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Shivani Jain

April 12th, 2011

Holiness and Hygiene in the Household: The Intersection of Religion and Gender in Influencing
Water Sanitation Practices and Hygiene Beliefs in Urban Accra, Ghana

by

Shivani Jain

Ellen E. Idler
Adviser

Department of Sociology

Dr. Ellen Idler
Adviser

Dr. Tracy Scott
Committee Member

Dr. Darrell Stokes
Committee Member

April 12th, 2011

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An abstract of
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Abstract

Holiness and Hygiene in the Household: The Intersection of Religion and Gender in Influencing Water Sanitation Practices and Hygiene Beliefs in Urban Accra, Ghana

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As policymakers continue to promote new hygiene behavior interventions across Ghana to improve the country's poor water sanitation ranking, it will be important for them to address the roles that social factors such as gender and religion play in determining individuals' motivations for adopting hygiene standards and practices. Mary Douglas seeks to explain the social basis of hygiene by applying dirt-rejection theory, which posits that individuals within a social group use rituals to reject elements of "dirt" that do not fit with their social identity. Robert K. Merton develops the concept of ritual more broadly by applying functional analysis to delineate manifest and latent functions and dysfunctions which rituals can have within a social group. Furthermore, Merton's "Strain Theory" serves to systematically classify the types of social deviance people engage in to avoid following strong cultural norms. This study looks at how Douglas's theory of dirt-rejection and Merton's functional analysis of religion and social deviance typology apply to contemporary hygiene behaviors and water sanitation practices adopted in peri-urban and urban Accra, Ghana. Thirty-six in-depth interviews and twelve focus group discussions were conducted with a total of 118 heads of household in an effort to uncover the complex ways in which gender and religious identity converge to influence views on hygiene beliefs. During data collection, several themes of social deviance emerged, along with salient differences between Muslims and Christians and men and women on a broader scale. An unexpected finding was that Muslim men were the most conscious of the connection between holiness and cleanliness and most active in community water sanitation matters; however, women, irrespective of religious identity, were more likely to engage in hygiene promotion within the household. Although religion did play a large role in shaping individual adherence to cleanliness norms, socioeconomic status also greatly influenced this outcome. Overall, this study found that rather than serving only a latent function, religion serves the manifest and public function of promoting hygiene behaviors. In the context of a highly gendered social structure, religion can also serve the latent dysfunction of barring women from full participation in community water sanitation affairs.

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Introduction

While enrolled in a Microbiology class at Emory, I realized just how much even my perceptions of hygiene and cleanliness are affected by my cultural surroundings. My professor had the students of our class voluntarily participate in an experiment designed to assess the effects of hand-washing versus alcohol-based hand sanitizer use on microbial germ reduction. Although the findings of this study were by no means representative of the entire Emory University student population, they did shock a majority of my classmates. Not only were we less clean than we imagined based on the data from the pre-experiment survey, but most of us were not killing many germs, if any at all, based on our quick regimen of soap and water after using the toilet. It seems that although every bathroom or kitchen at Emory displays large, colorful signs stressing the need to wash up after using the restroom, this tried and trusted technique does not actually do much to prevent the spread of germs. However, this raises another important point – when we think of cleanliness, are we consciously trying to get rid of germs from our body, or are we simply acting out of ritual or a need to give to others the impression of being clean?

Before I became interested in infectious disease control, it had never really occurred to me how fortunate I am to have ready access to clean water, hand soap, flush toilets, or even menstrual pads because I had never really had to go without them. Even when living for some of my youth in Calcutta, where the norm had been to use bidets instead of toilet paper in the restroom and all my family's drinking water had to be boiled on the stovetop, my grandmother had always gone out of her way to keep an extra stash of toilet paper and bottled water on reserve for me because she did not want me to even think about feeling dirty or exposed to germs

when I came to live with her. Many of my peers at Emory admit that they do take necessary commodities such as flush toilets and clean drinking water for granted, as they have become accustomed to having access to basic water sanitation in our society. However, what many fail to recognize or appreciate is that water sanitation in our own society could quite easily disappear if we stopped caring about the fundamental concept of cleanliness, fear of germs, and in some sense, our moral responsibility to maintain purity in our culture.

Cleanliness in personal hygiene is often viewed as part of a complex set of grooming behaviors focused on enhancing the body. In the dominant historical view, hygiene behaviors have evolved due to the selective pressures favoring specific natural biological urges. We live in an environment that places great value on physical health, technological development, and cultural mores, all of which are socially supported by the principle of personal hygiene. Physical cleansing, such as bathing or washing hands, is at the core of many religious rituals. Baptism, for instance, is a water purification ritual practiced by Christians, Mandaeanists, and Sikhs. Christians follow the admonition, “Arise and be baptized, and wash away your sins,” with faith that through the symbolic cleansing of their bodies they might also achieve a cleansing of conscience. Physical cleansing is also central to Islam; *wudu* (often translated as “ablution”) is the Muslim act of washing parts of the body in clean water to prepare for worship (Zhong et al. 2006). Many major religions discipline bodily purity, suggesting that physical cleansing can purify the soul. Research on the correspondence between physical and moral purity has speculated that people are predisposed to use categories that are based on bodily experience (such as “clean” versus “dirty”) to construct complex social categories (such as “moral” versus “immoral”). For example, in many languages, words such as “clean” and “pure” describe b

physical and moral states (e.g., “he has a clean record”). Likewise, the Mandarin phrase, “a pair of dirty hands” refers to a person who steals (Zhong et al. 2006). The association between bodily and moral purity may be based not only in cognition, but in emotion as well. Disgust represents an emotion that is experienced in both physical and moral domains.

From animal behavior studies, cave paintings in South America, ancient medical literature and scriptural texts, it is evident that individuals have ascribed value to the notion of cleanliness for the larger part of human history. However, what remains elusive is the question of why certain objects and events have come to be classified as “dirty” and “disgusting” and what drives individuals to seek hygienic solutions in avoiding dirt and disease: are we driven by an innate biological instinct or are we compelled to be clean because our culture tells us so? Some historians and social anthropologists have taken the “master narrative” approach in which the medical and public health research of Hippocrates, Snow, Koch, and Pasteur among others helped inform the general public about the virtues of water sanitation and personal hygiene. Mary Douglas, however, rejected such thinking as “medical materialism,” proposing instead that the particular societies classified as “dirty” were those that did not fit in with their beliefs and value system. In this vein, dirt is never a unique, isolated substance, but rather, a cultural construction created by a social group to be a visible symbol for what it perceives as inappropriate and outside of its values and norms (Douglas 1966: 120).

In some modern-day societies, both urban and rural, proper water sanitation is a rare commodity that oftentimes goes overlooked and undervalued. This is especially the case in the West African country of Ghana, where the Water and Sanitation Sector (WSS) is attracting greater attention than it has previously, because it is now seen as central for achieving many of

the UN's set Millennium Development Goals (MDGs) to reduce total disease burden. WHO and UNICEF Joint Monitoring Program for Water Supply and Sanitation indicated in 2008 that Ghana ranked 48th out of 51 African countries, with a total sanitation coverage of just ten percent. Public latrines that are extensively used in urban Ghana did not meet the WHO criteria for improved sanitation facilities, otherwise coverage would have been over 60%. Recent studies show that most public latrines in Ghana are in very poor condition because they are not usually cleaned properly or used properly (Jenkins and Scott 2007). The main problem is that both the domestic and public waste is largely made up of putrescible organic matter such as feces, spoiled food items, and dead animals, which makes it incombustible and very difficult to dispose of by incineration. The low sanitation coverage and poor operational condition of sanitation facilities raise critical research and development questions, especially relating to the barriers to sanitation access and education on proper usage.

The sanitation problem is also partly due to the imbalance between the generation of waste and the capacity of existing clearance facilities. This imbalance is reinforced by the increasing rates of rural-urban migration taking place in Ghana. In 1948, only 13 percent of Ghana's population was considered urban. By 1984, it was 32 percent. Today, Ghana is estimated to be 52 percent urban. In the rest of West Africa, the average is 30 percent (Freeman 2010). As cities like Accra swelled with newcomers, new houses were built without access to public sewers or running water. A large proportion did not even include latrines. As a result of improper planning during a time of hasty urban growth, the current sanitation crisis took root (Freeman 2010). Because a majority of the people affected most adversely by poor sanitation are of lower working class social status, they are not likely to have completed much education or to

place great importance on matters of the environment. In many cases, the struggle for survival is the main concern for this population and sanitation is a secondary, if not tertiary, concern (Mensah and Whitney 1991). One of the tragic hidden costs of this crisis lies in childhood education, especially among girls. According to Ghana's Ministry of Education, half of the country's schools lacked toilet facilities in 2008 and, where they did exist, the facilities were often gender-insensitive. Because many female students do not find the bathrooms to be adequate, they end up taking time off from school during menstruation. In some cases, the girls drop out of school altogether. While the completion rate of primary education for boys in Ghana is 91%, it is only 79% among girls, a figure that Kofi Asare, the program officer of the Ghana National Education Campaign Coalition, says is directly related to inadequate sanitation (Freeman 2010).

For the purposes of understanding the key questions of what is preventing people from using toilets, versus openly defecating and urinating into the gutters and drains, and adopting personal hygiene habits such as hand washing with soap, I set out with a team of four other Emory students to evaluate the current state of WSS affairs in two relatively small urban and peri-urban¹ towns of greater Accra, Ghana, in the summer of 2010. Funded by a Multidisciplinary Research Team Grant from the Global Health Institute at Emory under the faculty supervision of Dr. Christine Moe and an Independent Research Grant from the SIRE program, I worked alongside three MPH students and one other undergraduate from Anthropology, to assess the current water sanitation situation in greater urban Accra based on public attitudes and water testing results. We employed a mixed-methods approach combining

¹ peri-urban: refers to an area immediately adjoining an urban area; between the suburbs and the countryside (Merriam-Webster Online Dictionary, 2011).

in-depth interviews with heads of households, direct observation, focus group discussions with heads of households, household surveys, beach surveys, and in-depth interviews with policymakers in order to accomplish our individual research goals. In particular, I was interested in studying how the social factors of gender and religion influence individuals' water sanitation and hygiene behavior practices, attitudes, and beliefs, and I used focus group discussions and in-depth interviews with heads of household to gain insight into this topic.

Based on extensive pre-departure training and research, it was clear that there were sharp gender and religious identity contrasts in the towns where we were planning to conduct our study, James Town and New Town. We chose to assess the situation in James Town, a small fishing town with a predominantly non-denominational Christian population, because many sanitation studies are already underway in this area and it has been ranked as the fourth dirtiest town in Accra in a report published by the country's Ministry of Water Resources and Housing Works in 2008. The much newer, urban area of New Town not only served as a natural comparative control for James Town because it is predominantly Muslim, but has also witnessed a unique subset of environmental and sanitation problems given its recent overdevelopment, relatively high levels of air pollution, and high population density in relation to the rest of the greater Accra region.

Background Information

Country Demographics

Ghana is located on the coast of Western Africa and is bordered by Togo, Burkina Faso, and Cote d'Ivoire. In 2009, the population was estimated to be 23, 887,812 persons, and the

country has a total land area of 238,533 square miles. Ghana has a tropical climate with two distinct rainy seasons from April to June and from September to November (Ghana Statistical Service (GSS) 2009). Half of Ghana's population lives in urban areas (WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation, (JMP), 2010). Several ethnic groups make up the population, with the Akans, Mole-Dagbon, Ewe, and Ga/Dangme being the largest groups. About 13% of Ghana's population is comprised of children less than five years of age, and the average household size is 3.7 persons per household. On average, approximately 21% of urban females have no education, and specifically in the greater Accra Region, about 15% of women have no education, the lowest percent among any of the regions (Ghana Statistical Service (GSS) 2009).

