE AND EPIGENETICS: NEW TEMPORALITIES OF MOTHERING

The argument that the early life period (comprised of pregnancy and the first two years of an infant's life) may have impacts on disease outcomes in adulthood and future generations is based on the burgeoning field of research on the Developmental Origins of Health and Disease. This research demonstrates associations between early life exposures and adult health outcomes, often framed in the language of epigenetics, which, while a controversial field (Ptashne 2007), generally describes the processes by which gene expression is modulated by environmental factors without alterations to DNA (Jablonka and Lamb 2002). The merging of Developmental Origins of Health and Disease approaches and epigenetic research has given rise to an “epigenetic epidemiology” (Waterland and Michel 2007) that includes novel life course and intergenerational perspectives, and, critically, foregrounds the maternal reproductive and lactating body as a site for intervention. The conception of time in these epidemiological models is based on a life-course approach that focuses on multiple generations (Kuh et al. 2003, Ben-Schlomo and Kuh 2002; Jablonka and Lamb 2002). These models shift traditional western metaphysics' primary binary - the nature/nurture divide - and

the idea of irreversibility that underpins Western conceptions of time (Meloni and Testa 2014; Lock 2013; Frost 2018). In so doing, the body is framed as more open to the environment than previous frameworks dominated by genetics would suggest, and "biological fates become inherently reversible and porous to intervention" (Meloni and Testa 2014: 444). The body's responsiveness, historicity and plasticity become problems to be solved in the interests of population futures, and the maternal body and mothering emerge as central foci. While this new imaginary posits the trans-generational transmission of disease risk, it identifies narrow critical intervention periods, or what Warin and colleagues (2015) call "short horizons." In effect this recasts the temporality and the epistemic space within which epidemiology and policy operate, and expands the duration, intensities, and responsibilities of mothering.

The pregnant and lactating body is a key site for intervention given that, while epigenetic imaginaries disrupt the nature/nurture order of Western epistemology and insist that the history of environmental exposure is written into the body, the definition of the environment here remains ambiguous (Meloni 2015; Shostak and Moinester 2015). Conceiving of the pregnant body as the environment for the growing fetus is not in itself new. Scholars of medicine argue that it first emerged with the establishment of imaging technologies as part of routine antenatal care (Duden 1993; Rapp 2000; Gammeltoft 2013; Ferreira 2016), although there is also a strongly religious underpinning to this idea. Feminist scholarship has amply documented how women's bodies came to be framed as "risky environments" (van Esterik 2002:272) -- with the attendant responsibility imposed on women for infant health outcomes (Murphy 2000; Hausman 2006; Richardson 2015). The possibility of intergenerational transmissions of disease risk radically extends the notion of the pregnant body as the carrier of a generational history of environments. "(L)ike a Russian doll," Megan Warin and colleagues explain, "the egg that became us was in our mother's ovary when she

was in the womb of her mother, being exposed to and modified epigenetically by historical experiences" (2015:13). Epidemiology's environment for intervention therefore is concentrated in the female body over an extended and generational time frame (see Richardson 2015). As Wells puts it, "the total period of development of mothers, including experience in their own early life" is now the remit of public health interventions (2007:165). The effect is a "hyper-responsibilization" that frequently finds its expression in an "intense moralization of the maternal body and behaviors in the triangulation of epigenetic and Developmental Origins of Health and Disease writings" (Meloni and Testa 2014:445; see also Zivkovic et al. 2010; Yates-Doerr 2011; Warin et al. 2012). The discourse has four resounding effects. One is to materialize distinct populations for intervention: in this case, the mother-child dyad. The second is to individualize responsibility (cf. Rose 2006; Biehl 2005; Robins 2006; Nguyen 2010). The third is the foregrounding of expert knowledge, and the fourth is to resituate temporalities of responsibility, durative effects, and critical windows of opportunity.

