

**Early Effects of Environment:
A Comparison of Prenatal Care in
South Africa and the United States**

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Abstract

Prenatal development has a critical impact on a child's life and is strongly affected by environmental factors, especially quality of prenatal care and home environment. Data was gathered in a South African village and a United States city through interviews, photojournalism, and archival data. A total of 14 women (10 South African, 4 American) were interviewed about their prenatal care and pregnancy experiences, and 12 were photographed in their surrounding environment. The photographs serve as a visual and emotional complement to the paper. The project showed that the extended family in South Africa provides a strong social support system for pregnant women, which serves to mitigate much of the lack of resources in the environment. In the United States, prenatal care typically assumes much of the education and social monitoring role, due to the smaller role of the American extended family and the cultural value placed on biomedical care. While the two environments are different, mothers and newborns in both environments generally have the necessary prenatal support.

Prenatal and Newborn Environments: Photographs and Interviews from Rural Impendle, South Africa

Introduction

Prenatal care, both in the medical arena and in the home, is an essential component for promoting the health of newborns and the future on-track development of children. Culture affects the roles and priorities of prenatal care, and this paper examines cultures' effects on prenatal care in two communities: Impendle, in rural South Africa, and East Liberty, in urban Pittsburgh, United States. Communal versus individualistic cultural beliefs, the size and role of the family, general community health, and attitudes of the community toward biomedical prenatal care, are examples of cultural factors contributing to the differing practices of prenatal care between the two countries.

Urie Bronfenbrenner (1975) theorized that environmental influences, represented by gradually expanding rings radiating out from the child (Fig. 1), are the most crucial determinants of a child's development. A child's culture, including foods, socioeconomic status of the mother, prevailing lifestyle, and medical care, begins to affect a child at conception. Broader influences affecting the pregnant mother and consequently the fetus include the values of the culture, institutions such as schools and hospitals, media, government policy, and historical factors (for instance, South Africa's post-*apartheid* state, which influences what medical resources are available to whom), among others. It is important to examine culture, as every person is inextricably linked with his or her environment.

Insert Figure 1 about here.

United States Culture

Cultural beliefs and practices are naturally different between South Africa and the United States. American culture places a high value on individualism and hard work (Tamis-Lemonda, C., & McFadden, K., 2010). The founding ideals of liberty, freedom, and equality are evident in the values of residents. U.S. capitalistic society also affords many opportunities for an individual's upward economic growth. The capitalistic system, however, has combined with historical factors and uneven population growth to result in an uneven distribution of wealth. The significant disparities in the availability of resources often fall along racial and socioeconomic lines. These disparities result in poor, often African-American women having less access to prenatal care (Kalmuss, D., & Fennelly, K., 1990). These urban, low socioeconomic status women and their experiences with prenatal care will be the focus of the U.S. investigation.

South African Culture

South African culture is much more communal and inter-dependent than the United States (Nasamenang, A. B., & Lo-oh, J., 2010). Where the typical United States home consists only of the nuclear family, this family structure is unimaginable for most Africans, who place a strong emphasis on extended family. Often several generations, as well as many children, will live in one household. South African society has a philosophy of "Ubuntu," which translated means, roughly, "humanity." Africans see themselves as part of a greater whole, and feel it is their duty to share what they can to support their fellow humans. This collective culture has an impact on childrearing and care of the pregnant mother. Family members (especially siblings) and neighbors work together to care for young children. As Africans tend to have higher reproductive rates than other countries, this communal atmosphere supports the wellbeing of both mothers and children. South African welfare, however, is in dire straits due to poverty, the

HIV/AIDS crisis, low life expectancy, rampant malnutrition, and low standards of living (Day, C., & Gray, A., 2008).

South Africa's maternal health has actually worsened in recent years. The UN estimated that the maternal mortality ratio (MMR) in 2000 to be approximately 230 deaths per 100,000 live births. In 2005, the MMR increased to approximately 400 deaths per 100,000 live births (Day, C., & Gray, A., 2008). Infectious diseases not related to pregnancy, such as HIV/AIDS or tuberculosis (TB) were responsible for the majority (38%) of maternal deaths. The United States, by comparison, had an MMR of 11 in 2005 (UNICEF, 2010). Infant mortality ratio (IMR), the number of deaths of children under one year of age per 100,000 births was 48 in South Africa in 2008 (an increase over previous years) and 7 in the United States the same year (UNICEF, 2010).

South Africa does show a high prenatal coverage, with 94 percent of pregnant women attending at least one appointment. In addition, a skilled medical practitioner, such as a doctor, nurse, or midwife, was in attendance at approximately 91 percent of births in 2003 (Day, C., & Gray, A., 2008). In the United States, skilled medical practitioners were present at 99 percent of births (UNICEF, 2010).

It is important to note the critical nature of the HIV/AIDS epidemic, especially in South Africa. The crisis has a strong bearing on what healthcare aspects are prioritized. In South Africa in 2007, approximately 5,700,000 people (approximately 11% of the population) were HIV positive. In the United States, about 1,200,000 people (approximately 0.4% of the population) were HIV positive.

Poverty rates are highly dissimilar between the two countries. For comparison, the South African gross national income (GNI) per capita was \$5,820 in 2008. In the United States, the

GNI per capita was \$47,580 (UNICEF, 2010). When examining the national poverty lines, though, it is important to note that even the Americans in the sample population have a high rate of poverty by national standards; 13.1% of Americans fall below the national poverty line (UNICEF, 2010).

These two cultures were chosen for investigation because of their marked differences (rural vs. urban, communal vs. individualistic values), but comparability in some important dimensions (for example, each country has history of racial discrimination). It should be noted that South Africa and the United States are at very different stages in their development. It is more fair to compare South African health care standards to other African and developing countries and to compare the United States to other “first world” countries. The presentation of these two countries alongside one another is intended to illustrate the impact of culture on prenatal care, not to criticize the weaknesses of either country’s prenatal environment.

Prenatal development is important because of critical growth that occurs across the developmental domains. This growth continues in early childhood as the child’s cognitive, linguistic, physical, social, and other abilities continue to expand and develop. If this growth is hampered, effects often can be seen throughout the person’s adult life (Grantham-McGregor, *et al.*, 2007; Walker, *et al.*, 2007). Child health, consequently, is often used an indicator of national health. By examining the cultures of Impendle, South Africa, and Pittsburgh in the United States, conclusions can be drawn about the environments surrounding pregnant mothers as well as newborns.

A large body of work has been conducted on the various facets of pregnancy and prenatal care. The reviewed selection covers topics relevant to this paper.

Planning of the pregnancy prior to conception influences the pregnancy and experience of the mother. Previous work has shown that unplanned pregnancy is a major determinant in inadequate use of prenatal care (Delgado-Rodríguez, Gómez-Olmedo, Bueno-Cavanillas, & Gálvez-Vargas, 1997). Unplanned pregnancy also correlates with lower social class, lower education level, and lack of employment outside the home. Another related factor is teenage pregnancy, which tends to be unplanned in the cultures examined.

In 1979, Gortmaker identified that inadequate prenatal care was strongly related to low birth weight. In addition, African American women were more likely to receive inadequate prenatal care, and consequently have a higher risk of negative birth outcomes. According to Gortmaker, this deficiency could be interpreted as the negative effects of poverty, which colors the environment of the pregnant mothers (Gortmaker, S., 1979). More recently, Barber (2006) found that high quality prenatal care among pregnant women in rural Mexico predicted skilled institutional delivery. Delivery in the presence of a skilled medical practitioner is a primary means of reducing maternal mortality. In 1996, McDuffie, Beck, Bischcoff, Cross, and Orleans recommended a schedule of nine prenatal visits in order for evaluation of the mother. The World Health Organization (WHO) discussed several priorities for appropriate prenatal care, including the medical roles of promotion of health and prevention of illness as well as the social role of education and care. The document included several barriers to access women may face, such as lack of transportation, lack of money, and language barriers, among others (World Health Organization, 2003).