Water Sources and Sanitation Facilities in Accra

Although public toilets are much more widely available in Ghana than in most other African countries due to an increased government push for new facilities over the last three decades, these toilets in low-income neighborhoods are typically in very poor hygienic condition and see long waiting lines during peak periods (Boadi 2004). SWITCH ACCRA, an action research program implemented and co-funded by the European Union, conducted a comprehensive survey study in 2005 that indicated the following breakdown for toilet type in greater Accra: flush toilet used by 23% of the population, improved pit latrine used by 11%, unimproved pit latrine used by 11%, neighbor's toilet used by 9%, public KVIP toilet used by 28%, bucket latrine used by 10%, and open defecation practiced by 10% (SWITCH ACCRA 2009). Taken as a whole, only 18% and 7% of the urban and rural populations, respectively, use an improved sanitation facility (13% of country's total population).

Shared sanitation is extremely common in Ghana, and 54% of the population uses this type of sanitation facility (Ghana Statistical Service (GSS) 2009). While a shared facility may have an improved structure, it is not considered an improved facility by the WHO Joint Monitoring Programme because shared facilities have an increased likelihood of poor hygiene and unsustainability (WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation 2010).

The bucket latrine is the most widely available type of toilet facility in both James Town and New Town. This type of latrine is designed for the on-site collection of toilet waste. Excreta are collected in a bucket which is placed underneath a single standalone apparatus which is designed for defecation and urination. Although bucket latrines allow for safer and more hygienic disposal of human waste than open defecation, they still pose disease concerns as bacteria and mosquitoes are able to breed easily in the bucket latrine and they do not allow for complete decomposition of fecal matter (WHO 2010). As of January 2010, bucket latrines, also known as “pan latrines,” are officially illegal in Ghana, but the high cost of adopting an improved toilet has left many households in the precarious situation of choosing to violate the law in order to avoid paying extensive fees to the public toilet and avoid practicing open defecation in the gutters lining the streets (SWITCH ACCRA 2009). Another toilet system which is commonly used in both towns is the Kumasi Ventilated Pit Latrine (KVIP²). This latrine is designed to overcome some of the problems associated with traditional latrine designs, such as harsh odors and fly and mosquito breeding, but it is more expensive than the simple pit latrine, which is literally a hole dug into the ground for the decomposition of fecal matter. The KVIP

² KVIP refers to Kumasi Ventilated Improved Pit, which is synonymous with VIP in many regions. KVIP refers to a type of public closed toilet structure which is discussed in the section “Types of Toilets.”

has a vent pipe from the pit that extends to the roof of an outhouse building, so that when air flows across the top of the vent pipe, air is drawn up the pipe from the pit and fresh air is drawn into the pit from the building. Foul-smelling odors from the pit thus pass through the vent pipe and do not enter the building.

The problem with many of the KVIP toilets used in James Town and New Town is that they are not properly built or maintained. Many of the KVIP toilets I examined were filthy, with fecal sludge splattered on the floor and the walls inside the outhouse facility. Moreover, if a KVIP toilet is built to maximize benefits, the vent pipe should be covered with mosquito meshing and be dark to help the air rise, but this was not the case for a majority of the public KVIP toilets in the two towns (WHO 2010). If the inside of the building is kept partially dark, the flies that enter will be attracted to the light at the top of the pipe, where they will be trapped and die, but most of the KVIP toilets I saw were not kept shut when not in use and allowed many mosquitoes and flies to accumulate within the in-door pit.

A KVIP latrine is designed to work as a dry system, with any liquid in the content infiltrating into the surrounding soil. Although some liquid inevitably will enter the pit, it is ideal for this to be minimized. It is not considered appropriate to dispose of household wastewater into the pit as this may prevent the decomposition of waste matter. Therefore, KVIP latrines are most appropriate where people do not use water for anal cleansing after defecation, but use solid materials such as paper, corncobs, or leaves (WHO 2010). This is clearly an issue for the Muslim residents of both James Town and New Town, especially when taking into consideration that a majority of New Town residents are Muslims. Most Muslims in

these communities bring “chamber pots,” or small plastic tea pots filled with water, with them to the KVIP toilet facility for the purpose of anal cleansing and hand washing. Although they are concerned with ensuring proper cleansing with the water for dogmatic reasons, many individuals I spoke to said they were not aware that the water should not enter the pit. When I spoke to the local managers of the KVIP public toilets, they mentioned that the water seeping into the pit was a major problem with ensuring proper functioning of the facility. They also said that a lack of government funding and respect from the locals made it difficult for them to care enough to clean the toilets on a regular basis. Since most people avoided paying the fee of 50 pesewas (equivalent of 30 U.S. cents) to use the toilet, the KVIP managers could not afford to maintain the toilets properly. One of the main KVIP managers also pointed to the lack of social responsibility, as many individuals, especially men, were not leaving the facility clean after use.

In Ghana, the most common sources of improved drinking water used are public tap/standpipe, piped water into dwelling/yard, tube well or borehole, and protected dug well for urban areas. Common unimproved sources include tanker trucks and bottled/sachet water in urban areas (Ghana Statistical Service (GSS) 2009). Greater Accra, the district where both James Town and New Town are located, is supplied by three main surface-water systems, the Kpong system on the Volta River, the Weija system on the Densu River, and the Anun Boso system (SWITCH ACCRA 2009). The majority of the urban population gets their water from the formal water supply system, whether piped directly or purchased from street vendors. About 49% of individuals have self-reported having within-plot piped water (10% indoor plumbing, 39% yard connection), while about 22% get water from their neighbors, 16% buy from water vendors, and 13% use a community standpipe, generally privately owned (Nyarko et al., 2008).

Only about 6% of the population is thought to use groundwater sources (SWITCH ACCRA, 2009).

Health Impacts

The overall under-five mortality rate in Ghana is 90 deaths for every 1000 live births. However, the mortality rates per region show uneven variation and are affected by risk factors such as mother's education level and her age at birth. Diarrheal diseases are a major threat for this age group, as they are affected more than any other age group. In Ghana, 20% of children under five years of age have experienced at least one episode of diarrhea over a month's time. Among these children, 3% experience diarrhea with blood. The prevalence was lower among those using an improved drinking water source (19.8% for improved; 23.8% for not improved) as well as for those using improved latrines (12.8% for improved; 20.5% for not improved, including shared) (Ghana Statistical Service (GSS) 2009).

Domestic Waste Disposal

The central container system is used for solid waste collection in James Town and New Town, Accra. However, there are only two collection points within the communities. Even though the service is officially supposed to be free, residents or community members pay to dispose of their refuse. The cost of each refuse dump into these containers ranges between 5 Ghana pesewas and 50 Ghana pesewas (about 4 U.S. cents to 1 US dollar), depending on the size of the refuse (Owusu 2010). The challenge is that the number of refuse containers at the central collection points is not enough when compared to the number of households living in the community. Even more critically, the containers are not picked up by ZoomLion, the

government-contracted sanitation waste management company, at regular intervals when full. This causes garbage and human waste to pile up in these areas when the containers are full. Other households in the community also dump their refuse into drains, open spaces, and available streams whenever the containers get full (Owusu 2010).

As in many other West African societies, in Ghana it is mainly the woman of the household who is responsible for disposing of domestic refuse and bringing water back to the house for the entire family. Single-family dwelling units are not very common in many areas of Accra where the working-class urban reside (Mensah and Whitney 1991). Instead, individual houses contain many family units or sub-households. Women, with the help of children in these units, normally dispose of waste materials generated by each family unit. In addition, the women take turns to sweep in and around the house each morning. Children will sometimes assist by taking the garbage to the dump site or leaving it for the waste management company ZoomLion to pick up later. Although some men will occasionally help their wives weed and tidy around the house, it is considered culturally unacceptable for a man to sweep around the house or deal with the household garbage (Mensah and Whitney 1991).

Description of Study Sites

James Town, founded by the British as James Fort in 1817, is a peri-urban fishing town with only open gutters and street drains lining the streets. Most people in James Town are Christian, with 72% self-reported as non-denominational Christian³ and 28% as Hausa Muslim⁴

³ All of the Christians who participated in this study stated in the household recruitment survey and focus group discussions that they were non-denominational Christian, or “Protestant Christian in general.” I did not meet a single local Ghanaian who identified with Catholicism or a particular sect of Protestantism.

(these statistics cited by Dr. Mustapha Ahmed, the Minister of Water Resources and Housing Works in Accra). The main types of toilets which are available for use are bucket latrines and KVIP toilets. Over 70% of James Town residents who participated in this study identified their main toilet as the public KVIP toilet stalls which are managed by the government and centrally located within the town. ZoomLion Ghana is the company responsible for waste disposal and sanitation management in the municipality, and they have recently started charging residents a punitive fee for not disposing of their waste properly. ZoomLion Ghana is an affiliate of the Chinese corporation of the same name. Its corporate vision is “to be at the forefront of Ghana’s environmental services industry by introducing and using simple but modern technologies and methods of waste management at competitive rates” (Owusu 2010). However, the main problem is that ZoomLion views only form of proper disposal: having the waste picked up by their company trucks, which requires the regular weekly payment of 50 pesewas (1 U.S. dollar), regardless.

New Town, on the other hand, only recently underwent the change from being a peri-urban town to being urban. It is densely populated and overcrowded, with a high level of air pollution and recent water sanitation problems owing to the lack of an adequate drainage system and poorly constructed curbside gutters and ditches which are left uncovered and used as makeshift garbage dumps and sites of open defecation and urination. The main types of toilets which are commonly used in New Town are KVIP toilets and bucket latrines. Fifty-five percent of the New Town residents who participated in this study identified their main toilet as the public

⁴ Hausa Muslim refers to a Muslim ethnic group that originated in Nigeria and traveled to other regions of Africa. The main Muslim ethnic group in Accra is Hausa Muslim. All of the Muslims who participated in this study identified with the Hausa Muslim identity.

KVIP toilet, with the other 45% citing bucket latrines or no toilet usage. ZoomLion Ghana is responsible for waste disposal and sanitation management in this town as well.

It stands clear that both New Tow and James Town lack sufficient water sanitation facilities and are ranked very poorly in water sanitation as of a 2005 report published by the local Ministry of Water Resources and Housing Works. Each of the towns has a distinct religious make-up, with New Town being predominantly Muslim and James Town being predominantly Christian, and both towns have highly gender-divided labor divisions within the community. Taken together, these characteristics made New Town and James Town the most appropriate locations to study how religion and gender intersect to inform water sanitation practices and hygiene beliefs and behaviors.

Theoretical Framework and Empirical Research

To understand how religion and gender influence the behavior of social groups it is important to understand how social groups define and organize themselves in relation to the larger social structure. Religion and gender take on different meanings and roles within different societies. In the communities I studied, religion and gender played important roles in structuring labor divisions and in influencing what individuals valued and how they perceived themselves in relation to the rest of society. One of the main ways in which religion plays a role in influencing what a social group values is by distinguishing between *sacred* and *profane* entities, allowing the group to construct its identity based on what it chooses to set apart and label as sacred, or unique to itself. French sociologist Émile Durkheim studied the structure of religion in this regard by exploring the relationship between the sacred and the profane.

Émile Durkheim, Distinguishing the Sacred from the Profane

In *The Elementary Forms of Religious Life*, Émile Durkheim (1965) defines religion as a “unified system of beliefs and practices relative to sacred things, that is to say, things set apart and forbidden.” He theorizes that the defining characteristic of religion is its inherent dichotomy between the *sacred* and the *profane* (Durkheim 1965: 303-304). The *sacred* represents the interests of the larger group in unison and could be embodied in sacred group symbols called totems (Durkheim 1965: 190-195). The totem does not have to be a specific item; rather, what is more important is what the totem represents for the society in which it is considered sacred. Rituals, or active engagements with the totemic symbol in a specific setting and manner, allow the collective group to celebrate the meaning imbued within the totem (Durkheim 1965: 212-218). In contrast, the *profane* consists of mundane, individual concerns of everyday life. Durkheim makes it explicitly clear, though, that this dichotomy between sacred and profane is not analogous to the moral dichotomy between good and evil. What makes something sacred is not that it is somehow connected to the divine, but because it is the subject of prohibition, it is set radically apart from other things, which are thereby made profane (Durkheim 1965: 235-48). According to Durkheim, the celebration of religious beliefs and sacred rituals unites a community and integrates individuals by enhancing the sharing of collective sentiments and group solidarity in profane areas of everyday life (Durkheim 1965: 306). Religion, in this view, is both thought and action related to this fundamental dichotomy; it provides a way for individuals to celebrate their self-identity and pay tribute to the values that define them.