As Maurizio Meloni has argued, "(w)e need history to see how the social and cultural structures that we take for granted are actually controversial, historically contingent, and therefore open to alternative possibilities" (2016:25). Taking this a step further, to make any such alternative possibilities available requires a close understanding of how the uptake of new scientific knowledge is locally inflected, and the ways in which new temporalities of motherhood emerge in that setting. To borrow from Meloni again, we must pay attention to how "biopolitics enters the mundane transactions of actual politics" (2016:23). We turn now to explore the effects of this discourse in the local and historical context of post-apartheid South Africa.

FRAMEWORKS OF MOTHERHOOD:

HISTORICAL PERSPECTIVES FROM SOUTH AFRICA

Current temporal framings of risk and potential in the context of maternal and child health policy in South Africa are shaped by both international and local histories of science and population well-being. The origins of public health policy for maternal and child health, and for nutrition, lie in Western political concerns of the late nineteenth and early twentieth centuries. The premise that early life conditions affect adult "vitality" and the expanding knowledge of nutrition in this era governed the early public health focus on nutrition and maternal and child health services (Kuh and Smith 1993). Increased state interest in the regulation of population health buoyed maternal and child welfare programs from the late 1890s until the end of the Second World War in industrialized nations and their colonies. Maternal education was an early focus of these programs, based on the notion that "the problem of infant mortality is not one of sanitation alone, or housing, or, indeed, poverty as such, but is mainly a question of motherhood, and ignorance of infant care and management" (Kuh and Smith 1993:105, quoting a 1913 British governmental report). Maternal ignorance persisted as an explanation for high infant mortality in African colonies (Vaughan 1988), despite anthropological research to the contrary (Richards 1932). Diana Wylie's (2001) thorough overview of the racialized histories of hunger in twentieth century South Africa reveals the frequent conflation by researchers and officials of child malnutrition with maternal ignorance in the African population. It is worth noting that some early initiatives, such as the Valley Trust established in KwaZulu-Natal in the mid 1950s (see White 1958; Stott 1980), explicitly recognized the impact of colonial rule on crop production and thence the population's well-being: collaborations between the Departments of Health and Agriculture were thus tasked with ensuring proper nutrition for urbanizing peoples. However, land restoration was not recognized as a solution. This trend has continued: health issues are

increasingly identified as developmental problems, rather than as questions of how resources should be distributed.

From an obstetric perspective, reproduction and early childhood have long been highly medicalized in South Africa and most recorded births take place in medical facilities. Historically, the temporal lens with which mothering practices were examined had a short horizon in the form of infant survival. As Nolwazi Mkhwanazi (2014a) has noted, apartheid's legacies for women's experiences of pregnancy and motherhood include a persistently gendered and moral discourse about teenage pregnancy and pregnancy out of wedlock. Mkhwanazi (2014b) argues that, despite the new legislation introduced by the first democratic dispensation for the safeguarding of reproductive rights, poor black women are increasingly the victims of gender-based violence and continue to be held morally accountable for their reproductive choices.

By contrast, holding mothers responsible for the future has a different inflection in other population groups. For example, ideologies of "the volk" and the making of Afrikaner identity in the last century were heavily predicated on the regulation of women's sexuality and maternal practices in the interests of producing an identifiably white Afrikaner population, imagined in bio-ethnic and eugenic terms (Brink 1990; Dubow 1992). As McClintock (1995), du Toit (2004), Teppo (2004), Roos (n.d.), and others have shown, a patriarchal order enforced by religious and educational institutions brought enormous pressure to bear on white women to produce "respectable families" (read: nuclear families) and, critically for our purposes, to a genetically "pure" population. These ideas were brought to bear with considerable force on working class women (Roos n.d.). Constructions of motherhood and its temporal horizons in South Africa have multiple histories, continuing to shape policy ideas about women's bodies as both environments for infants and as vectors of disease.