The WHO also discusses adequate nutrition and lifestyle for the mother, including discontinuing use of tobacco, alcohol, and other drugs (World Health Organization, 2003). The mother's experience during pregnancy is also influenced by the surrounding culture. Savage,

Anthony, Lee, Kappesser, and Rose (2008) found that urban African American women commonly held an attitude that emphasized family support, concern over safety in the community, frustration with isolation and barriers to access, and confusion over unwanted pregnancies. These factors often made pregnancy a distressing experience for the women involved. Support structure and access to personal resources are a common theme during pregnancy (C. Rini, C. Dunkel-Schetter, P. Wadhwa, & C. Sandman, 1999).

WHO generally recommends breastfeeding for mothers, but there are conflicting views in the literature over whether or not HIV positive mothers should breastfeed. This debate is especially high priority in South Africa, where the HIV/AIDS prevalence is at unprecedented levels. It is common knowledge that breast milk can carry the HIV virus. One view states, however, that *exclusive* breastfeeding for the first 6 months of life has the same risk as formula feeding (Coutsoudis, *et al.*, 2001). In this theory, mixed feeding (feeding both formula and breast milk) irritates the infant's throat and stomach, opening opportunities for infection. Exclusive formula feeding reportedly the lowest risk, however, it is difficult to maintain in resource-poor areas. Exclusive breastfeeding is also difficult to maintain in practice (Saloojee & Pettifor, 2005). Other components of prevention of mother to child transmission (PMTCT) of HIV are HIV tests as a part of routine prenatal care, treatment with antiretrovirals for HIV positive mothers, and counseling.

The project seeks to investigate the interacting roles of biomedical prenatal care and of the family in caring for the pregnant mother and the newborn. The project is implemented through a combination of academic paper and an accompanying body of photographs in documentary journalism style. This combination of art and academia was delicately undertaken,

but has resulted in a work with complementary parts, which give a fuller image of the rural African environment and the urban American environment for prenatal development. --

Methodologies

Presentation

This project is presented in two halves: academic paper and documentary photographs. The pairing is intended to create a strong presentation on the topic of culture and prenatal care, with each half of the project adding unique strengths. The photographs provide visual illustration of culture and environment. By nature, they are more emotionally charged. The academic paper, by contrast, puts prenatal care in a larger context. It serves to describe both the prenatal care practices and of the communities as a whole, beyond the specific circumstances depicted in the photographs. The project was intended to compare the cultural differences seen in prenatal care in South Africa and the United States. Priorities in prenatal care as well as the surroundings of infants and pregnant women were investigated.

South Africa

Participants

Ten participants were interviewed and photographed in South Africa. With the exception of one pregnant participant, all participants had recently delivered. Although the project was originally intended to focus on the experiences of pregnant women, finding willing participants who were currently pregnant proved difficult due to cultural constraints. Participants were all rural Zulu-speaking women of African (non-European) descent. Infants ranged in age from one week to six months old. In addition, three health care practitioners at the local clinic were interviewed.

Participants were identified through a local Community Health Worker. The Community Health Worker is responsible for administering home-based health education, including sanitation, nutrition, and child health. The Community Health Worker was familiar with women in the area with newborns as a result of house calls throughout the pregnancy and after the child's birth supporting proper vaccination and welfare. The Community Health Worker served to make introductions as well as translate. She was, in turn, compensated for her assistance.

Participants were all residents of the rural village of Impendle, South Africa. Impendle is situated in the Midlands of KwaZulu-Natal Province. The population of Impendle in 2007 was 39,397; 74.14% were unemployed in 2001 (Impendle Local Municipality, 2009).

Procedure

Interviews were conducted over the course of two weeks. Participants were visited in their homes. Community Health Workers provided translation, including explanation of project and consent form for participants, as well as translation of interviews. After introduction and explanation, the participants were asked a series of questions on their prenatal care experiences and their experiences with pregnancy. Finally, the mother and her newborn were photographed in a naturalistic setting. By photographing surrounding environmental conditions in the home, observations on the resources available to the newborn and mother were documented. Most audiences regardless of educational background can easily understand the photographs, which are presented in alongside this paper. The visual and emotional presentation allows for a more thorough exploration of the South African environment. In return for participation, participants whose photographs were used were given 8x10" prints of their photographs (about 1-2 photographs per participant).

Materials & Design

The interview was semi-structured. A list of basic questions can be found in Appendix A. Notes were recorded in a notebook and transferred to a password-protected laptop to ensure confidentiality. The language barrier limited the complexity of the interviews. The photographs were made in documentary photojournalistic style. Photographs were shot with a Canon A-1 35mm camera on Black and White Ilford HP5 film. Photographs were made in black and white following traditional photojournalistic methods. This presentation allows the viewer to focus on the environment shown in the photographs without the “distraction” of color. Film was processed, scanned, and printed at FotoMax lab in Durban, South Africa. Images were edited using Adobe Photoshop software.

United States

Participants

Four participants were interviewed and two of the four were photographed. Two women were African-American, one was Caucasian, and one was Latina. Ages ranged from 16 to 39. The participants lived in the urban environment of Pittsburgh, Pennsylvania. Three of the four women were pregnant; the fourth mother delivered 2 months prior. In addition to the mothers, two health care practitioners were interviewed. The participants were drawn from the patient population of East Liberty Family Health Care Center (ELFHCC), a faith-based family care practice that serves a low-income clientele.

Of the patient population at ELFHCC, twenty percent of the mothers who gave birth in 2009 were not eligible for health insurance. The small sample gathered mirrored ELFHCC's patient demographics as a whole (as assessed in 2009, unpublished data). At the practice, 48% of patients are African-American, 30% are Caucasian, and 19% are Latina. 81% of births were to women greater than 21 years of age, 19% of births were to women younger than 21 years of age.

Procedure

At East Liberty Family Health Care Center, doctors identified possible participants during their regularly scheduled appointments. Full consent, verbal and written, was obtained prior to all observations, interviews, and photographs. If the woman consented (see Appendix D), the student conducted a semi-structured interview (see Appendix B) following her appointment. The prenatal appointments of two participants were observed.

Materials & Design

Semi-structured interviews at East Liberty Family Health Care Center were based on the questions in Appendix B. In the absence of a language barrier, questions were made to be more open-ended and less leading. Questions about demographics and timing of first prenatal appointment were asked directly, however data about support structures and the nature of prenatal care was drawn from longer responses to open-ended questions. The questions differed slightly because the majority of women interviewed in South Africa were postnatal, whereas the majority of women interviewed in the U.S. were prenatal.

Three out of four interviews were recorded on microcassette with consent of the mother. In addition, notes were recorded in a notebook. All information was transcribed and transferred to a password-protected laptop computer to ensure confidentiality. Photo files are also kept on a password-protected laptop computer. The participants were offered the incentive of printed photographs. Photographs are presented alongside this paper in a photo documentary book.

Digital photographs were made with a Canon 40D digital SLR camera and edited using Photoshop software. The United States photographs resulted in a photo essay showing the relationship between one mother and one child. This photo essay is focused more on an individual family and their hardships and their bond, as opposed to documenting their

environment as a whole. Color was used here to show the bright colors of the mother and child (for example, the mother's pink shirt and the baby's blue socks) in contrast to the white, sterile doctor's office. The personality of the family is more evident in color photographs.

Archival data was also used to place interview data into context. Main sources, especially Day & Gray's "Health and Related Indicators" (2008) for South Africa, and Allegheny County Health Department's "Maternal and Child Health Needs Assessment" (2004) were used for relevant statistics on the population at hand.