Religion also serves to define negative behaviors to be those primarily concerned with keeping the sacred out of contact with the profane. For example, in the Central Australian

culture that Durkheim observed while postulating his theory, there were prohibitions regarding the sacred ritual objects, the *churingas* (Durkheim 1965: 292). The *churingas* could only be touched by people who themselves had been made sacred by initiation. Similarly, the people of a specific spiritual clan would take up a totemic entity – an animal or plant symbol to identify themselves within praising the collective group – but this totem was too sacred to be eaten (Durkheim 1965: 303). Durkheim's conceptualization of the sacred and profane becomes especially important in understanding how individuals formulate rules to govern their collective identity and manage group interests. In order to protect their self-identity, the group sets boundaries and strict rules around the sacred, ensuring that only those who are willing to follow the rules enter their circle. The sacred, being that which the whole group values, becomes the center around which the rest of society is structured and functions. Durkheim's theory of religious forms extends to the value-systems within Christian and Muslim religious groups in central Ghana, as religion is part of an individual's core identity in the region. Both Muslims and Christians alike emphasize the importance of church or mosque life, respectively, in their daily routine and social circle. For Muslims, especially, ritual is highly important to the entire structuring of the day and to the self-concept. Muslims partake in *wudu*, or bathing rituals, before prayer throughout various set times during the day to ensure they are clean and pure in their place of worship and in their circle of fellow worshippers. If someone claims to be Muslim in a *zonga*, or Muslim neighborhood, within Accra but does not engage in the cleansing rituals, they are shunned from the community and forbidden from entering the mosques. In this case, the Muslim religious groups are protecting their notion of sacred through the incorporation of the holy totemic symbol of water in their cleansing rituals.

Mary Douglas: Defining Dirt, Taboo, and Purity

Anthropologist Mary Douglas sees Durkheim's distinction of what constitutes the sacred and profane as part of his radical opposition between the social and the individual, the former which he pronounces sacred and the latter profane. For Durkheim, sacred and profane characterize the two poles of religious life, with the sacred being that which the individual recognizes as having the ultimate authority of an external, objective power. However, Douglas does not believe that it is correct to assume an isomorphic dichotomy between individual and society and profane and sacred. Rather, the individual can recognize something of the sacred inside himself and is able to construct the sacred with other individuals in order to live together in a society with agreed upon rules. Durkheim's idea of the sacred as generated by society brought about his notion of the "contagion of the sacred." In his view, that which society creates and sustains as sacred remains under constant threat of dissipation due to the instability of the social order. Thus, there have to be rules in place to ensure that the sacred is preserved, rules formulated in terms of contagion – the activity that threatens the sacred in the first place. Douglas does agree with this concept, however, in that the sacred is not only threatened by external forces and pressures but also defined by the very dangers that that follow from the breach of socially defined rules. It is the collective belief in these dangers which acts as a moral deterrent, helping to uphold society in its work of self-creation and self-maintenance (Douglas 1966: 54).

Not only does Douglas seek to re-define the definitions of "sacred" and "profane," but she also criticizes the approach that classical anthropology has taken to understanding the "holy"

and “unholy” dichotomy. She does not believe the two categories are as mutually exclusive as has been traditionally assumed:

The holy and unholy need not always be absolute opposites. They can be relative categories. What is clean in relation to one thing may be unclean in relation to another, vice versa. The idiom of pollution lends itself to a complex algebra which takes into account the variables in each context. For us, holiness and impurity are at separate poles. . .Our idea of sacred has become very specialised. . .in some primitive cultures the sacred is a very general idea meaning little more than prohibition. In that sense, the universe is divided between things and actions which are subject to restriction and others which are not (cited in Douglas 1966:9-10).

Holiness, at its root etymology, means “set apart”; it follows that religion is adopted by a culture to set apart some elements regarded as “holy” and “sacred” from others regarded as “dangerous” and “defiling.” The holy uplifts the group identity because it corresponds with the image the group wants to collectively establish and convey to the rest of society. In this way, religion serves to set up a hierarchy for belief and behavior within the group and establishes boundaries which group members must not transgress in order to remain holy. The negative religious laws are accorded the value of outlining educational aims and purposes by stating what is clearly disallowed. Douglas draws upon the Old Testament in the Bible to clarify this relationship: “in the Old Testament, we find blessing as the source of all good things, and the withdrawal of blessing as the source of all dangers” (Douglas 1966, 60-62). The blessing of God at once serves both the purpose to create order in society and to deter immoral behavior.

Another aspect of holiness tied to its notion of separateness is that of wholeness. In the Bible, much of Leviticus discusses the ways in which individuals should present themselves as holy and clean in order to enter the Temple of God. The animals offered in sacrifice must be without blemish, women must be purified after childbirth, and lepers should be separated and ritually cleansed before being allowed to approach the Temple. Furthermore, all bodily discharges, such as urine, feces, menstrual blood, and semen, are seen as defiling and disqualify someone from approaching the Temple (Leviticus 21: 17). This is one example in which religion defines holiness as both separating the sacred from the dangerous, but it also indirectly correlates bodily cleanliness to sacredness.

Any culture is a series of related structures which comprise social forms, values, cosmology, or the whole of knowledge through which all experience is mediated. Certain cultural themes are expressed by rules connecting the notions of holiness and purity to cleanliness in order to signify the values and forms of a particular social group. In simple, elegant terms, Douglas defines dirt as “matter out of place.” This definition implies that order is inherent to society and dirt exists to reflect a contravention of that order. Dirt, then, is never a unique, isolated event. Where there is dirt, there is a system because dirt represents the by-product of a systematic ordering of all matter. This view lends to dirt-rejection theory, in which dirt is the matter which is rejected as inappropriate in order to uphold the ordered components within a society. Dirt-rejection theory as defined by Douglas states that matter itself is not dirty until it is altered by an external element, something which puts it outside of its normal, conventional place. For example, shoes are not dirty in themselves, but it is dirty to place them on the dining table, and while food is not dirty in itself, it is dirty to leave cooking utensils in the

bathroom. Similarly, clothes lying on chairs, upstairs things downstairs, under-clothing appearing where over-clothing should be are all viewed “dirty” or “defiled” in this framework. Our pollution or unclean behavior is the reaction which condemns any object or idea likely to confuse or contradict classifications valued by the group to which we belong.

Similar to Émile Durkheim’s concept of the religious ritual, the ritual in Douglas’s view, allows people to know their own society. In a sense, the rituals maintain purity boundaries to keep in what is regarded as clean and pure and disallow entry to that which would bring in contamination, likened to corruption or social disorder. Society employs these cleanliness acts as a means to uphold its identity and preserve its order (Douglas 1966: 158-159). In rejecting behaviors that fall outside of our cleanliness norms, we often employ rules to define boundaries of restriction and access between individuals of differing degrees of power and social status (Douglas 1966:155). For example, the Hindu caste system in India is externally defined in terms of degrees of purity which correlate with an elaborate hereditary division of labor between castes. The work performed by each caste symbolizes the relatively pure status of the caste in question. Some kinds of labor correspond with the excretory functions of the body and, therefore, correspond to low cleanliness and purity status: for example that of washermen who have to clean clothing defiled by sweat and urine, barbers who cut hair often infested with head lice, and sweepers who manage human waste and dirt on the ground. Some professions are associated with bloodshed or alcoholic liquor, such as tanners, warriors, and toddy trappers. The professions are low in the scale of purity, and social status accordingly, because they are at odds with Brahminic ideals taken to be most holy by that society (Douglas 1966: 157). Douglas

clarifies the connection between cleanliness and holiness in the historical context of the development of religion:

If primitive, then, the rules of holiness and rules of cleanness were undistinguishable; if advanced, then, rules of uncleanness disappeared from religion. They were relegated to the kitchen and bathroom and municipal sanitation, nothing to do with religion. The less uncleanness was concerned with physical conditions and the more it signified a spiritual state of unworthiness, so much more decisively could the religion in question be recognized as advanced (cited in Douglas 1966:14).

As individuals, all that which we perceive is organized into patterns - patterns that we, the perceivers, are largely responsible for recognizing in our daily lives. We make our impressions by selecting from external stimuli that interest us, and in doing so, we construct a world in which objects have recognizable shapes and properties, particular placements, and permanence. In perceiving the world around us, we actively decide which cues to accept and which to reject. The most acceptable cues are those which fit most easily into the pattern we are constantly building. Ambiguous cues mold onto the pattern and discordant ones are rejected from the structure altogether. As we continue to establish this system, we also become more invested in our classifications and labels. We become more strongly biased to accept our own classifications and more inclined to repel objects and ideas that do not fit our pre-set mold. However, the presence of ambiguous and discordant cues is not harmful or irrelevant, for our act of rejection helps us to reaffirm our confidence in our values (Douglas 1966:43-46).

Culture standardizes values of a community and mediates the experiences of individuals. It essentially provides a larger positive pattern with basic categories for ideas and values to be

tidily organized. It also has an intrinsic authority because individuals are induced to follow the pattern when others in the same culture are following said pattern (Douglas 1966: 43-44). Because culture is public, the categories which it assigns to values and concepts are more rigid in nature. An individual may modify his pattern of assumptions, but it will still be a private matter. On the other hand, cultural categories are known to the larger social group and cannot so easily be subject to revision. Nonetheless, cultural categories are not in and of themselves in a self-contained vacuum – they cannot ignore the anomalies that may arise due to individual differences. Individuals choose the degree to which they want to conform to cultural norms for a variety of reasons, some personal and others socially influenced. By choosing to rebel against norms, for example by defiling the cultural notions surrounding concepts such as “clean” and “sacred,” the individual creates anomalies, which in turn, the larger culture has to address (Douglas 1966: 40-43). The larger culture, made up of members of a social group – for example, a religious group such as Muslims or Christians– usually addresses the anomaly in one of two main ways: by physically controlling it through public laws and “shunning” rituals or by labeling the individual’s behavior as dangerous. Attributing danger to the behavior is one way of forcing the individual to conform to the moral code (Douglas 1966: 48-49).

Douglas applies Erving Goffman’s concept of social consciousness, likened to the theatrical stage, to explain individual behavior in response to power structures within society. She notes that people curb their actions to correspond with the symmetries and hierarchies established within their society and that they strive towards impressing their views and values on other actors in the same “social scene” (Douglas 1966:124). Everything the individual does is significant and symbolic, especially regarding the following of purity and cleanliness norms.

Furthermore, Douglas goes on to differentiate between the total structure of society and sub-grouped social structures in which individual actors are aware of their level of belonging to the sub-group (Douglas 1966:125). Individuals have to choose between possible patterns of behavior when they perceive a disjuncture between the larger societal norm and their sub-group norm, and they do this by assessing their own position in relation to others. Douglas converges with Durkheim in terms of where she places religious beliefs in the context of larger societal structure. According to Douglas, religious beliefs express society's awareness of itself – its awareness that in order to continue to thrive it must hold punitive control over those who fall outside of the shared belief system (Douglas 1966:128-130). In other words, religion defines the boundaries of acceptable and unacceptable behaviors in order to reaffirm what people of a particular society hold to be true to their self-identity.

It is important to note that although boundaries for behavior are established, they are rarely followed with perfect consistency, and moreover, the boundaries are amorphous and can take on new meanings in different spiritual contexts. Sometimes, an action or object which is usually seen as impure or dirty can actually take on the role of representing the pure and clean. Whenever a strict pattern of purity is imposed on our lives, it is either highly uncomfortable or it leads into contradiction if too closely followed (Douglas 1966: 200-201). This is because individuals may start to feel too much pressure in following patterns set out by the larger social structure – extended to mean the power structure – and these individuals often become disengaged from the goals of the larger society and lose a sense of belonging. If enough individuals feel this way, society starts to suffer from disorder. In order to account for this

surface paradox, some societies revert from dirt-rejection to dirt- affirmation, in which they give functional meaning to that which is out of place.