POSITIVE FUTURES: MOTHERHOOD AND HIV

In the post-apartheid period, the casting of the female reproductive body as a site of deep social and medical anxiety was irrevocably shaped by the country's protracted HIV pandemic, itself shaped in part by the histories of land alienation, capital formation, urbanization, and migrant labor. The social science archive on the HIV pandemic in South Africa articulates "sex, race and risk" as central to understanding the social determinants of transmission (Hodes and Morrell 2018). The pregnant woman in particular indexes three areas of concern: the distribution of illness burdens (a product of political-economic histories – see Coovadia et al. 2009); sexual transmission (the problem of regulating intimate relationships); and vertical transmission. In the fraught history of the HIV pandemic in South Africa, pregnant women became the epidemiological proxy by which the pandemic has been measured, and while antenatal bias is thought to be significant, especially in provinces with high rates of private health care use, antenatal statistics are still the most commonly used snapshot for national HIV prevalence in South Africa today (Johnson, Dorrington and Moolla 2017).

The temporalities of care in the HIV era have been characterized by a powerful discourse of personal responsibility shaping both the provision of antiretroviral drugs (Robins 2008) and debates about the vertical (i.e. mother-to-child) transmission of HIV. Here, old and often racist stereotypes of irresponsible men, ignorant mothers and innocent babies abound. These debates materialized pregnant and lactating women both as core figures in the generational spread of the virus – what Hausman (2006:137) describes as "the viral mother" – and as instrumental in its containment. The figure of the responsible pregnant woman played a crucial role in the eventual widespread provision of antiretroviral therapy to all HIV positive patients below the CD4 count threshold. The HIV-infected mother emerged as in

need of surveillance, education and expert attention. Nkululeko Nkomo argues that this depended on the politics of hope that was cultivated with the emergence of a "rights bearing and neoliberal self-governing HIV-positive subject" in the form of the responsible pregnant woman (2015:168). Here, a new temporality of care emerged as an aspiration for life-giving drugs for infants, who might be protected from vertical transmission, and, later, for mothers and others, who might prolong their lives. As elsewhere (Hausman 2006; Leshabari, Blystad and Moland 2007; Moland and Blystad 2009; van Hollen 2011), research and policy on exclusive breastfeeding to limit HIV transmission again set the scene in which "the maternal" emerged as the "environment" for intervention. Nkomo, drawing on Sara Ahmed's work (2004), argues that policy discourse in the early 2000s worked on "both ethical values and emotions in aligning forms of self-recognition to normative or governmental principles" (2015:164). Nkomo shows that the type of "ethical substance" this established in HIV positive pregnant subjects was characterized by an autonomous self that actively engages in the cultivation of hope (Nkomo 2015:168, citing Foucault 1992:26). At the same time, the rhetoric of "children as victims" that accompanied narratives of mother-to-child transmission of HIV placed mothers as blameworthy targets of a moralizing discourse with religious undertones (Fassin 2013). Maternal responsibility was further magnified by the post-apartheid image of children not just as the "future of the population," but also as the "future of the nation" (Fassin 2013:128). More recent temporal framings of the maternal build on older discourses of maternal responsibility informed by histories of racialized bodies, from the colonial era through to the post-apartheid period.

THE MATERNAL BODY AS TEMPORAL PROBLEM

The foregrounding of the maternal body as deficit thus has a long history in Southern Africa

(Vaughan 1988; Fassin 2013; Mkhwanazi 2014b; Pentecost et al. 2018). Health policy informed by Developmental Origins of Health and Disease research may extend this tradition and simultaneously instrumentalize human relations to population ends.