Results

Interview data were broken down into two themes: the role of biomedical prenatal care and the role of the family. Based on analysis of the data, the themes of medical care and social care were identified. In South Africa, biomedical prenatal care is almost entirely medical. The family unit provided the majority of education and social support. In the United States, biomedical prenatal care had much more integration of medical and social components, including education and monitoring of social risks. Though many mothers have significant family support, the smaller average household size and the individualistic nature of U.S. culture contribute to prenatal care assuming the role of social care.

South Africa

South African biomedical prenatal care consists largely of routine tests. In an observation of a patient's first prenatal visit, a nurse performed the following checks: blood pressure, urinalysis, weight, height, pap smear, arm circumference, blood sample (to be test for syphilis, HIV, Rhesus factor, and blood count), abdomen check (including fetal position, fetal heartbeat), physical examination (head and neck, breasts, feet). Education and prevention included tetanus

shot, iron supplements, and lifestyle assessment (mother's alcohol, tobacco, sex, and work habits). HIV positive mothers are given HIV counseling. The mother was briefly counseled not to smoke or drink, not to overwork, to rest, and to have safe sex (Nurse Gugu Mbuyisa, personal communication, 2009). It should be noted that the visit observed was conducted in Zulu and was translated by the nurse for the benefit of the student.

According to the head nurse of the local clinic (who requested that her name be kept confidential), mothers should seek out prenatal care prior to 20 weeks of gestational age (Head nurse, personal communication, 2009). This point is halfway through the second trimester, and approximately the halfway point of the pregnancy overall. Of the 10 participants, however, only 20% ($n=2$) sought care prior to 20 weeks. The remaining 80% ($n=8$) sought care at or after 20 weeks. Both the median and mode for time of first visit was 6 months, or 24 weeks (40% of participants, $n=4$). First prenatal care visits of participants ranged in time from 4 to 7 months. A study of prenatal care utilization with similar participants found that 44.3% of participants started prenatal care in the first trimester, 49.7% in the second trimester, and 5.4% in the third trimester (McCray, 2004). South Africa as a whole has an average number of 3.8 prenatal care visits during each pregnancy (Day, C., & Gray, A., 2008). 93.1% of women in rural South Africa have at least one prenatal care appointment.

Biomedical care in South Africa places a high priority on prevention of mother to child transmission of HIV (PMTCT) because of the high HIV/AIDS prevalence in the country. The clinic's head nurse named HIV positive mothers as the biggest health care problem at the clinic (Head nurse, personal communication, 2009). 57.6% of prenatal care patients nationwide were tested for HIV in 2006 (Day, C., & Gray, A., 2008). Among 15-24 year old prenatal patients, 23.1% tested positive for HIV in 2006 (2006). In the country exclusive breastfeeding has been

promoted as a method for preventing HIV transmission after birth, but only 7% of mothers exclusively breastfed until the infant is 6 months of age, despite the fact that 46% of mothers breastfed within an hour after birth (2006). In this sample, 70% ($n=7$) mothers were exclusively breastfeeding or planned to breastfeed at the time of interview. Since the infants in most cases were still very young, the findings do not necessarily mean that the mother will exclusively breastfeed until the infant is 6 months.

Many participants made positive lifestyle changes during pregnancy despite not beginning prenatal care until later than recommended. Of nine responding participants, six (66%) said they made changes to their diet or lifestyle during pregnancy, most often mentioning eating more “*imfino*,” or green vegetables, and less starch. Knowledge of breastfeeding was also indicated. 70% ($n=7$) of mothers were breastfeeding or planning to breastfeed. Community Health Workers (identified by 20% of participants), the clinic (identified by 50% of participants), and “learning it on my own” were all indicated as sources for knowledge of breastfeeding and pregnancy care.

Even for mothers who acquired knowledge relevant to pregnancy and newborn care from the clinic, the family was a primary source of support and pregnancy resources. The family was often indicated as providers of clothing or other supplies. One mother identified her family as a source of support that allowed her to return to school following the birth of her child. The same mother received extensive education at home, as her guardian happened to be a Community Health Worker. It should be noted that the household size in KwaZulu Natal (KZN), the province where Impendle is located, averaged 4.6 people in 2007 (Day, C., & Gray, A., 2008). This is the largest average household size of any province in South Africa; the average household size for

the country in 2007 was 3.9. KwaZulu Natal has an average household size more than twice the average of Pittsburgh Pennsylvania, which averages 2.10 (U.S. Census Bureau, 2006-2008).

Other mothers also indicated Community Health Workers as a source of information. As affiliates of the clinic and members of the community, they are able to educate the community members by more direct means than the clinic itself (i.e., via home visits). Another potential source for education is the traditional healer, or *sangoma*. One participant's father was a *sangoma*. It may be due to traditional care she was already receiving that she first sought biomedical prenatal care later than any other participant (at 7 months). Though no participant specifically mentioned *sangoma* care, the head nurse of the clinic described a traditional treatment known as *isihlambezo* given to pregnant women. The treatment, a blend of herbs ingested as a drink and used as an enema, "treats any disease the mother could have," (Head nurse, personal communication, 2009).

Mothers face several barriers to access when seeking biomedical treatment from clinics. Monetary costs of services are not a barrier in South Africa, as public healthcare is free of charge for pregnant women and children until age 6. Travel often incurs costs both in money and in time. For most participants, a shared "minibus" taxi ride or long walk was required to access the clinic. A study of a similar population in a nearby area found that 46% of women walked to their appointments, 51% went by minibus taxi, and 2% used private transportation (McCray, 2004). Mode of transportation, however, was not significantly related to prenatal care utilization. Distance from health care facility had a significant negative correlation with utilization in McCray's study. Another barrier McCray indicated was flexibility of women's time. A prenatal care appointment was described by 50% of McCray's participants to take 3-6 hours. Women who had many household responsibilities (for example, fetching water) had less additional

“disposable time” in which to seek prenatal care. The study participants mentioned “childcare” as a barrier least often. Long wait times are most likely due to an overall shortage of medical professionals in South Africa; in 2006, 29% of public sector health care professional posts were vacant (Day, C., & Gray, A., 2008).

United States

Dr. Mark Meyer of East Liberty Family Health Care Center described the role of prenatal care as consisting of two parts: medical care and social care (Mark Meyer, personal communication, 2010). Medical care includes doctor assessments of medical risks and wellbeing, including routine checks of weight gain, fetal heartbeat, urinalysis, and similar examinations and tests. Mothers are also asked about any physical complaints. In the United States, there is an emphasis on technology, as evidenced by special equipment used during the appointment for monitoring of the fetal heartbeat as well as equipment for viewing an ultrasound image of the fetus. The patients observed also discussed referrals for such imaging. Doctors also utilize computers in exam rooms.

Though no data on timing of first prenatal visit was given for ELFHCC, Dr. Meyer estimated that mothers typically first seek care at 10 – 12 weeks, that is, late first trimester. However, a “significant percentage comes early second trimester, too.” In Pittsburgh, 22.2% of mothers ages 19 and under do not receive prenatal care in the first trimester; 11.5% of mothers ages 19 and over do not receive prenatal care in the first trimester (Allegheny County Health Department, 2004). This number is very low compared with South Africa, where 100% ($n=10$) of participants interviewed received no care in the first trimester, though the reported standard for first visit differed between the countries. Similarly, the standard for frequency of visits and

the number of visits attended was much higher in the United States. The U.S. standard is 14 total visits (Mark Meyer, personal communication, 2010).