In a given culture, some kinds of behavior are recognized as wrong by all the principles held to be true in society. There are, however, different kinds of combinations of abominations, impurities, and unclean acts. Most behaviors receive varying degrees of condemnation and avoidance, but occasionally, one of the most abominable acts is singled out and put into a very special kind of ritual frame that marks it off from other experience. In this frame, the abominable or impure act does not lose its original connection to dirt-rejection, but it does take on a new symbolic meaning. One striking example is that of the male initiation ceremony of the Yoruba people of West Africa. In taking the religious rite to become a man, young males have to ingest the semen of their male elders. Although semen, an excretory bodily fluid, is usually considered impure or unclean, it transcends its usual symbolic meaning in this circumstance and takes on a new association with the holy and sacred (Douglas 1966: 230-232). In the arena of hygiene behavior, a sub-group may consciously choose to avoid following the set norms of the larger group because of a deeper underlying religious belief.

Douglas uses William James' terms of ritual to describe this phenomenon:

Some evils, indeed, are ministerial to higher forms of good, but it may be that there are forms of evil so extreme as to enter into no good system whatsoever. . . but. . .since the evil facts are as genuine parts of nature as the good ones, the philosophic presumption should be that they have some rational significance. . . The completest religions would therefore seem to be those in which the pessimistic elements are best developed. . . (cited from James 1952:161).

Douglas maintains the position that dirt is not only a symbol of that which remains out of place in social order but that it also gives meaning to social order because dirt can remain undifferentiated. Although created by the differentiating activity of the mind, dirt is a by-product of the creation of order and is used as a tool to threaten distinctions of “clean” and “pure,” keeping society in check. It also returns to a state of formlessness and a quasi-pure character (Douglas 1966:197-199). To explain this further, take the example of a large heap of garbage in which individual particles of hair, feces, dust, and wrappings are each seen as dirty but, taken together, simply represent one large pile. The pile as a whole is viewed as less out of place than its individual parts. In this sense, the meaning given to dirty transcends individual objects that are out of place and comes to represent the whole of what society views as out of place.

Douglas associates the creative role that dirt can take on by comparing it to water’s symbolic quality of renewal expressed by Eliade in *Patterns in Comparative Religion* taken from *Traité d’Histoire des Religions*:

In water everything is „dissolved“, every „form“ is broken up, everything that has happened ceases to exist; nothing that was remains after immersion in water, not an outline, not a „sign“, not an event. Breaking up all forms, doing away with the past, water possesses this power of purifying, of regenerating, of giving new birth. . . Water purifies and regenerates because it nullifies the past, and restores – even if only for a moment – the integrity of the dawn of things. (cited from Eliade 1958:194).

Eliade highlights the role water plays in erasing lines and forms by breaking up the particles which it dissolves. Similarly, when taken together as in the garbage pile, the individual lines of what is dirty are dissolved to represent the whole. Not only can dirt serve a quasi-pure

purpose in the abstract categorization of items, but it can also change behavioral norms in society. Behavior that usually results in pollution is sometimes intentional in order to show reverence to the larger social group identity. For example, a common expression of this type of respect-pollution is seen in the use of cow-dung as a cleaning agent across many South Asian cultures, such as that of the Havik peoples in the Malnad part of Mysore (Douglas 1966: 14). A cow is worshiped daily by Havik women and cows are sometimes said to be gods. In this particular culture, simple types of pollution are said to be removed by water, with greater degrees of pollution removed by cow-dung and water. Even though cow dung is taken to be intrinsically impure in most contexts within this society, it is still considered to be pure relative to any human action, even the Brahmin priest of high caste status (Douglas 1966:11). Matter is dirt when it is out of place, but some things have very few places to be appropriate while others, such as cow dung in this society, have a broad range in which they can be tolerated.

Douglas's main conclusion is that beliefs that attribute spiritual power to everyday symbols and social groups are never fully detached from the dominant patterns of what the larger social structure views as important, sacred, and pure. Concepts of pollution and impurity are inherent aspects of the social structure and tied to the power dynamics of that structure. Pollution, furthermore, is a type of danger which is unlikely to occur except where the lines of structure are clearly defined in the first place (Douglas 1966:138). Without structural boundaries, it follows that there are no lines to cross or rules to break and society as we know it loses form.

Opposing Views of Douglas's Theory

Modern scientific historians such as David Barnes have puzzled over Douglas's categorization of dirt because they do not see it as arising from culture but, rather, before culture. What remains inexplicable to them is that something as visceral as disgust could be produced by history and culture (Barnes 2006). For, if the dirty is what disgusts us, they claim that Douglas got it backwards and that dirt arose before culture. Although Douglas employs biological metaphors in much of her writing on dirt-rejection theory, she does not look at biological motivations for dirt avoidance. In trying to understand Barnes's paradox, Val Curtis, Director of the Hygiene Centre at the London School of Hygiene and Tropical Medicine, critiques Douglas's system of dirt-classification by suggesting a more fundamental relationship between dirt and disgust, the underlying notion that people are programmed to avoid infectious disease because of their sense perceptions tied to disgust (Curtis and Biran 2001; Curtis 2007). Curtis explains that the concept of disgust has a long evolutionary history, and that the earliest mammals, frogs, and reptiles were well-equipped with behavioral tendencies to avoid objects and events that were associated with high risk of disease in order to gain an adaptive advantage (Curtis 2001). Hence, any genes that favored hygienic behavior tended to outperform those that did not. She concludes that Barnes's paradox is not a paradox at all and that dirt and disgust are the consequence of a biological reaction and a cultural construction, simultaneously – two related facets of the natural history of hygiene (Curtis 2007).

If producing hygienic behavior is a natural function of the human psyche, selected for by evolution to keep us safe from disease, then it follows that prehistoric man would have behaved hygienically. He would have groomed himself to remove parasites and kept his living space free

of wastes, taking caution to defecate away from his shelter and to avoid close contact with bodily fluids of others, except when there were overriding reasons to do so, such as when mating or caring for a small child. Moreover, we can go on to assume that he would have taken caution to avoid those around him who displayed signs of sickness unless they were related, avoided corpses, and perhaps even avoided foreigners as they could have carried novel pathogens (Curtis 2007; Kosso 2009).

As much as we want to assume these behaviors, we are limited in the historical evidence available to verify the hygienic behaviors of our earliest ancestors. Nonetheless, some records do exist, supporting the long history of hygiene through human evolution. The earliest records depicting such behavior come from the middle Paleolithic era. It is speculated that Neanderthals used seashells as tweezers to pluck hairs and early cave paintings show beardless men, suggesting that grooming began early, perhaps to remove facial parasites. Some of the earliest artifacts of water sanitation are the drainage and toilet structures found during excavations of the earliest city states of the Indus basin during 3300 BC (Kosso 2009). Furthermore, cleansing aids have a long history. Early cavewomen may have discovered that they could remove stubborn stains with the washed out residue of animal fats and ash from roasting meat. The early Greeks and Romans used oil and a scraper tool known as a *strigil* to clean the skin, and the first recorded of soap, close to our present-day form, is from Babylonian times (Kosso 2009). There is also evidence to suggest that early humans took pains to avoid diseased others. An ancient Mesopotamian text shows how an exorcist explained the sickness of a patient: “He has come into contact with a woman of unclean hands.” Another letter, from seventeenth century B.C. Babylon, advises individuals not to share a chair, a bed, or a cup with a lady suffering from a

disease (Curtis 2007). Although ancient artifacts point to the notion of disgust in early human history, it is difficult to ascertain how early humans related disgust to purity. Curtis's argument that the disgust reaction may have more to do with underlying biology than with external influence is important but disregards the important role that culture and socialization play in shaping our beliefs. It is important to note that the context in which we perceive disgust is heavily influenced by our surrounding culture. Nonetheless, we are still left with the puzzling surface questions that Mary Douglas raised: Why is that hair is considered clean until it is on the floor, or that fruit is considered good enough to eat until it turns brown or is spilled out of a bowl? These questions are not fully explained by underlying biological motivations but have more to do with dirt-rejection based on matter being out of place.

Robert K. Merton and Social Strain Theory

Relating back to Douglas's notion of amorphous purity boundaries, it is clear that just as individuals reject "matter out of place," they also reject behavioral norms which impose strict restrictions and create personal burdens. Individuals who feel too much pressure in following patterns set out by the larger social structure often become disengaged from the goals of the larger society and lose a sense of belonging to a community, a phenomenon Durkheim labeled as *anomie*. Many of these individuals feel constrained by society's goals and standards for attaining these goals, so they reject them altogether, sometimes replacing them with new goals and standards. However, the rest of society views their behavior as detrimental to social cohesion, and therefore, may label them as social deviants, or those who break from societal norms. This is often the case in societies that promote purity and cleanliness norms through religious institutions, which may place too much pressure on individuals and cause them to lose

sight of the meanings attached to higher goals. The American sociologist Robert K. Merton studied these phenomena of social strain and social deviance and developed theoretical tools to help explain their sociological relevance.

Robert K. Merton's theory on social strain stems from his 1938 analysis of the relationship between the larger social structure - defined as the patterned relationships among persons and groups organized through statuses and roles - and culture, defined as an "organized set of normative values governing behavior which is common to members of a designated society or group" (Merton 1957: 123). In this view, culture is quite similar to modern-day conceptions of organized religion. Strain theory is based on differential emphasis that societies place on cultural goals and institutional means. For example, some societies emphasize the attainment of cultural goals much more strongly than conformity to the norms prescribing legitimate means. In such societies, efficiency determines the choice of means, and when the limiting barrier is reached, "any and all procedures which promise attainment of the all-important goal would be permitted" (Merton 1957:133). The limiting barrier is rarely reached, however, because it would mean that society has become dysfunctional and all means cease to exist. Society would then become characterized by a "war of all against all," which is actually more akin to the antithesis of society.

Influenced by Émile Durkheim, Merton proposes that anomie, or a state of normlessness, occurs when there is "an acute disjunction between the cultural norms and goals and the socially structured capacities of members of the group to act in accord with them" (Merton 1968: 110-112). He goes further to link anomie with deviance, arguing that the discontinuity between

culture and structure lead to deviance within society. In one specific example, Merton applies this concept to the notion of the American dream in modern-day United States. America is often viewed as both a symbol of capitalism, with a social structure that places emphasis on the goal of monetary success but only within the limits of appropriate means. Nonetheless, not much emphasis is placed on the legitimate means available to the larger public to access monetary success. Merton believes that all Americans invest in the logic of the American Dream, either by following its suggested goals and means or by avoiding them, but not everyone does this the same way because not everyone has the same opportunities and advantages available to them due to limits placed by social status, class, race, education, among other social factors (Merton 1968: 123-127).

Merton uses Strain Theory to propose that social pressures to engage in deviant behavior are generated by the lack of coordination between cultural goals and the institutional means society has mandated to meet them (Merton 1968: 145). The social structure distributes access to the legitimate means for attaining valued goals, but because this distribution is unequal, it results in strain-induced deviance. Excessive emphasis may be placed on goals relative to legitimate means resulting in a kind of “whatever works or fits” demoralized goal attainment, or the goals may not match the means limited to a few in the larger social structure (Messner 1988). This would result in pressures for some to adopt new means.

Strain Theory can be further explained using the deviance typology classification system which Merton developed to categorize the deviance type based on individual acceptance or rejection of both the prescribed institutional means, as well as the cultural goals (Merton 1968:

145-156). Conformity is the process by which one avoids all types of deviance; conformists attain the societal goals through socially acceptable means. In contrast, innovation is the process by which one who may not have access to legitimate means still sets out to seek the prescribed societal goals. In this typology, innovators attain the cultural goals of society in unacceptable ways based on normative standards. They often find and create their own way to go about obtaining what they want, even if the ways in which they do so are usually considered deviant. Ritualism is the process by which one accepts the means to an end but does not believe in the cultural goals linked to the means. Ritualists continue to subscribe to the means but have rejected the structural goal. Because Ritualists can hide their rejection of the goal, and are even sometimes unaware that they have lost sight of the goal, the rest of society does not view them as deviant. Retreatism refers to the process of rejecting both the cultural goals and the institutional means. Retreaters want to find a way to escape from everything and, therefore reject everything and are seen as deviant. Oftentimes, Retreaters will progress into rebels. Rebellion is a combination of rejection of the societal goals and means but for a substitution with other goals and means.