For example, let us return to the "Right Start, Bright Future" campaign, which explicitly focuses on the first thousand days of life and periodizes maternal time into windows of significance for infant thriving. The campaign slogan has moral and commanding force. In this instance, nutrition, love and learning are required within a specific time frame: human ends (such as love, play, social interaction and relationship) become the means to secure population well-being both in the immediate and generational futures. Classically neoliberal in its discourse on risk, the campaign identifies a population, duratives, techniques and effects. It has all the hallmarks of what Andrew Hartnack (2016:95) terms "biopolitical maternalism": a form of power in which care is the technique through which population interventions are made. The campaign reveals an attempt by an assemblage of state, non-governmental and private actors to reconfigure its subjects as responsible citizens, and in the case of pregnant women and mothers, as citizens responsible not only for their own health, but for that of future generations. This assemblage materializes as arbiter of expert knowledge and source of support, and as critical in what was previously the private domain of social reproduction. "Mother" and "the future" in population terms are now cast in relation to the physiological health of the nation rather than race, ethnicity and family. This is an important shift, yet there are strong continuities between these earlier understandings and contemporary discourses about reproduction and responsibility. Women, particularly working class and black women, continue to be positioned as ignorant and in need of education, as potentially polluting and as unable to adhere to rational measures of time, echoing colonial tropes about Africa and gender and Africans' capacities to comprehend time (Attaran 2007; Ferreira 2016).

Primary health care emphasizes antenatal checks beginning *at twelve weeks, technical* interventions if a pregnancy "goes too far" and six months of exclusive breastfeeding to decrease the risk of HIV transmission. Pregnant women are enjoined to report "early" for ante-natal care, ideally from 12 weeks' gestation, and to continue to report "regularly" for scheduled ultrasound appointments, HIV, blood pressure and diabetes tests, among others. A referral system offers triage, sending those in need of additional care to public sector hospitals. These processes are an attempt to provide adequate care and to reduce South Africa's extremely high infant and maternal morbidity and mortality rates. However, recent data show that forty percent of women report "late" for check-ups (Day and Gray 2013:240; Masuku et al. 2012; Ferreira 2016:13). Late reporting whether because of cultural barriers, economic factors, infrastructural problems (such as transport difficulties or educational deficit – see Amnesty International 2014), or maternal irresponsibility has become a public health concern (Myer and Harrison 2003:270; Ferreira 2016:22). Women who report late are often verbally abused and accused of being bad mothers by staff in public institutions (Masuku, et al. 2012; Jewkes, Abrahams and Mvo 1998). They are "bad" because they have "failed" to take account of their responsibilities to the unborn and to allow the state to provide a care function – to allow the state to "make live" on its terms. In other words, irrespective of the (complex) reasons women may not present on time at ante-natal clinics, they are interpreted as having failed – as women, as mothers and as bearers of the nation's future health. Worse, they are depicted as having refused modern knowledge and rejected biopolitical care: that is, they have failed to be proper citizens. The effect is to isolate women, especially pregnant and breastfeeding women, as an ahistorical unit of intervention and responsibility, to render them accessible to public health interventions, and to expose them to public censure when behaviors do not map onto idealized expectations.

These assumptions were not limited to policy discourse, as Ross's fieldwork made

clear. In Manenberg, Cape Town, women have historically been the center of house-holding relations, as in many other low-income areas of the Cape (see Salo 2003, 2004; Versfeld 2012; Ross 2010). Ross and her research team set up a weekly meeting for a small group of pregnant women and women with infants, offering a space in which women could relax while participating in a structured research program. The local police requested an opportunity to join the program so that they could present "parenting classes" to the women. The rationale was that if women were taught to "parent properly," their infants (then under the age of two years) would be less likely to become members of gangs when older. While well meaning, the intervention disregarded the extraordinary difficulties women face in sustaining family lives in contexts in which life's possibilities are eroded by poverty and institutional incoherence, and how women might view such an intervention from the police. A complex set of historical relations are here elided in the presumption that it is women's work to care for children. The background factors include: the history of apartheid era forced removals that gave rise to Manenberg; the collapse of the garment manufacturing sector, which was women's employment mainstay and the center of house-holding strategies (Salo 2003; 2004; Versfeld 2012); the rise of gangs and the turf war over drugs (Pinnock 2016); and police ineffectiveness. These are overlooked in the simple narrative that "proper care" will prevent future violence and that parenting undertaken by women (themselves under-supported) is the solution to political-economic and historical woes. This demonstrates the ways that knowledge fields establish gendered figures of responsibility, the taken-for-granted dimensions of which are predicated on the unmarked norms of middle-class parenting roles and everyday lives.