Social health is especially emphasized at ELFHCC. Dr. Meyer said of ELFHCC, “We aim to give a much more personalized, connected experience.” The social component includes both extensive education and risk monitoring. Alice Maunz, head obstetrics nurse at ELFHCC lists several educational components offered to patients. An on-site childbirth educator goes over changes in the body and reinforces in-appointment counseling on healthy life behaviors; mothers are encouraged to breastfeed (“though 50% of moms opt to formula feed”); patients are referred to childbirth education classes offered by the hospital (Alice Maunz, personal communication, 2010). Dr. Meyer adds that there is an “in-house drug and alcohol counselor or two” and that for patients who need extra support to quit smoking, “We refer them to smoking cessation programs already happening in the city,” (Mark Meyer, personal communication, 2010).

ELFHCC also indicated monitoring for social risk factors. These factors include “lack of family support, immaturity, mental health issues, substance abuse issues, abuse, and lack of access issues,” (Mark Meyer, personal communication, 2010). The first appointment for each prenatal patient also included a depression screening. He summarized the social role of prenatal care saying, “We treat moms to help babies survive.”

ELFHCC, according to Alice Maunz, was “proactive and active about getting people in and keeping people in. We try hard to reschedule [missed visits],” (Personal communication, 2010). ELFHCC did acknowledge that there was a range of social care practices, “I think if you went to [*large local women’s hospital*], with a bunch of doctors, it wouldn’t be as personal.”

Participants generally had a high level of knowledge about lifestyle changes during pregnancy. One participant, when asked about lifestyle changes, responded, “I can’t drink [or] smoke marijuana.” Another participant responded,

Well, I’m watching the foods I eat, because, ya know, there are so many, like, ‘no-no’s.’ Like fresh fish and soft cheese, and certain things that I’ve read that I’m trying to stay away from. I’m trying to get more fruits and vegetables and paying attention to eating better. Just paying attention to my body more. And getting exercise, that’s important that I keep doing that.

The same participant specifically mentions her sister, who already had a child, as a source of advice, “She’s my older sister, too, so she was just like giving me every bit of advice she could think of.” Her support network, as a whole, was very strong, and she mentioned both her relatives and those of her fiancé, Mike (not his real name).

Both of my parents live here, and they’re divorced, but my mom has been with her boyfriend for like 15 years, and they’re very supportive. And my dad’s very supportive, and he’s got a girlfriend. They’re both close. (*Quickly*) Then Mike’s parents are extremely supportive also. And so they’re all here. We’ve got friends here... And my two cousins, my aunt and [my] uncle, they’re like, um, my cousins are like brothers to me and they both live down the street. My sister and my brother live in Columbus, which is only 3 hours away. Mike’s brothers live... yeah... they’re far away. They’re supportive. (Laughs).

Family support described by the other three participants was typically not as strong. One participant, a teenager, described her mother as the only other support structure available. When asked if her mother made things easier for her, the response was unsure, “Sometimes.”

Another participant, an immigrant, had two young children in addition to the coming newborn, and only had her husband close by to help her. The only additional support cited was her mother, who was coming up after the birth “to help a little.” For another participant, children *were* the support structure. As an older mother (39) with four older children ranging in age from

approximately 5 to 19, she is in the unique and challenging situation of both supporting and being supported by her own children. She says,

I'll have my daughter there (*indicating young daughter in room*) and I have a 6-year-old son, they live with me. My 19 year old, he'll be around, he's like really into... He's like so worried about me, he comes and checks on me every day. I'm sure he'll (*motioning to father*) be there... I guess he'll be around, *hopefully (laughs)*. (*Father: "Don't say it like that."*)

In her response, she touches on the often-unpredictable presence of the father following an unplanned birth. In Pittsburgh, female householders with no husband present, in families including children younger than 18, account for 7.6% of the population. By comparison, male householders with no wife present, in families including children younger than 18, account for 1.5% of the population (U.S. Census Bureau, 2006-2008).

For most (3 of 4) of the participants, family immediately available to provide support was small in number compared with the large homesteads in South Africa. Indeed, the average household size in Pittsburgh is 2.10 people, a little less than half of the average household size of KwaZulu Natal.

Some barriers to access that were frequently mentioned were social risk issues, which were discussed in more detail above, transportation difficulties, and difficulties in finding childcare. One respondent reported mental distress upon finding out about her pregnancy, "I was shocked! I had to make sure I didn't go into a severe depression. So it was a job, 'cause it was so unexpected, unplanned." Two (50%) reported difficulties with transportation, "It was hard 'cause you have to come a lot when you get closer." The participant also relied on her mother for transportation, "It'd be up to her when time was good." Another participant and her husband reported having to travel a long distance. Her husband said, "Drive with traffic is close to an hour. [...] Drive makes it hard. Only have Sunday off, so I have to ask for a half day off." In addition, two mothers already had children who needed childcare during appointments. Alice

Maunz comments, “Transportation is *the* biggest issue. Transportation and childcare,” (Personal communication, 2010).

Despite barriers to access, the patients did have a generally positive attitude towards their appointments. “The doctor and everybody is nice here.” “I like coming to my appointments to make sure the baby is okay.” This reflects a positive attitude toward biomedical western care and a receptive attitude toward the social and medical support offered by ELFHCC.

Discussion

Zulu families provided the social monitoring and support that is typically provided by the prenatal care structure in the United States. While American families are supportive, the more independent nature of the culture in most cases results in a smaller familial role. This family structure contrasts with the communal nature of Zulu families, who provide extensive resources and support for pregnant mothers and newborns. American culture in turn emphasizes biomedical prenatal care to fulfill the needs and monitoring of the pregnant mother.

Conclusions

Zulu families are generally larger and more involved than American families. The support structure is evident from observations and responses of participants. The families support each other with physical resources, knowledge, and social monitoring. American families also provide support, however, American families are smaller and often farther apart. The household rarely includes the extended family. The social support available to American mothers from their families is more varied, but typically the smaller role of the extended, and even immediate family results in mothers relying less frequently on family for material and emotional assistance.

Underlying cultural values are closely tied to the role of the family in each country. In South Africa, the interdependent nature of Zulu society and the philosophy of *ubuntu* supports role of the family as a large and tremendously supportive structure in the life of the pregnant woman. In the United States, the cultural value of individualism and independence results in more self-reliance on the part of the mother. It is culturally desirable for a woman to receive familial support, but *depend* on no one but herself.

United States culture also places a high value on biomedical prenatal care. Respondents described how they valued care (“I like coming to the appointments to make sure the baby is ok.”) and practitioners described the high standards they have for prenatal care (e.g., first appointment should be during first trimester, patients should have 14 appointments). South Africans also valued biomedical prenatal care and demonstrated biomedical knowledge, however they relied on their communities and families for social care just as often. Social monitoring is important for identification and treatment of conditions that often co-occur with poverty (e.g., lack of access).

The high value placed on prenatal care in the United States has lead to an undue focus on technology. Much of the ever-present scanning and imaging technology, seen by most mothers as an essential component of prenatal care, is actually not usually necessary, according to the WHO. For example, the Doppler ultrasound method for measuring fetal heartbeat has “little, if any” bearing on birth outcomes in normal pregnancies. It is, however, useful in high-risk pregnancies. Ultrasound imaging was similarly described, that is, only shown to be of real use in high-risk pregnancies (WHO, 2003, pp. 26-28).

The different levels of value each culture designates for biomedical care results in different patterns of prenatal care utilization. South African women first come for prenatal care

come later in pregnancy (halfway through pregnancy, on average). This behavior is logical if, culturally, medical care is viewed as secondary to social care, which the woman is already receiving at home. American women come earlier in the pregnancy, which is logical for women valuing biomedical care and seeking a source of social support, and the biomedical prenatal care system has adapted to fill the roles of both medical monitoring and social monitoring.