According to Merton's deviance typology, innovation and ritualism are the pure cases of anomie because in both of these cases there is a discontinuity between goals and means (Merton 1957: 128). In the case of ritualistic societies, the larger group may have lost sight of the original goal so that the means have become ends in and of themselves. Although these societies are highly stable and resistant to change, they may not be able to adapt to external pressures and lose viability in the long-term. Merton points to societies that can maintain a balance without becoming characterized by anomie (Merton 1957:134), "...societies which maintain a rough

balance between emphasis on cultural goals and institutional practices and these constitute the integrated and relatively stable, though changing societies.” In developing this typology to understand how societies are constructed, Merton is concerned primarily with societies that emphasize cultural goals over institutional means (Messner 1988).

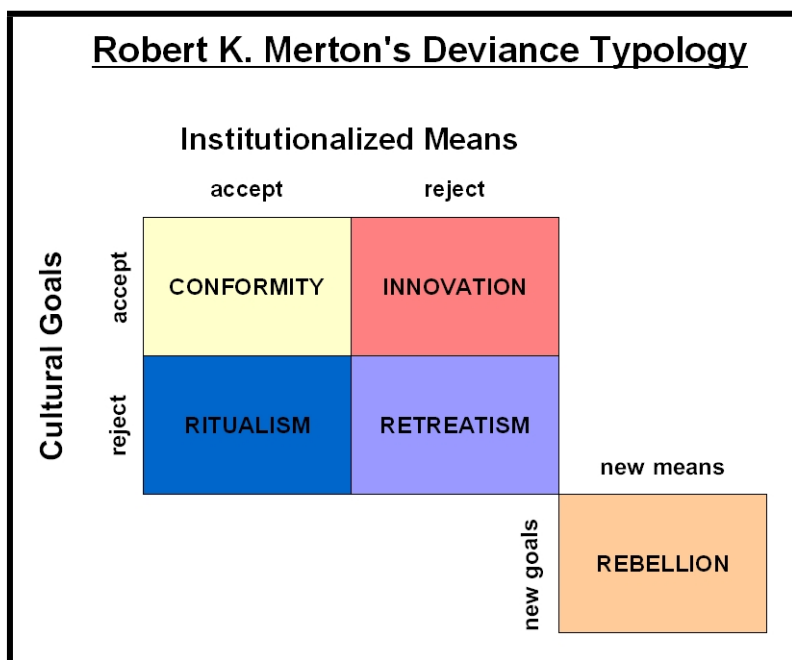


Figure 1. Merton's Social Deviance Typology

Merton also put forth a functional system of analysis to define social phenomena in terms of both manifest and latent functions (Merton 1968: 108). Manifest functions are the consequences that people observe or expect; these are explicitly stated and understood by the participants in the relevant action. For example, the manifest function of a rain dance is to produce rain, the intended outcome desired by the individuals participating in the ritual. On the other hand, latent functions are those that are neither recognized nor intended. A latent function of a behavior is not explicitly stated, recognized, or intended by the individuals involved in the activity, so these individuals are usually labeled as observers of the activity. In the same example of the rain ceremony, the latent function of the ritual is to reinforce the group identity

by providing a regular opportunity for the members of the group to meet and engage in a common activity together. The sociologist Peter L. Berger describes a series of examples illustrating the differences between manifest and latent functions as the following:

...the “manifest” function of antigambling legislation may be to suppress gambling, but its “latent” function to create an illegal empire for the gambling syndicates. A Christian missions in parts of Africa “manifestly” tried to convert Africans to Christianity, but “latently” helped to destroy the indigenous tribal cultures, which provided an important impetus towards rapid social transformation. The control of the Communist Party over all sectors of social life in Russia “manifestly” was to assure the continued dominance of the revolutionary ethos, but “latently” created a new class of bourgeois bureaucrats in its aspirations. The “manifest” function of many voluntary associations in America is sociability and public service, but the “latent” function is to attach higher degrees of status to those permitted to belong to such associations (cited from Berger and Luckmann 1966: 35-36).

Merton saw great value in emphasizing that latent functions increase the understanding of society. The sociologist is able to go beyond the “manifest” reasons individuals give for their actions or for the existence of particular customs and rules, and able to uncover the underlying social forces at work to reveal the emergence of these practices and value systems (Merton 1957: 42-45). Furthermore, the functional analysis model is not limited to the study of *functional* meanings but also creates a context for understanding social dysfunctions, which can also be manifest or latent (Merton 1957: 54-57). While functions are intended or recognized and presumed to have a positive effect on the larger society, dysfunctions are unintended or unrecognized and seen to have a negative effect on larger society. Manifest dysfunctions are anticipated disruptions of social life, but latent dysfunctions are unanticipated disruptions of social life and stability. Expressing Mertonian strain theory in the language of Mertonian

functionalism (Merton 1957: 73-76), the following interrelated propositions emerge (Messner 1988):

- (i) A universalistic achievement ideology serves the *manifest function* of enhancing mobility; and
- (ii) Mobility is a *functional prerequisite* for the attainment of particular universalistic success goals; and when
- (iii) *Functional alternatives* to the success goals are weak or nonexistent
Then,
- (iii) In a *structural context* where rewards are unequally distributed, mobility has the *latent dysfunction* of driving up rates of various forms of social deviance.

Strain Theory is traditionally applied to the discipline of criminology to delineate what factors lead a person to commit a crime: whether or not the individual suffered from anomie and, therefore, felt a lack of connection with the larger cultural goals or did not have access to legitimate means to accomplish the goals (Messner 1988). However, it is possible to formulate a theoretical application of Strain Theory in the study of adherence to cleanliness and purity norms in Ghana because in the societies under consideration, many of the norms are part of a strict public sanitation code or religious code. Legal penalties and fines are attached to many of the “forbidden” behaviors that do not conform to traditional standards, such as dumping of trash and human waste out in the open, open defecation over a drain site, and letting personal waste water, rubbish, or animal waste get into the main streets. Technically speaking, individuals are viewed by the law as criminals for being unhygienic, but even more importantly, individuals are judged by their social group peers for not abiding by the rules of cleanliness and purity presented in their

respective sacred texts. There exists an especially orthodox behavior of cultural shunning towards moral deviants within highly religious communities of Muslim West Africa (Benneh 1992).

Gender Role Divisions

Differences in sex are biologically obvious, but the significance that societies attach to them are cultural creations; these creations are far more predominant in traditional societies, like that of Africa (Berger and Luckmann, 1967). An aspect of culturally imposed gender roles that has attracted considerable attention, on the part of feminists, is women's continued confinement to the domestic domain of life. To a large degree, women in many West African countries are still caught up in the "private" world of family and domesticity rather than the "public" domain of paid employment and affairs of the state. This is especially worth noting when considering that the "domestic" and "private" spheres of life have been progressively devalued in both the cultural and economic sense (Lloyd and Gage-Brandon 1993). In Ghana, much of this devaluation can be traced back to the rapid growth of towns, which has lent itself to increased population density, overcrowding in residential areas, and increased modernization in the workplace. These changes have been accompanied by newly emerging social problems such as slums, overcrowding, juvenile delinquency, domestic violence, and increased tension of gender roles within the household unit (Benneh 1992).

Due to the increased cost of living in urban Ghana, many women have been forced to work outside of the home while still maintaining household affairs for their family (Benneh 1992). Oftentimes, the jobs available for women do not match the pay or occupational status of

similar positions available for men. For example, most women in greater peri-urban and urban areas of Accra work as seamstresses, washerwomen, market vendors, school teachers, and beauticians. In contrast, most men in greater Accra work as market vendors, small business owners, mechanics, school teachers, church officials, and office employees (Benneh 1992). Although men and women work in similar job types, women receive thirty to 45% less in terms of salary and are rarely given the opportunity to be promoted to higher positions within a job (Lloyd and Gage-Brandon 1993). Some women do own their own market stands and seamstress shops, but even these women find it difficult to balance a full workday with the extra demands of family care and household maintenance (Lloyd and Gage-Brandon 1993). Muslim Hausa women feel these inequalities most sharply because of the strict enforcement of gender norms by Muslim men in their communities (Goody 1973).

Because of recent religious reforms in Muslim communities of Accra, though, men have started gaining respect for women in the public sector. Even though polygyny, or the practice of a man taking more than one wife, still continues in Muslim West African societies, women are starting to attain more power and influence in the home structure, monopolizing the market trade, and serving in government secretarial posts (Goody 1973). Many men in *zonga* communities, close-knit Muslim Hausa neighborhoods, are still of the mindset that women belong in the household and should not be in the public eye. Many Hausa women have overcome this cultural barrier by actively seeking high-status positions in mosques. Now women are taking scriptural lessons in the *Qur'an* through private home instruction and serving as religious teachers and counselors at local community centers (Coles and Mack 1991). Especially because compound houses are becoming the norm due to the lack of residential area, families are now living

together with other families in the community. This has allowed women to band together in one household to share tasks and gain free time to learn to read and write in Arabic and study the *Qur'an's* religious teachings. Moreover, there are more Islamiyya schools in the greater Accra area, where women come together to teach other women independently (Callaway and Creevey 1994). Parents are also starting to support girls' education past primary school and allowing them to participate in voluntary Muslim Women's Associations seen in New Town, Nima, and Sabon Zongo (Coles and Mack 1991). Although Muslim women are still bound by more traditional rules than their Christian counterparts, they are starting to see more gender equality in the religious and economic sectors.

Research Questions

My overarching research interest was to understand how religion and gender intersect to inform the water sanitation and hygiene behavior beliefs and practices of communities in New Town and James Town, Accra, Ghana. From this I developed the following interrelated research questions as they relate specifically to religion and gender:

Research Question 1: Does religion serve as a functional tool in promoting hygiene behavior adoption and water sanitation practices among Muslims and Christians in peri-urban and urban Accra, Ghana, and if so, how?

Hypothesis 1: Synthesizing from Durkheim's and Douglas's views on the role of religion and Merton's theory of functional analysis, I expect that religion will serve the latent, underlying function of promoting stringent guidelines for hygiene behaviors and water sanitation practices among Muslims and Christians whose primary identity derives from their participation within the larger religious group. In other words, I expect that more

religious Muslims and Christians will be more likely to engage in socially acceptable hygiene behavioral norms, such as hand washing with soap and proper waste disposal practices, by comparison with less religious Muslims and Christians. I also expect that highly religious individuals will be more likely to avoid exposure to dirty water and open defecation and urination. Related to this hypothesis, I expect that Muslims and Christians who do not follow religiously prescribed norms of cleanliness will be seen as social deviants by the larger religious group and shunned from these circles within their respective communities.

Research Question 2: How do gendered notions of purity and cleanliness influence values and expectations regarding water sanitation within urban Accra?

Hypothesis 2: Based on their lower social status and accompanying household sanitation responsibilities, I predict that women will be more likely than men to be conscious of the role dirt plays in marking boundaries of “unclean” and “impure” and more likely to feel pressured to adopt and model behaviors consistent with dirt-rejection theory, which will in turn be reflected by their taking on a more active and visible role in water sanitation and hygiene behavior promotion in the larger community. Due to the existing gender hierarchy that holds women accountable for household cleaning and cooking responsibilities, which are often viewed as “women’s work,” it follows that women would be more likely to feel pressured to adopt dirt-rejection norms as they have to deal with dirt directly on a daily basis.

In attempting to address these questions, this paper employed a theoretical framework derived from the works of Émile Durkheim, Mary Douglas, Robert K. Merton, and Val Curtis. I

analyzed the motivational and structural factors which lead individuals to follow or deviate from the cleanliness norms prescribed by their religious and/or gender identity constructions. Moreover, I was interested in understanding how concepts surrounding purity and dirtiness within these communities shape one's self-concept of hygiene and promote cleanliness norm reinforcement within the larger social group. Lastly, I derived from the work of Robert Merton to gain insights into how strongly religion can serve the underlying and latent functions of promoting water sanitation and hygiene behavior adoption, depending on the gender-social status dynamics within a particular community.