Pentecost's research in Khayelitsha confirmed the disjuncture between the new temporalities of care invoked by the thousand days imaginary and the temporal horizons of women's everyday lives. In her ethnographic study of the rollout of the first thousand days

nutrition policy in the Western Cape from 2013-2015, she followed a group of pregnant women who had initially presented for antenatal care. Bathandwa, who introduced us to "the industry of motherhood," was one of these women. Like Manenberg, crime and gang violence appears to be so pervasive in Khayelitsha that it is a structuring force in how people go about their lives. For Pentecost's participants, life was tempered by a watchfulness and a rhythm of self-imposed curfews and rituals. People often expressed the sentiment that one should "live for today." As Bathandwa put it: "Don't think of the future, just think of now." Bathandwa had been a victim of violence as a child, and had recently lost a close friend - also a young parent - to indiscriminate violence. In contrast to the anticipatory temporal regime that the first thousand days campaign invites, everyday life was lived in a different temporal register, structured by the ever-present potential for violence (see also Das 2006). The futures interlocutors envisaged in their everyday conversations and activities were characterized less by the possible non-communicable diseases their children might face in adulthood than by concerns about boys completing school without succumbing to drug addiction, gang induction, or incarceration, and girls completing school without becoming pregnant.

The ways in which public health policy inadvertently casts the maternal body as a (temporal) problem was at odds with the lived temporalities of ordinary life in Manenberg and Khayelitsha.

DISCUSSION

New scientific knowledge may replicate older discourses, but it also builds on these discourses and introduces new elements into subject-making. As scientific discourses return to viewing biology as more plastic than subject to genetic determinism, scholars note a corresponding social effect: "a major expansion in the care of the self along Foucauldian

lines" (Meloni and Testa 2014:444). In South Africa, this builds on the narrative of responsibilization of prior attempts to prevent rising levels of HIV infection (Robins 2008; Barry et al. 1996). As concern with the first thousand days is translated into policy and put into practice, care of the self morphs into care for the future of population. Mothers are newly exhorted to understand their bodies as the environment in which the future health of the nation for several generations is embodied. This gives rise to a gendered model in which women are responsible for the futures that will come after their children have grown and borne children of their own. The "industry of motherhood," as Bathwanda put it, is a new maternal project with new temporal horizons: a gendered biopolitics.

Care of the self as an ethical act in and towards the present is now extended to an ethics of futurity that is predicated on physiological well-being. We do not yet know what the consequences of this ethics are likely to be; here we wish simply to draw attention to an emergent ethical horizon clearly framed in terms of gender, life cycle and social tense (see Povinelli 2006). One potential concern is that responsibilizing discourses, including care of the self, have the effect of foreshortening attention to structural violence. In other words, as the figure of "the maternal" materializes, it tends to do so in bland ahistorical ways that do not adequately acknowledge the very conditions that shape life worlds, including the structural and intergenerational factors that contribute to producing anxious or ill future bodies; that open "the mother" and "the maternal" as categories of intervention and social blame; and that focus on specific temporalities in the trajectory of motherhood. As population-based interventions begin to draw in part on Developmental Origins of Health and Disease research, we suggest that this has the effect of *foregrounding* specific kinds of women – pregnant and lactating – while back-grounding political-economic and historical processes and reframing responsibilities in individualizing ways (see also Truyts 2017). It simultaneously backgrounds men and other "kinds" of women- menopausal, non-

reproductive, differently gendered or gender-nonconforming.