Medical monitoring consists of routine tests and checks on maternal and fetal health and is roughly equivalent between the two countries. Social monitoring, on the other hand, has grown and adapted in the U.S. to fit the social and educational needs of women, whereas in South Africa, its role within biomedical prenatal care has remained relatively small. U.S. social monitoring includes checks for social risk factors (e.g., substance abuse) and plays a significant role in patient education (e.g., learning about breastfeeding and lifestyle changes). There are numerous support structures, such as classes and specialists, built into U.S. biomedical prenatal care to support social care. The family assumed this role in South Africa. Family was identified just as often as the clinic as a source of knowledge on breastfeeding or lifestyle changes (for example, several women mentioned adding vegetables to their diet, and their families grew vegetables for this purpose).

Part of prenatal care's emphasis on medical care in South Africa could be due to pressing concerns over health crises such as HIV, where medical focus is much needed. A shortage in healthcare personnel in South Africa may also contribute to the relatively impersonal feeling conveyed by the clinic. That is, there are not enough nurses to perform socially in-depth, time consuming appointments. In this regard, Community Health Workers serve as an excellent bridge to suit the needs of South African communities. They are community members with

medical knowledge, so social care can be delivered in a culturally appropriate way: through the community.

Strong social support, from either community or from biomedical prenatal care, is a powerful tool in supporting positive health outcomes for mothers and mitigating the damaging effects of poverty.

Limitations and Directions for Further Research

In South Africa, the most notable limitation was the language barrier. The language barrier restricted my movement in the community and made communication with participants very difficult. As a result, interviews could not be very open-ended, and direct quotes could not be obtained, since all communication translated from Zulu to English. In the United States, the bureaucratic nature of health care made it difficult at times to move past the “red tape” and on to working with patients. The two parts of the project, photography and academic paper, proved difficult to integrate, as each medium has a commonly accepted format and “tone.” Future work could further explore the relationship between these mediums.

Further research could investigate the potential benefits and drawbacks of American focus on technology in prenatal care. Future work could also compare differences in social support seeking between different cultural groups in South Africa. Other sources of social support, beyond family and prenatal care, could also be investigated. This project found a strong relationship between social support, whatever the source, and the wellbeing of the pregnant mother and her child. The cultural variations in social support and its sources are interesting to consider, and worthy of further research.

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Appendix A

Interview Questions, South Africa

1. Did you go for prenatal care at the clinic? At what stage in the pregnancy did you first go?
2. Did you learn about nutrition? Did you change the way you ate when you were pregnant/did you change your lifestyle when you were pregnant?
3. Did you learn about breastfeeding? From whom? Do you breastfeed?
4. Did you do anything other than the Prenatal Care visits to prepare for the baby (For example: blankets and clothes, *sangoma* treatment)?
5. From Road to Health Card
 - a. Statistics:
 - i. Place of Birth
 - ii. Birth Weight
 - iii. Birth Length
 - iv. Head Circumference
 - b. Vaccines on track?
 - c. Vitamin A given?
 - d. Other notes

Appendix B

Interview Questions, United States

Explanation of Project

- Learning about prenatal care in United States and experiences of different mothers
- Comparing to South Africa
- Photo essay (show South Africa photos)
- Questions?
- Explanation of consent form
- Tape recording

Demographic Information

- Name:
- Age:
- Race/Ethnicity:
- How far along?
- Is this your first pregnancy?

IF POSTNATAL

- Baby's Name:
- Gender:
- Birth weight:
- Length:
- Head Circumference:

CONTACT INFO FOR PHOTO DELIVERY (kept confidential):

Address:

Questions about Prenatal Care

1. What has being pregnant been like for you? (Physically, emotionally)
2. When did you first start coming to the prenatal care appointments?
3. What do they do during the appointments? (may not be necessary if observed)
4. How do you feel about coming for prenatal care?
5. Are there things that make it difficult, or made it difficult at first, for you to come to the doctor?

Appendix B, cont.

Questions about Pregnancy & Home Environment

6. What kind of things are you doing differently now that you're expecting? (e.g., lifestyle changes)
7. How did you feel when you just found out you were pregnant? How do you feel about it now?
8. Who will help you out when you are at home with the baby?
9. What do you hope your baby's first year will be like?
10. What do you want your baby to be when he or she grows up?

Addtl. Questions for Postnatal Women

11. What was the delivery experience like?
12. How does having a new baby compare with what you expected?
13. How do you feel about breastfeeding?
14. What difficulties have you had with the newborn?

Appendix C

Consent Form For Adult Respondents in English, South Africa

I can read English. If participant cannot read, the onus is on the researcher to ensure that the quality of consent is nonetheless without reproach.

I have read the information about this study/ and had it explained to me, and I fully understand what it says. I understand that this study is trying to find out quality of prenatal care in rural areas and environments of pregnant mothers.

I understand that my participation is voluntary and that I have a right to withdraw my consent to participate at any time without penalty.

I understand and am willing for you to ask me questions about:

- prenatal care
- pregnancy
- home environment
- my experiences with the above
- and related topics

I understand and am willing for you to photograph me in situations relating to prenatal care, pregnancy, home environment, and related topics.

I **do/ do not** give permission for a **photograph** of me to be used as data for the study. I **do/do not** grant permission for my photographs to be displayed or published at the conclusion of the study.

I **do/ do not** require that my **name** be kept secret. I understand that, if requested, my name will not be written on any photograph and that no one will be able to link my name to interviews written down. If requested, my individual privacy (including identity in photographs) will be maintained in all published and written data resulting from this study.

I understand that I will receive no direct benefit for participation in this study. In the case that my photograph is used in the completed study, I will receive one (1) printed copy of the photograph.

I confirm that the interviewer has given me the address of the nearest School for International Training Study Abroad Office should I wish to go there for information. (18 Alton Road, Glenmore, Durban). I know that if I have any questions or complaints about this study that I can contact anonymously, if I wish, the Director/s of the SIT South Africa Community Health Program (Zed McGladdery 0846834982).

I agree to participate in this study.

Signature (participant) _____ Date: _____

Signature (researcher) _____ Date: _____

Appendix D

Consent Form For Adult Respondents in English, United States

I can read English. If participant cannot read, the onus is on the researcher to ensure that the quality of consent is nonetheless without reproach.

I have read the information about this exploration and/or had it explained to me, and I fully understand what it says. I understand that this project is exploring cultural priorities for prenatal care.

I understand that my participation is voluntary and that I have a right to withdraw my consent to participate at any time without penalty.

I understand and am willing for you to ask me questions about:

- prenatal care
- pregnancy
- home environment
- my experiences with the above
- related topics

I understand and am willing for you to photograph me in situations relating to prenatal care, pregnancy, home environment, and related topics.

I **do/ do not** give permission for a **photograph** of me to be used as data for the project. I **do/do not** grant permission for my photographs to be displayed or published at the conclusion of the project

I **do/ do not** require that my **name** be kept secret. I understand that, if requested, my name will not be written on any photograph and that no one will be able to link my name to interviews written down. If requested, my individual privacy (including identity in photographs) will be maintained in all published and written data resulting from this project.

I understand that I will receive no direct benefit for participation in this project. I understand that for my participation in this project, I will receive a small number (i.e., 2-4) of my printed photographs.

I confirm that the interviewer has given me the address of the Carnegie Mellon University Advisor's office should I wish to go there for information. I know that if I have any questions or complaints about this exploration that I can contact anonymously, if I wish, the advisor of the project (Dr. Sharon Carver, Carnegie Mellon University, The Children's School, MMC 17, Pittsburgh, PA 15213 (412) 268-2199).

I agree to participate in this project.