Methodology

Research Design

The objective of this exploratory research was to understand whether or not religion and gender play a large role in shaping and regulating community adoption of water sanitation and hygiene norms, and if so, how. I hoped to gain rich, holistic data to both uncover underlying mechanisms of how gender and religion construct water sanitation norms and to extend the existing literature base on this topic. In working with a team of four other students from the disciplines of public health, anthropology, and law, I was able to design my research interests to fit within our larger research goal: to utilize a mixed-methods approach to assess the multitude of factors that contribute to water sanitation engagement, hygiene beliefs, and wastewater exposure in peri-urban and urban neighborhoods within Accra, Ghana. I specifically took on the task of exploring how religion and gender contribute to hygiene beliefs and water sanitation practices. In-depth interviews and focus group discussions were the best qualitative tools for achieving these objectives and answering my research questions. A quantitative approach was

inappropriate for this study as I was not interested in generalizing patterns to an entire population or formulating precise predictions (Babbie 2007; Miles and Huberman 2007). In order to ascertain the level of gender or religious influence on hygiene and sanitation beliefs and practices, a relatively sensitive topic, I needed respondents to fully convey their thoughts and interpretations in their own words without the constraints of existing categories such as those of statistical surveys.

Other members of the GHI research team performed a range of methods to answer their specific research questions tied to the larger, overarching research interest of the entire team. For example, one public health student used water testing techniques to identify microbial contamination at recreational sites, public drains, and wells. Another public health student employed direct observation as a way to quantify hygiene behaviors and inappropriate or unsafe water sanitation practices taking place at public beach sites. The law student on our team conducted interviews with local policymakers and government officials to understand the broader legal and economic aspects of water sanitation standards, water supply mechanisms, and public sanctions. Each of us tested our techniques to ensure that they were suitable to obtain accurate and reliable results for the questions we were individually asking. Since Maryam, the other undergraduate student, and I were trying to understand individuals", as well as social groups", beliefs and practices, it made sense for us to conduct interviews with individuals and focus group discussions with specifically classified social groups as a way to access knowledge on this topic. Since we were interested in uncovering how religion and gender shaped these hygiene beliefs and practices, it was important to divide the focus groups based on these social characteristics.

As mentioned in the National Science *Foundation's General Guidelines for Developing Qualitative Research Products* (2004), the small *N* of qualitative research allows for the study of cases in an exhaustive manner, promoting theory-driven objectives. Qualitative interviews allow us to understand an individual's interpretations, and focus group discussions allow us to understand the effects of group interactions and power dynamics or hierarchies that exist within a particular social group. Moreover, in this study, the focus group discussion served as a springboard for understanding which topics were most relevant to a particular sub-group and for recruiting the most vocal candidates for in-depth interviews. The focus group discussions also served as a check on accuracy to ascertain whether individuals were being completely honest or open in interviews, when they were not being held accountable to a larger group of which they were an active member. These two methods combined provide depth and clarity, in addition to the advantages of researcher control of questioning, the acquisition of data in the respondent's contextual situation, and flexibility (Miles and Huberman 1994). These two methods were chosen over other qualitative methods because mere observations would not uncover the thoughts and perceptions of the participants and archival documents lack the necessary new data.

The limitations of qualitative data must also be addressed, however. Some argue that qualitative data are ambiguous in nature and that a purely verbal account might be difficult to interpret (Babbie 2007). Furthermore, respondents vary in their ability to articulate and provide meaningful insights and interviewers have the potential to provoke biased responses. However, this is why focus groups were done as well to ascertain that individuals' comments matched what they stated among a group of others whom they may or may not have known in the larger

community. Measures can be taken to limit researcher/respondent bias, and even poorly expressed thoughts can prove to be useful in discerning themes. The effectiveness of interviews and focus group discussions in obtaining the necessary data outweighed the possible disadvantages for my particular research.

Sample

For my study population, I chose to take a random sample of heads of household, adults aged 18 to 65, in both New Town and James Town. I was interested in reaching a wide-ranging cross-section of the population, in a methodical fashion. Heads of household were typically viewed as the ones responsible for a majority of household water collection and sanitation activities. Most heads of household who participated in this study were actively engaged in religious community life (76% based on Recruitment Survey Tool preliminary data analysis). Based on informal conversations with townspeople in James Town and New Town, and the insider knowledge of my two main research assistants, Larry Zahir and Abdullai Kufi, I knew that heads of household would be most knowledgeable about water sanitation and hygiene practices within their community. I chose to include Muslims and Christians in the sample because these were the main religions in the two towns; I did not meet anyone who practiced African Traditional religions. Furthermore, based on the literature cited above, I knew water played an important role in the religious rituals of both the Muslim and Christian faiths. Ideally, I wanted to obtain an equal number of men and women for each religious group in both towns for a total of eight focus groups outlined in Table 1 shown below.

Table 1. In-depth Interview Sample

<i>New Town</i>	<i>James Town</i>
<i>6 Muslim Male</i>	<i>3 Muslim Male</i>
<i>6 Muslim Female</i>	<i>3 Muslim Female</i>
<i>3 Christian Male</i>	<i>6 Christian Male</i>
<i>3 Christian Female</i>	<i>6 Christian Male</i>

We did two pilot focus group discussions in which questions from our initially designed Focus Group Discussion Guide were tested for clarity, meaning, and feasibility. Excluding these pilots, there were a total of 12 focus group discussions, each with 10 participants, except for three (two of which had eight participants and one that had six participants). The number of 10 participants was identified as being in the correct range for each individual to have ample opportunity to openly discuss his or her views for a majority of the questions within a 1-hour to 1 ½-hour limit of time (Hennink 2007).

For the in-depth interviews, we chose participants directly from the focus group discussions, so that two to three key speakers were chosen from each religion-gender classified focus group. These participants were chosen because they were very expressive in voicing their opinions about themselves and/or the social groups they were representing. The level of subjects' expressiveness and willingness to participate in the discussion was judged by the facilitator of the focus group and confirmed by the translator who was also present to transcribe the discussion in case the video camera failed (video camera never failed, though). If an individual declined the offer to participate in a separate in-person interview, another individual was called back based on the judgment of both the facilitator and the translator. In a few cases,

the interviewees were taken from pilot focus group discussions that occurred before the final Focus Group Discussion Guide had been developed. There was not a noticeable difference in how these respondents understood and related interview questions and those respondents taken from future focus groups did. In total, I interviewed 36 individuals according to the following schematic outlined in Table 2 shown below.

Table 2. Focus Group Discussion Sample

<i>New Town</i>	<i>James Town</i>
<i>2 Muslim Male</i>	<i>1 Muslim Male</i>
<i>2 Muslim Female</i>	<i>1 Muslim Male</i>
<i>1 Christian Male</i>	<i>2 Christian Males</i>
<i>1 Christian Female</i>	<i>2 Christian Females</i>

All participants of the focus group discussions and interviews were given a follow-up questionnaire to complete (see Appendix 3) which allowed us to assess the overall experience and improve the logistics of the experience as we went along.

Data Collection

Maryman Khalid and I designed and conducted the in-depth interviews and focus group discussions. Because neither Maryam nor I spoke the native Ghanaian languages of Ga, Hausa, or Twi, we looked for research assistants who could speak these languages when we arrived to Accra. After establishing a rapport with some of the local community leaders, ministers, imams, and public officials, we placed ads for facilitators and interviewers who were fluent in English and either Ga, Hausa, Twi, or a combination of these languages. We were able to find one individual, Abdullai Kufi, through the help of our in-country mentor, Dr. Bernard Keraita, who

works as the Regional Manager of International Water Management Institute in Kumasi, Ghana, about 3 hours away from Accra central by bus. Abdullai, a graduate student in Kumasi, was able to connect our team with Larry Zahir, an undergraduate student who worked with him. Other individuals who served as translators and/or focus group discussion facilitators were Rahel Abad and Murjana Lawan, who were both interviewed themselves and voluntarily decided to become a part of the project. In addition, Alex Graham, who Maryam and I found as a key informant in James Town, helped us arrange location spaces and conduct some interviews and focus group discussions in Ga in James Town.

All of the translators and facilitators went through a training process, which lasted 2-3 hours and was based on the training materials we put together and had approved by IRB and our mentors at Emory. Training topics included “techniques to explain questions without influencing participants,” “ways to control an argument between individuals in focus groups,” and “techniques to engage less talkative individuals without social pressure.” Each translator and facilitator was paid the equivalent of \$20 per day in their local currency (the Ghana Cedi) for each day he/she worked with us. The workday varied from 5-10 hours. Maryam and I often bought them lunch and/or dinner, as well, while we were still on the work schedule. We developed close friendships with all of the members of the research team and took time to discuss concerns and suggestions at the end of each workday.

Maryam and I designed a recruitment survey tool, which included questions on basic demographic indicators, as well as some initial “yes/no” questions and scaled-response questions on hygiene behaviors and water sanitation practices (see Appendix 3). We presented an

Informed Consent Form for the survey (see Appendix 6) to each individual whom we tried to recruit for the study, and only those who were willing to be in the study and expressed complete understanding of the potential risks of the study by completing the Informed Consent form, were allowed to fill out the survey. I went with Maryam to recruit individuals for focus group discussions. Our local research assistants Abdullai Kufi and Alex Graham helped us in this recruitment process by speaking to the individuals who did not know any English. A majority of the residents in both towns knew enough English to communicate with Maryam and myself directly during the recruitment phase, though.

We went door-to-door to find willing and able participants, employing a skip pattern to only include every eighth house along the same street and to include every street in the neighborhoods we chose for the study. If an individual was not available or declined the offer to participate, we simply moved onto the next viable house. The GPS location of each house we stopped at was recorded and stored with an anonymous code, with the permission of the head of household. We did this to ensure we could trace the route of our sample collection if need be later on in the study, and to ensure that we ended up collecting our sample from a diverse range of neighborhoods within the two towns. In recruiting individuals, we explained the study design and aims as well as the voluntary and confidential nature of participation, insofar as the focus groups could be kept confidential from those outside of the group discussion. All individuals who expressed an interest in the study gave us their local mobile number and told us to call them a few days before we decided upon a focus group location and time.

After securing the locations of E. P. Bethel School and the Islamic Women's Community School in New Town and Seaview Hotel and the Chief's Palace in James Town, we were able to set up a schedule for the focus group discussions and employed a randomized phone number scheme to call individuals to participate in the discussions. The lists of phone numbers were split up by gender and religious identification, data taken from the recruitment survey the individual had completed during the initial in-person household visit. During the call-back process, sometimes those who had initially expressed interest in the study changed their mind and decided to decline upon further consideration, but generally, most individuals confirmed their willingness to participate over the phone. We discarded surveys for any individuals who decided not to participate in the study and only kept the data for those who completed a focus group discussion and/or in-depth interview.

For the focus group discussions, Maryam and I designed a Focus Group Discussion Guide to include questions on topics such as household water collection and sanitation activities, exposure to dirty water, and toilet facilities (see Appendix 2 for final version). We translated the document and then had it back-translated to ensure the original meanings of the questions were retained and clear in the languages of English, Ga, Hausa, and Twi. Two pilot discussions were conducted, one with Muslim males in New Town and another with Christian females in James Town, to test the questions for clarity and feasibility. Changes were made to the original Focus Group Discussion Guide and approved by our mentors before being used on the ground. During the actual conduction of a focus group, there was one main facilitator who was of the same gender and religious background as the individuals participating in the discussion. All of the focus groups were conducted in the native language of the group members, which was

ascertained before the start of the discussion. Since only one language was used for the majority of the discussion, we made sure that subjects chosen for a particular group could all fluently speak the language of that group.

Each focus group was video-recorded as well as audio-recorded for the purposes of record-keeping. All subjects were given an informed consent form explaining the voluntary nature of the commitment and their ability to stop the discussion at any point. Moreover, the facilitator went into greater depth outlining the purpose of the group discussion, the general rules and guidelines, confidential nature of the data collected, and the purpose of the translator, myself, and Maryam being present. All subjects were given a name label, introduced to the rest of the group, and asked if they were comfortable being video-recorded and audio-recorded, and it was explained to them that the recordings would be stored in an encrypted folder on one main research computer, transcribed in either Ghana or in the U.S., and deleted upon final transcription. There was never an instance in which someone voiced being uncomfortable with either type of recording method.