Anthropologists have been concerned with "figure" and "ground" relations in ethnographic, and especially interpretive, work (Wagner 1987; Strathern 2002; Nielsen 2011). We propose that paying attention to foregrounding is a critical scholarly practice. By examining what dimensions of sociality are made apparent and are subjected to what kinds of intervention, and paying critical attention to the categories that emerge as a result, we are able to better understand how knowledge practices materialize in policy and everyday life and to examine their social consequences. This allows scholars to resist the seductions of "the new" that accompany much contemporary scientific discourse. Han and Das, for example, note:

> (T)here is a tendency to privilege developments in the biological sciences and informatics as generating "newness" in contemporary social life, thereby introducing a kind of evolutionary thinking through which it is assumed that biology is the new motor of history and that its power to reshape life will be replicated in all times in all societies too. (2016: 5)

Han and Das call for a critical view of "the ways in which newness is embedded in older forms" (2016:8). This argument is germane to epigenetics and Developmental Origins of Health and Disease knowledge, and its focus on the maternal. Hypotheses about the intergenerational transmission of risk, or protection from disease, do not come to rest as though on fresh social grounds. Despite hopes to the contrary, the translation and application of epigenetic models remains vulnerable to old forms of determinism (Lock 2013). For example, Saldaña-Tejeda and Wade (2019) show in their work on epigenetic discourses on obesity in Mexico that the non-determinism that openness to epigenetic ideas would suggest is accompanied by persistent gendered and racialized understandings of obesity, that have continuities with eugenic frameworks. While postgenomic theorizing offers a modality through which to undo the nature/culture binary that shapes much of the western episteme,

the outcome is often rather the simple reinforcement of deterministic ideas (Guthman and Mansfield 2013; Lock 2013).

In large measure, we argue, this is because the maternal body and mothers' relationships with fetuses, infants and others are currently understood – as they have been for some time - primarily as a medium for producing the future. The maternal body in the epigenetic imaginary is not confined to the period of physiological pregnancy (Richardson 2015). Rather, as we have demonstrated, historical processes and cultural understandings of different kinds of bodies have generated an effect in which it seems natural to take women's bodies as the focus for intervention. Newly shaped conceptions of "maternal" time are thus informed by historical processes, local contexts, and normative understandings of relationships.

Foregrounding these shifting temporalities in conceptions of motherhood offers insights into changing understandings of heredity, kinship, parenthood, and responsibility. The thousand days notion resonates with a Eurocentric model of kinship obligation in which "a parent has greater future concern for the child, than a child has the backward duty to the parent" (Strathern 1992:165). As Marilyn Strathern reminds us in *Reproducing the Future*, different notions of time inform developmental models: in contrast to the evolutionary perspective of development as a process, other models take "certain moments as radical beginnings" (1992:174). For Developmental Origins of Health and Disease and epigenetic paradigms, as exemplified in the thousand days focus, that radical beginning is embodied in a new critical window of the maternal with its own newly specified temporal dimensions.

"The maternal" as it appears in recent policy might thus be viewed as "a knowledge effect": a product of a specific way of thinking about an issue or problem. Here, the problem is the future well-being of the population. The maternal as knowledge effect foregrounds a distinct population for intervention, focused on the parent-child dyad, and isolates the site of

responsibility for outcomes to the individual. Temporalities of responsibility, durative effects and critical windows of opportunity are rendered in biological terms that background the political-economic contexts that distribute health, well-being, and life.

The emergent discourses of developmental programming and epigenetics provide new avenues for medical anthropologists to unsettle biomedical determinism, as it becomes apparent that the mindful body (Scheper-Hughes and Lock 1987) is also attentive to critical developmental periods and ancestral histories. As Margaret Lock (2013) cautioned, the postgenomic era presents a challenge to anthropologists to persistently contextualize health disparities in terms of their historical, social, political, and economic origins, and to guard against new forms of reductionism. In foregrounding the discourses of mothering and time that shape the first thousand days in South Africa, we hope to have contributed to this task.

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