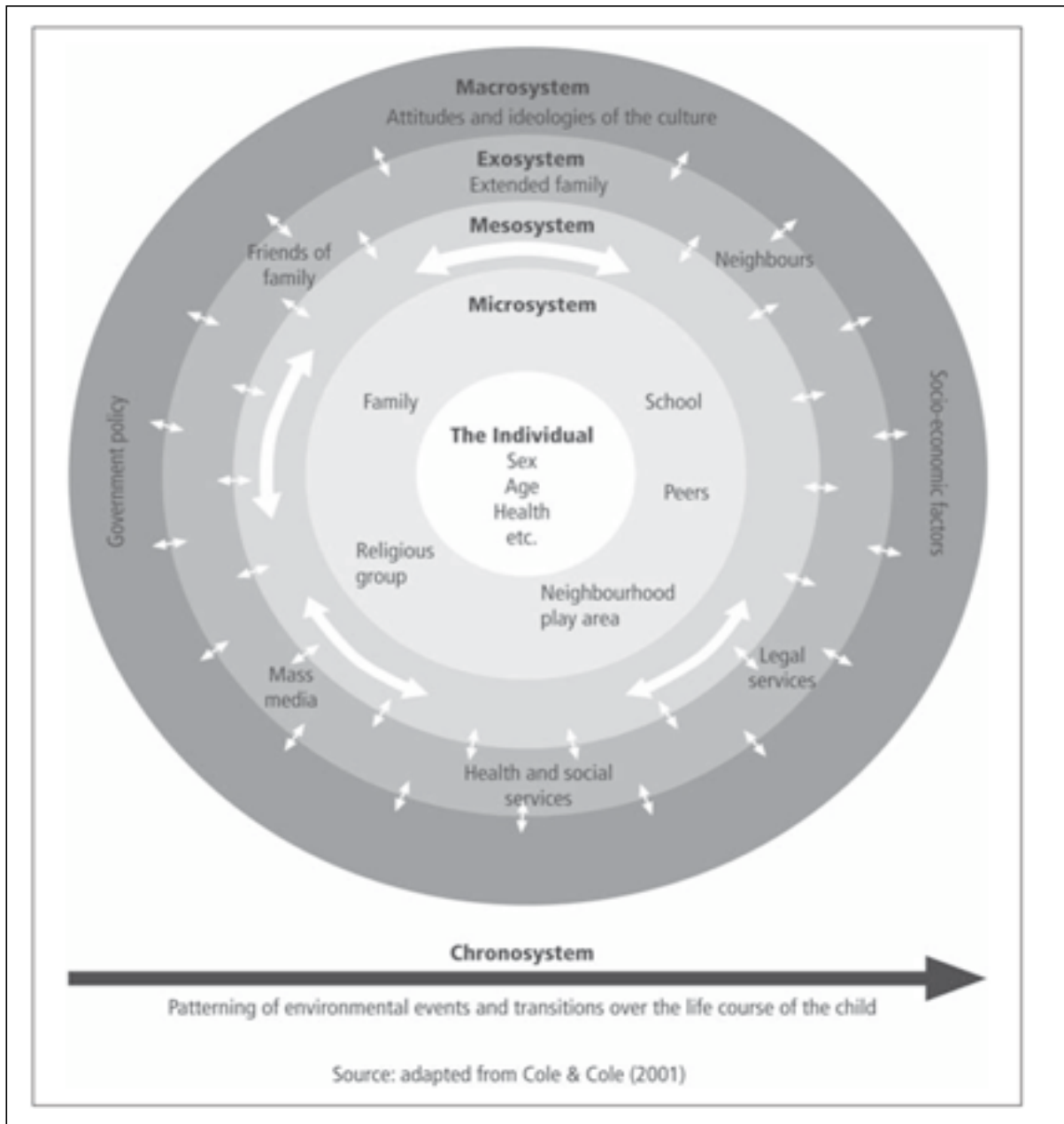
Signature (participant) _____ Date: _____

Signature (interviewer) _____ Date: _____

Figure Captions

1. Bronfenbrenner's Ecological Systems Model (Cole & Cole, 2001). The descriptions for each level are geared towards an American environment. A person in a South African environment would, for example, have much more interaction with extended family.

Figure 1. Bronfenbrenner's Ecological Systems Model



Early Effects of Environment:

**Photo Essays on Prenatal Care in the
United States and South Africa**

By Allison Piper

Humanities and Social Sciences Senior Honors Thesis
Submitted as partial fulfillment of requirements for
Psychology Honors Diploma
Advisor: Dr. Sharon Carver
Spring 2010

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Introduction:

Prenatal Care in South Africa and the United States

I embarked on this project to learn how prenatal care and early home life differed between countries, and what effect these differences had on early child development. While studying abroad, I investigated early child development in a rural village called Impendle in **South Africa**. Upon my return to the **United States**, I compared my findings to an urban population in Pittsburgh, Pennsylvania.

Prenatal and newborn health is critical in determining development and health into the adult years. For example, fetal alcohol syndrome results from alcohol use by a pregnant woman and is the leading cause of mental retardation in the Western world. A supportive family environment, on the other hand, can provide a pregnant mother with the resources she needs to keep the fetus healthy.

For this project, I mainly explored the role of Western medicine and the role of the family in influencing child development. The roles that each institution assumes is different depending on the country.

I decided to illustrate the comparison between South Africa and the United States with both a paper detailing the results of my interviews, and with these photographs. Each photo essay is meant to provide an emotionally and visually compelling view of the care of newborns in a particular country.

At the conclusion of the project, participating mothers were given their printed photographs to keep, and health care partners were given a copy of my findings.



The technology used in U.S. prenatal care is highly valued.

United States

Culture in the United States places a strong emphasis on individualism and independence. Likely as a result of these values, Americans typically live with only a small group of family members, and extended family usually plays little to no role in the life of a newborn.

Americans also highly value biomedical, or Western, medical care. As one expectant mom put it, "I like coming to the appointments to make sure the baby is okay." The technology used by obstetricians, such as ultrasound scans and fetal heart-beat monitors, is viewed by many mothers and doctors as essential, despite the fact that in most cases, the World Health Organization says the bulk of such screens are unnecessary (WHO, 2003).

Prenatal care also involves a large amount of education and social monitoring that is not seen in South Africa. Often American mothers-to-be take childbirth classes, learn about breastfeeding, and are taught about caring for a new baby. Doctors also routinely check for social risk factors that could put a mother and fetus at risk for harm. For instance, mental health issues, substance abuse, or being physically abused can all put the health of the mother and fetus at risk.



The post-labor ward
in Impendle's clinic



Specula in the clinic sink

South Africa

A wide range of cultures are present in South Africa. I worked with a Zulu community, so my findings are only generalizable to other Zulus.

Zulu culture tends to be communal and inter-dependent. Large families, including many members of the extended family, often live together in one homestead, sharing resources and household tasks. This support system serves as an extensive knowledge-base, resource provider, and stress reliever. Large families help pregnant mothers share the burdens of pregnancy and help to care for newborns. This support is essential for teenage mothers (approximately 15% of teenage South African girls have been pregnant at least once).

In South Africa, the family serves to fill the social monitoring and education role that biomedical prenatal care has assumed in the United States. While women do learn about breastfeeding and other practical knowledge from a clinic, the bulk of their child-care knowledge results from watching female relatives care for children. In addition, the task-sharing nature of the South African home means that most pregnant women shared in childrearing long before they first became pregnant.

Biomedical prenatal care is more or less utilitarian in South Africa. Mothers are given the necessary tests and check-ups by clinic nurses, but little is done to make the process comfortable. Public health care, employed by all but the rich in South Africa, is characterized by packed waiting rooms and impersonal appointments. Maternal health care and checkups for children up to age 6 are, however, free of charge.