Maryam and I served complimentary cookies, crackers, juice, and water to the subjects and offered gifts of stationery, USB flashdrives, and/or sewing kits (for women) as a thank-you gift for their participation. The focus group proceeded with the facilitator asking the questions outlined in the Focus Group Discussion Guide (see Appendix 2), and with the group participants answering the questions from their perspective and engaging in open dialogue with one another after each question. Sometimes not all of the questions on the rubric were asked, as only 1 to 1 ½ hours was the allotted time for the discussion, and individuals would occasionally delve into

unanticipated topics. Generally, though, the discussion facilitator was able to bring up each question on the guide.

For the in-depth interviews, Maryam and I designed an In-depth Interview Guide to include questions on topics such as personal household duties and hygiene practices, cleansing rituals, religious involvement, perceptions of public toilets and gutters, gender and religion norms, and personal perception of exposure to disease or dirty water (commonly referred to as “gray water,” as well). With this guide, we were trying to get a closer look at what values and goals motivated individuals to engage in the water sanitation practices and hygiene behaviors they did, and we could go into much more detail on topics previously covered in the focus group discussion. Since the individual had already been exposed to related questions in the focus group, the interview was much more tailored to fit his or her topics of interest and to understand underlying beliefs and motives, rather than to cover broad-based themes and activities. The guide was translated and back-translated to ensure the original meanings of the questions were retained and clear in the languages of English, Ga, Hausa, and Twi.

Two pilot interviews were conducted, one with a Muslim female in New Town and another with a Christian male in James Town, to test the questions for clarity and feasibility. Changes were made to the original In-depth Interview Guide and approved by our mentors before being used on the ground. For all interviews, the interviewer was of the same gender and religious background as the respondent. The interview was conducted in the native language of the respondent, which was verified before it began, and the interview was audio-recorded with the respondent’s permission. There was never a case in which the respondent did not give

permission to audio-record the interview. Each respondent was given an informed consent form explaining the voluntary nature of his or her participation and his or her ability to stop the interview at any point.

The interviewer explained the line of questions that would be asked and the reasons for conducting the interview, the confidential nature of the data collected, and the reasons why Maryam and/or I was present. It was explained to the respondent that the recording would be stored in an encrypted folder on one main research computer, transcribed in either Ghana or in the U.S., and deleted upon final transcription. The interviewer proceeded by asking questions from the In-depth Interview Guide (see Appendix 1), and with the respondent answering the open-ended questions from his or her perspective, sometimes delving into topics unanticipated by the questions. All of the questions on the guide were asked in all the interviews that were conducted, but sometimes extra questions were asked if the respondent brought up an unrelated topic. The interviewer generally went with the flow of the respondent's dialogue. Interviews lasted between 35 minutes and an hour, averaging 50 minutes. Each audio file and transcription was labeled with a code name (all code names were Ghanaian names), and all identifying names, places, and events were similarly given pseudonyms. These measures were taken in order to protect the privacy of the participants and to keep their comments confidential.

Data Analysis

I digitally transcribed each interview verbatim and uploaded the data files into the qualitative software program MAXqda. I used a series of deductive and inductive codes to analyze the data, as outlined by Miles and Huberman (1994). First, I developed deductive,

descriptive codes that were based on general topics, as well as specific questions, from my In-depth Interview Guide and Focus Group Discussion Guide (e.g., opinion about open versus closed street gutters, source of information for hygiene messages, household chores and water sanitation practices, etc.). I also developed inductive, descriptive codes to capture themes that emerged from the interviews and focus group discussions (e.g., deviance in hygiene behavior, religious connection to purity, etc.). Lastly, I made a list of interpretive codes (e.g., subjects' feelings about male versus female cleanliness) that linked subjects' beliefs and perceptions to the theoretical categories outlined by my research questions. I uploaded this final code list (see Appendix 4) into MAXqda and coded each transcript. With the software, I was able to contextualize significant segments of the text and analyze the trends that emerged in the data.

In conducting the focus group discussions and interviews, some individuals, usually Muslim men, quoted or referred to scriptural texts from the *Qur'an* or the *Bible* in response to questions. While translating and transcribing data in the U.S. much later in the fall, I decided that it would be best to put the quotations in context of the original scripture. To do this, I spoke to Muslim and Christian students at Emory who matched quotations to particular scriptures they had read or studied. From there, I analyzed the quotations further in a free online religious literature library called Ocean. Ocean is managed by a book-centered research engine through Bahá'í-Education.org. The program contains over 1,000 books of 10 world religions in English as well as collections in six other languages. I was able to cross-check the information given to me by students in the program and found that the quotation-to-scripture comparisons were very accurate. I have made a table outlining the quotation-to-scripture comparisons in the context of qualitative analysis (See Results, *The Special Case of Muslim Men*).

Results

The thirty-six in-depth interviews and twelve focus group discussions provided insight into how social groups within New Town and James Town, Accra, construct notions of cleanliness and purity, apply these social constructs to themselves and others - both in their religious community and outside of it -- and use their religious identity and/or gendered notion of hygiene to actively promote adherence to water sanitation protocols. The data also highlighted the types and levels of social deviance from hygiene norms that permeate each group, and insight into why such social deviance may exist on the individual level. I looked at each participant as an individual, as well as a member of a religious group and gender category. To maintain full confidentiality of participants' responses, pseudonyms that were assigned to each participant during data analysis are used throughout the Results section.

Everyone with whom I spoke placed a personal value on hygiene and water sanitation, regardless of whether or not he or she actually followed his or her group's social norms for hygiene and sanitation. Muslims, more than Christians, irrespective of gender, stated openly and directly that their religion was the reason why they adopt the cleanliness rituals they do and see water sanitation as important in the first place. Moreover, men and women, regardless of religious identification, were divided on the question of which gender should be responsible for managing waste and water responsibilities in the household and in the larger community. Results were generally consistent across interviews and focus group discussions. The most notable exception was that both Muslim and Christian women voiced much more discontent with their job as sole manager of household water sanitation in personal interviews than they did in the focus group setting with other women. Despite these highly individualized responses from

interviews and multiple sets of focus group discussions, many patterns emerged that are discussed below.

Connections between Holiness and Cleanliness

Most individuals who participated in the study openly related cleanliness to holiness by referring to religious teaching, specific religious doctrine, and community-held norms and values. Out of the 118 heads of household who participated in focus group discussions and interviews, an overwhelming majority of 102 individuals cited some link between their conceptualization of religion and cleanliness norms. For most individuals, growing up with religious instruction and/or living in a close-knit religious community helped them feel more connected to their religious identity. This was especially true for Hausa Muslims who live in *zongas*, or Hausa neighborhoods in an urban area. These Muslims in both New Town and James Town felt a strong sense of responsibility to their religious community, extending to matters of water sanitation and hygiene promotion. Because both towns from which samples were taken for this study have been cited for having many sewage and water sanitation-related problems, the individuals of these communities may already be predisposed to be very aware of the consequences of poor sanitation and personal hygiene, such as the transmission of vector-borne disease like malaria and diarrheal disease, as well as environmental degradation. Nonetheless, religion serves as a conceptual tool to place dirt in the context of larger structures within society.

Connections within the Household

For both men and women, Muslims and Christians, the household represents the center of social life. Residents of New Town and James Town are either working class or lower middle

class, although the class system does not apply very rigidly in Ghana. For most individuals, work is close to home and consists of either selling items as a street vendor or small business owner or working for a local school or church. Given that so much of people's time is spent in their home, it is not surprising that this is the location where they undertake most of their hygiene behaviors from going to the toilet, bathing and grooming, cooking with clean water, drinking and eating, and disposing of waste. Most individuals cited their home as being clean and well-maintained, some also ascribing a sacred quality to it. One Muslim woman from New Town named Adama stated:

My house is like my sanctuary. We don't own a WC flush toilet, just the basic bucket latrine, and there isn't always hand soap for washing, but I still feel like it much cleaner than the public toilets you see out there. I only go to those if I have no other choice. Everyone in the house participates in cleaning in some way or another, and all the children are taught that if they don't stay clean, they will not be allowed in the house.

For Adama and countless others, the house represents a safe space from germs because it lies within the boundaries of individual control. More than just a symbol for the sacred, the house really does allow individuals to draw boundaries between what they want to allow in and what they want to keep out. In keeping with Douglas's dirt-rejection theory, it follows that individuals like Adama feel most comfortable in their homes because this is the one space they can control for cleanliness and keep "matter which is out of place" out of their lives.

Douglas defines "dirt" as matter out of place which imposes dangers on the individual by threatening social disorder and rupture of self-identity, but what is dirt for one person is not always dirt for another. For example, Ibora, a Christian male from New Town, stated in an interview that he believes using an old piece of corn cob as an anal cleaning instrument when graphic paper (i.e., recycled paper or newspaper) is not available is completely fine and

acceptable. Because he is not able to afford the cost of T-roll, or toilet tissue, he usually resorts to using whatever he can find to clean himself after he uses the toilet. Ibora went on to say that he sometimes worries about the risk of being poisoned from the ink in the graphic paper, but this slight chance is worth taking because the risk is ambiguous. For Ibora, what is completely unacceptable, however, is the use of leaves or tree bark. He knows others who do not mind resorting to using natural items such as leaves for anal cleansing, but he would never do this because these items are soiled from the ground and represent “dirt,” or matter which does not belong, to him.

In contrast, Yusif, a Muslim male from James Town, would find everything that Ibora uses for anal cleansing as inappropriate and, perhaps even, harmful in some instances because he employs a different definition of “dirt” to fit his religious beliefs. As Yusif stated, “Nothing but water will suffice when cleaning oneself after going to toilet. It is unthinkable to use something else because Allah made it known that we [Muslims] are to remain pure only by following the rules for water cleansing.” Because Yusif associates the water cleansing method with purity, he defines everything else as dirt and maintains strict boundaries of separation to ensure he remains pure. Following norms of purity is especially important to Yusif, along with many other Muslims whose daily cleansing rituals are defined by the use of water.

Connections within the Marketplace

Most heads of household who participated in the study cited going to a local marketplace at least 1-2 times on a weekly basis to buy vegetables, grains, and fish for the family’s grocery needs. From the study sample, mostly female participants said that they were the ones

responsible for picking up the vegetables and fresh fish from the marketplace, but men and women alike said that they would cook the groceries for the rest of the family. Although on the surface, a trip to the produce or fish market does not seem like it would concern affairs of water sanitation or hygiene, for most individuals it is important to go to a market that is known for being clean in order to get the most pure and uncontaminated food. Many of the women said that the main reason they choose to go pick up vegetables such as cabbage, garden egg (eggplant), lettuce, tomatoes, and onions from a particular market is because they associated it with being clean and safe and they trust the vendors there. Rukaiya, a Muslim female in James Town, stated:

I go to the same market for fish and vegetables. I know the woman there and trust that she will give me good, ripe, clean, and safe items. One time when she was not at Medina [large vendor market near New Town], I had to resort to buying from another seller, but the mackerel was not safe and I told myself I would never go back there. It is important that I know the person I buy produce from because this is the food that is going to be fed to my family and I have to know that it is safe and pure, free of germs.

Having had a bad experience with a vendor whom she did not know, Rukaiya makes every effort to go to the one place she trusts because she associates the cleanliness of the produce with the purity of the individual seller. Although the relationship of trust that Rukaiya tries to develop with the market vendor does not have a religious foundation, strictly speaking, it does involve her making a value judgment about the character of the vendor. In a sense, because Rukaiya associates cleanliness with holiness, as she stated earlier in response to another question during the same interview, she is likely to extend the clean quality of the groceries to a holy, or pure, quality within the vendor. Many others cited similar reasons for continuing to purchase from a particular market vendor – because they trust the cleanliness and safety of the food and, therefore, presume a corresponding purity of the vendor.

For Muslim women, the connection between holiness and cleanliness within the setting of the marketplace is less diluted because they do cite purchasing from other Muslim vendors whom they trust not only because of the quality of their food items but also because they follow similar purity norms. Since the water cleansing ritual is such an integral part of Hausa Muslims' daily lifestyle and habit, it follows that they would want to buy food from someone who is just as clean as they perceive themselves to be. Asana from James Town said,

I buy my fare of groceries including all the vegetables for my stews and fish I need for that week from a woman named Khadija because I know that she sells good quality products. She keeps her place clean and washes the vegetables and fish when she receives them from the northern farms. Khadija has never failed me. I also know her food won't be contaminated because she is a holy woman who goes to mosque and remains pure. I would only buy pure food for my family, but this is usually not a worry for me.