In South Africa, the strong extended family support structure mitigates many of the effects of widespread poverty and assumes much of the social monitoring and support that is typical of biomedical prenatal care in the United States.

United States

U.S. Total population in 2006 was 301,237,703. (U.S. Census Bureau, 2008)

In 2008, there were 4,399,000 births (~1.4% of the population).
(UNICEF, 2008)

In 2006, 13.2% of the population
fell below the national poverty line.
(U.S. Census Bureau 2006)

Of single mothers whose children are
all under 5 years of age, 45% fall
below the national poverty line.
(U.S. Census Bureau, 2008)

69% of mothers began prenatal care in
the first trimester. (CDC, 2006)

Approximately 7 of every 100,000
infants die before their first birthday
in the United States. (UNICEF, 2008)

99% of mothers have a
skilled attendant present
at birth. (UNICEF, 2008)

The average household size in Pittsburgh is 2.10 people. The U.S. as
a whole has an average of 2.61. This nuclear family structure affects
the support system of the mother. (U.S. Census Bureau, 2008)

RayNisha & Tevon

RayNisha, age 16, and her son Tevon, 2 months, have come to East Liberty Family Health Care Center for their regular post-natal check-up. At birth, Tevon weighed only 5 pounds, 8 ounces. This weight is used as the cutoff point to be considered Low Birth Weight, an important predictor of newborn health. RayNisha herself weighs only about 100 pounds.

Tevon is now back to a healthy weight, and RayNisha is working hard to provide him with all he needs. She bottlefeeds him, and says sometimes her mother makes taking care of Tevon easier. At 16, though, her mobility and options are limited.

I asked RayNisha about her hopes for Tevon when he grows up. She replied, *"I don't want him to be like the boys now. I don't want him to be like a smoker or drinker. I want him to be a good boy."*















South Africa

South Africa's total population is about 50,000,000. (Health and Related Indicators, 2008)

The annual number of births is about 1,100,000 (~2.2% of the population).
(UNICEF, 2008)

26% of the population falls below the
international poverty line (US\$1.25/day).
50% fall below the SA national poverty line.
(UNICEF, 2008)

South Africa is a diverse country, with 11
different official languages. Each language
is associated with a different cultural group.
(Personal observation, 2009)

Approximately 5,500,000 South Africans are living with HIV/AIDS. Among 15-49 year
olds (childbearing age), the prevalence is 18.1 percent. The epidemic affects every other
aspect of medical treatment, including prenatal care. (UNICEF, 2008)

91% of South African births are attended
by a doctor, nurse, or midwife.
(Health and Related Indicators, 2008)

94% of pregnant South Africans attend
at least one prenatal appointment.
(Health and Related Indicators, 2008)

48 of every 100,000 infants die before their
first birthday in South Africa. (UNICEF, 2008)

Average household size in KwaZulu Natal (the
province in which Impendle is located)
is 4.6 people. (UNICEF, 2008)

The Zulu home often includes many members of the extended
family, who help support expectant mothers and newborns.
(Personal observation, 2009)

Impendle- Homes of Newborns

Impendle is a rural village situated in the foothills of the Drakensberg mountains. Rondoal huts, with mud walls and thatched roofs, are clustered together in "homesteads," where members of the extended family live together. Women work together to provide for their families, which can be a struggle in the face of poverty. These photographs show the home environments of newborns in Impendle.



Jabulile nurses her 2-week-old daughter, Ayebonga.



Laundry.



Dineo and her 6-month-old.



Celanicea nurses her son, Philasante.





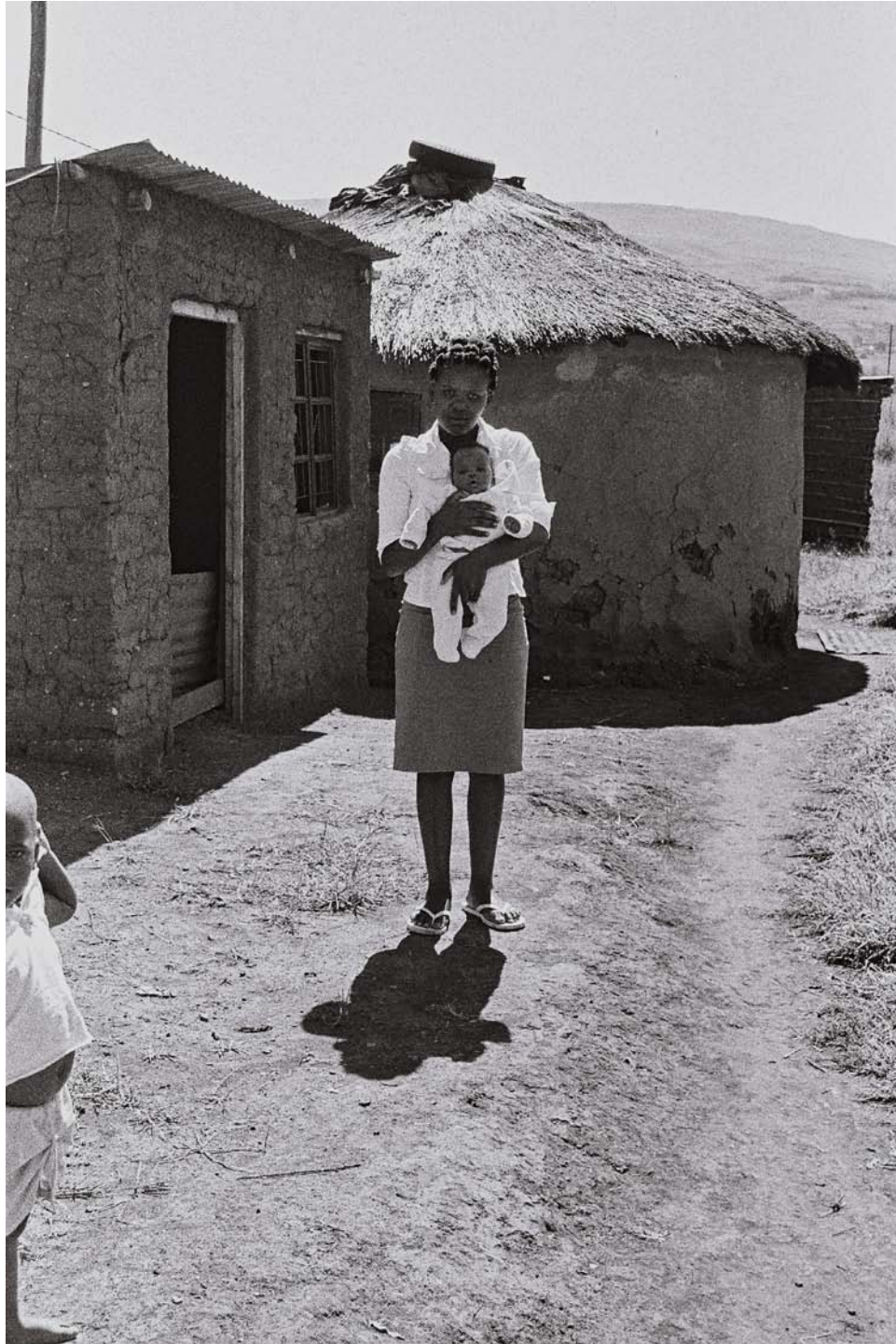
Many families grow vegetables for supplementary nutrition.



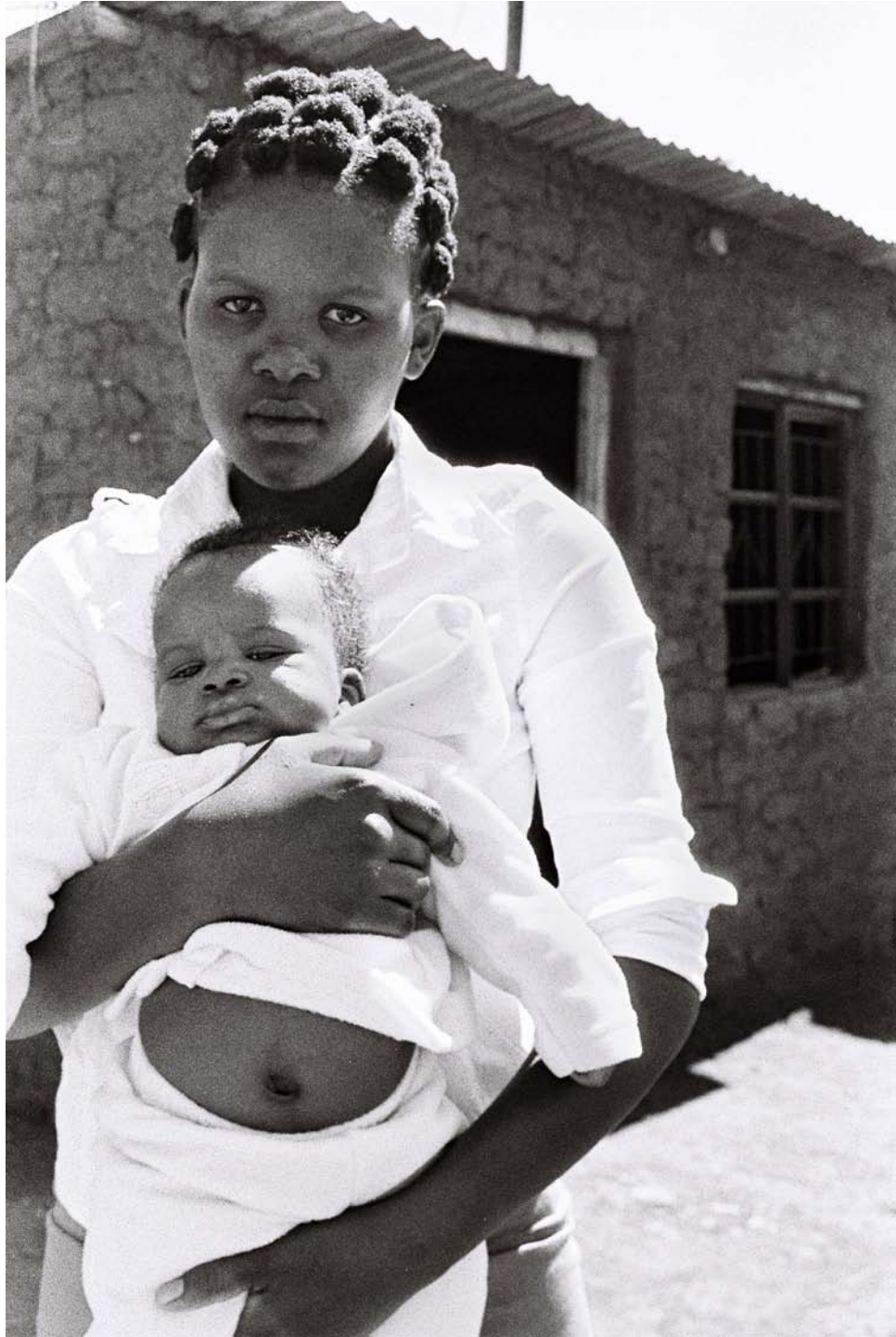
A boy plays in front of his family's garden.



Jabulile chops wood two weeks after giving birth.

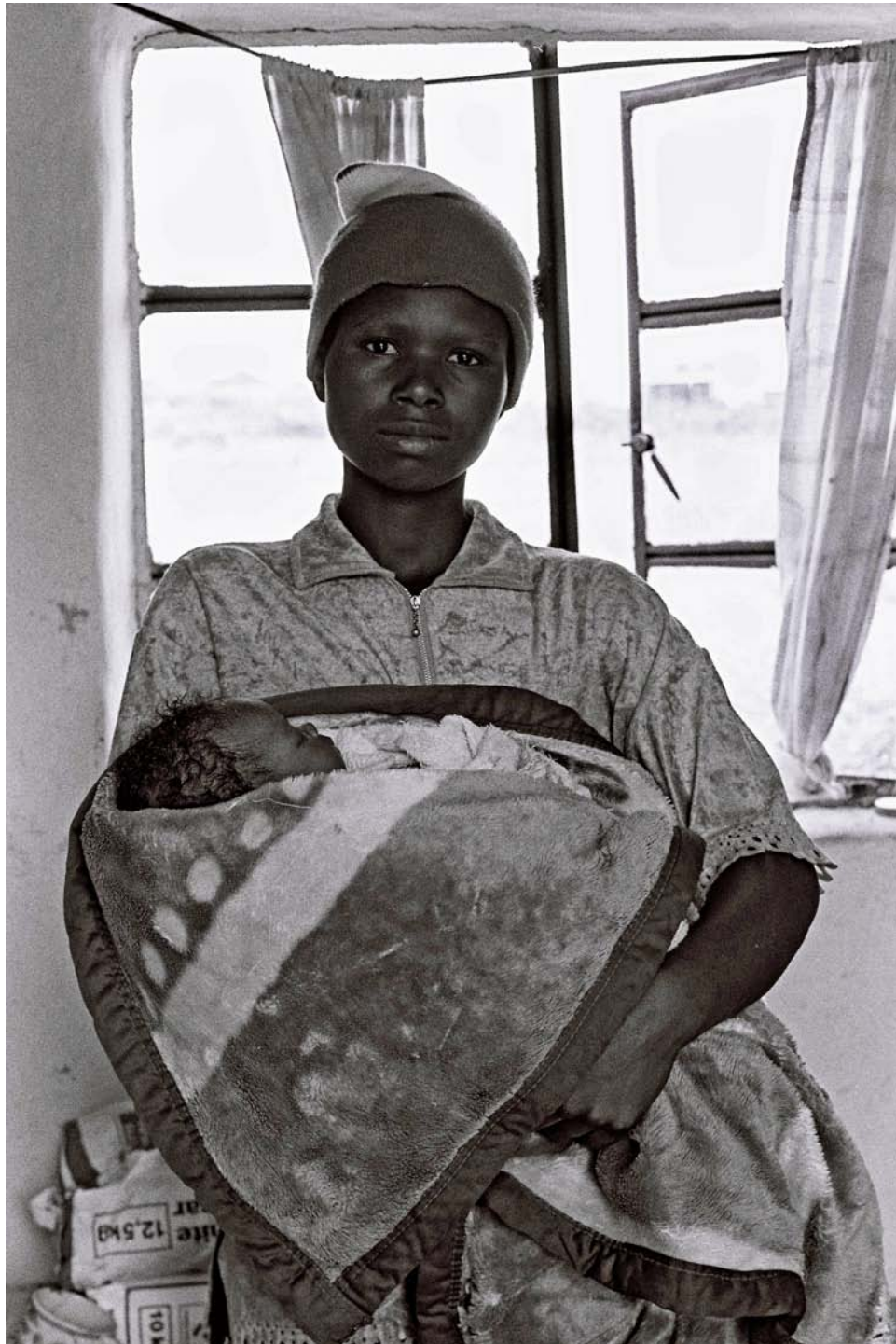


Lungile and her 6-week-old son at home.





Steam rises from a pot on Jabulile's stove as a dog sleeps.



Philasante, 1 week old, had a serious bacterial infection shortly after birth.



Londiwe, age 17, rests beside her 1-week-old.

Thank you to Charlee Broksky, Sharon Carver, and my participants for all of your help.

South African photographs were funded by an International Small Undergraduate Research Grant.