Asana purposively decides to go to Khadija to meet her grocery needs because she knows that Khadija sells clean, as well as *pure*, food supplies. The distinction between "clean" and "pure" is important here since in reality, Asana does not actually know how pure the vegetables or fish can be. She only knows that Khadija does wash the produce and fish and keeps her market area visibly clean. She ascribes the quality of purity to the food because of her clean perceptions of Khadija. Since Khadija belongs to the same religious group to which Asana does, it is easy for Asana to accept Khadija and all extensions of her, including the food she sells, within her own boundaries of purity norms. Similarly, many other women cited maintaining a relationship of trust with a particular market vendor because they could see visible signs that their market vendor was clean. Twelve out of 18 women who were interviewed said that they could tell their market vendor was clean because they could see the fish and/or vegetables being washed and also saw no sign of dirt or flies around the market vendor's selling area. Furthermore, nine of

the twelve called their market vendor “pure” directly at some point in the interview discussion. Five of these nine were Muslim women. These women are engaging in dirt-rejection theory to some degree by rejecting the vendors whom they see as dirty and unfit to sell pure products and accepting those whom they perceive to be clean and like themselves.

Connections around Street Gutters

Most people living in greater Accra are familiar with the site of polluted gutters “choked,” or blocked, with debris, human feces, sludge, mosquitoes and flies, among many other things considered to be dirty and out of place. The street gutters in urban and peri-urban areas of Accra represent a danger to the local people not only because of the “gray water” and malaria-causing mosquitoes they harbor, but also because of their uncapped state on the roadside. Since these gutters are open, people can easily defecate and urinate into them and everyone can throw their trash into them. However, many individuals who participated in this study cited being disgusted by the dirty state of the gutters and listed the gutters as the main places to avoid in order to prevent personal exposure to gray, or contaminated, water. For Muslims and Christians, and women and men alike, the gutters not only serve as a material hazard but also represent a moral hazard. Parents who participated in focus groups stated that they did not want their children going near the gutters because of the activities they have witnessed taking place near these zones: open defecation and urination, illegal abortions, and malaria mosquito breeding.

Employing Merton’s system of functional analysis, the gutters have come to serve both manifest and latent functions and dysfunctions. In one sense, the gutters serve the immediate

purpose of rainwater collection and drainage, which is a manifest function since people constructed the gutters to fulfill this desirable purpose. If the gutters lining the curbs of the road were not there, the rainwater would not have a way to flow away from the city out to the seaside of Accra, where the run-off goes directly into the ocean at Korle Lagoon near James Town. Although sewage treatment plants are located there, much of the refuse and contaminated water sits in untreated cesspools around the lagoon site. This most immediate and manifest function of the street gutter is especially important during the long rainy season, which started while I was in Ghana.

However, the gutter also has the latent dysfunction of becoming a holding site for human excreta and debris. No one wants the gutters to be blocked, or “choked,” with rubbish because no one wants water to sit stagnant in the gutter and become a breeding ground for malaria-carrying mosquitoes. Furthermore, no one wants to be responsible for cleaning other people’s waste and garbage in the gutter. It would be intuitive to think that the rain would wash out the refuse from the gutters, but due to the high volume of trash that enters the gutters, this is not the case. Nonetheless, as the case stands, people did not foresee deviant activities taking place around the gutters when the gutters were first proposed to be built. On the contrary, although no one desires that the gutters be the site of accidents and injuries due to people falling in them, this represents a manifest dysfunction of the gutters since many people did cite expecting this to happen as the very nature of the gutters is to be open for efficient collection of rain water during the long rainy season.

The most interesting and unexpected function of the gutters is their latent function in promoting functional uses for social deviants and others who have creatively redefined the way they associate with dirt, what Mary Douglas refers to as dirt-affirmation theory. For people trying to evade social norms of cleanliness, the gutters are a site for open defecation and urination. Many of these individuals do not have the money to afford the public KVIP toilet or to dispose of human waste through ZoomLion truck pick-up. Although this misuse of the gutter is judged negatively by the majority of the population, some study participants, mostly men, admitted to having engaged in these activities at one time or another. In this situation, the gutter was useful for them in ways they would not have initially expected. Along similar lines, some individuals cited their use of the gutters to pour old, used water from laundry and cooking, to serve as a site for car and motorbike repair, and to serve as a site of recreation among young boys playing football (i.e., American soccer) or collecting coins. In all of these ways the gutter serves a latent functional purpose, one that is desirable but unanticipated and creative. However, it is important to note that amid all its functions and dysfunctions, the gutter is also an example of a creative re-drawing of dirt boundaries within a larger culture. It is not that the people who find new functional purposes for the gutter abandon the notion that it is dirty, but they do adopt a dirt-affirmation posture in order to come up with new ways for society to find a place of social order for the gutter.

Understanding the Self in Terms of the Other

In both the interviews and focus group discussions, a common theme that emerged was the understanding of one's own motivation for adopting hygiene practices and rituals by differentiating it from other groups' practices and beliefs. Many individuals used this "self-

other” dichotomy to justify why they were clean and, therefore, seen as pure in the larger public’s eye. For example, when asked how to rate their cleanliness in terms of social standards, many men avoided the direct question and, instead, chose to discuss the ways in which they felt they were cleaner than women in daily affairs. In a focus group in James Town, a Muslim man named Ibrahim stated: “One thing I know for sure is that I am at least cleaner than the women who dirty up the public toilet. I cannot go to the bathroom without smelling menstrual waste and seeing all the waste those women leave without a care in the world.” Although other men cited being annoyed by menstrual waste products left by women in the public KVIP toilets, it did not seem to be a general problem for the majority of people in the two communities of James Town and New Town. When I discussed this with Khalid, the manager of the KVIP toilets in James Town, it was brought to my attention that the reality was quite the opposite of what the men claimed. In fact, more than leftover menstrual waste, the toilet manager cited the lack of respect shown by men to be a bigger issue in maintaining the cleanliness of the facilities. Khalid went on to describe the discrepancy in perception of gender cleanliness this way:

Ha, it’s funny to think that those men would be telling you this because I see how they come into the bathroom and leave the stain of their urine and feces without ever taking the time to clean it up. It’s hard for the Muslims sometimes when there is not enough water to clean properly, but I cannot understand why even the Christian Ga men who come here cannot take the time to tidy up. Because of their waste, we have flies and mosquitoes and dangerous, poisonous smells coming from the toilet. People complain, but what can I do when they do not pay to even use the toilet.

Although the social reality the men were trying to justify to themselves differed from the actual pattern of behaviors, it was clear that these men were trying to base their standards and reaffirm their identity as “clean” males by comparing themselves to the opposite gender. Similarly, women compared themselves to men in their community when asked if they washed their hands after using the bathroom. Most women responded by saying that they always took

the time to wash their hands after going to the toilet and took great pains to stay clean because they knew that others would judge their character based on their appearance and the smell that would accumulate if they did not shower or take care of their menstrual waste. However, most women felt that men did not have to worry about external judgment because no one could tell if they smelled foul. One woman from New Town named Hajia stated:

Yeah, when I go to the latrine, I make sure to bring enough water with me, the chamber pot, hand soap but most of the time it's laundry soap because that's just cheaper. . .it takes time because I have to make sure I do not let anything dirty touch me and make sure that even my clothing does not touch the latrine. I do not mind, though, because I know I need to stay clean. I don't want people to start thinking our house is full of dirt, my children are clean, too, after all. I make sure that no one can say we are not clean. My husband, I know he doesn't have to worry like this. I've never seen him take soap with him. He does wash his hands if water is available, but otherwise, it is not of concern to him. If he doesn't take a shower in the morning, who would know?

Hajia and other women with similar views on the gender differences in cleanliness do not mind the judgment that comes along with stereotypes about women in their society. They actually indicate that they enjoy being able to maintain a sense of cleanliness because if others pick up on their cleanliness cues and believe they are clean, they are more likely to be treated as exemplars of cleanliness and purity in the community. In fact, most of the women who participated in both focus groups and interviews were consistent in saying that they use soap and water to wash their hands most of the time after they go to the toilet. Based on data counts for interviews and focus groups, women are three times as likely as men to actually wash their hands with soap after going to the toilet, even though men, especially Muslim men, draw a stronger connection between cleanliness and holiness. Due to the existing gender hierarchy that holds women accountable for household sanitation, often viewed as "women's work," it makes sense that women would be more likely to feel pressured to adopt dirt-rejection norms such as hand washing as they have to deal with dirt directly on a daily basis. Nonetheless, there seems to be

disjuncture between one's acceptance of purity norms and actual level of observance of such norms.

Many of these women also carried some form of hand soap with them and were willing to pull it out of their handbag to indicate they were not making a false statement. In contrast, 12 out of 18 men who said, in the focus group, that they washed their hands with soap and water regularly after going to the toilet, changed their statement in the interview. When questioned about the inconsistency of their statements, approximately 42% of these men stated that they had exaggerated the frequency of hand washing when speaking in the focus group partly because they had felt pressured to maintain an appearance of cleanliness within their religious circle. The rest of the men cited not being aware that they had been inconsistent or that they did not remember why they had made the previous statement. Although men and women perceive their own level of cleanliness in light of how the opposite gender practices hygiene, women were more likely to make externally verifiable and reliable statements than men. This may be due to underlying gender differences in the value placed on certain hygiene behaviors. Whereas women feel a social responsibility to their family to maintain a semblance of cleanliness and are aware that others notice when they are not clean, men do not link their own hygiene to their family's reputation and know that others will not notice if they are not clean. As one Christian man named Baas stated:

I think women do have to take greater measures to be clean, but this is only fitting. They are less clean due to the fact that they have to deal with menstruation and wash extra before entering the mosque. I do not care if my brother is clean because I can see and know he is, it is harder for a woman since she is in the house and preparing the food and maintaining things.

This notion that women must maintain an outer appearance of cleanliness is perpetuated by the fact that women do have a lower social status position than men in the larger society, and women are pressured to follow the traditional role of being in charge of household sanitation. Men maintain a position of power in the larger social structure and do not fear losing their reputation or status in the broader community based on their personal appearance since other men do not usually judge them based on their level of hygienic appearance.

Muslims and Christians also defined their religiously derived beliefs about hygiene in terms of what the other group believes and practices. In James Town, where Christians represent the majority group, Christians often discussed Muslim practices as “different,” “odd,” or “constraining”, whereas in New Town, where Muslims represent the majority group, Muslims were more likely to talk about their practices in terms of the “other” and cited Christian beliefs and practices as being “insufficient,” “unsanctified,” “out of place,” or “improper.” For example, in James Town, Alex commented,

I use graphic paper for the purpose of anal cleansing after using the toilet because that is what we all use. It's oftentimes too expensive to buy T-roll (toilet paper) and graphic paper (newspaper or recycled paper) suffices. The Muslims are a bit different. They are constrained by the rules of their faith and have no choice but to use water. I've never understood why because from what I learned from my father you can use graphic paper and water. But, for some reason they insist on using the water alone – feel that it makes them more holy and clean. I don't buy it, though.

While Alex accepts that graphic paper is fine for the purpose of anal cleansing, he judges the Muslim community for their reliance on the medium of water. He does not explicitly state that one way is better than the other, but because he does not understand the ritual meaning tied to the use of water in Muslim cleanliness practices, he does see them as odd and outside of his

social group identity. Muslims in New Town pointed out that one of the main differences between themselves and the Christians in their community is that they are more conscious of the religious doctrine set forth for them to remain clean and pure. For these Muslims who represent the majority of New Town and live in close-knit communities of the zongas, religion and ritual play a central role in their daily life. It seemed as though it is second nature for Muslims in New Town to make the direct connection between cleanliness and sacredness, as most of the people they encounter on a daily basis are other Muslims who follow the rules for bodily cleansing set out in the *Qur'an*. One Muslim woman named Mariam stated that she did not see any other way than the use of water for anal cleansing purposes because anything else was “out of order” with what she had been taught growing up and that paper, corn cobs, and leaves were not acceptable media for cleaning. Adizatu said, “I don’t care what *they* [implying Christians] do. All I know is that I am a Muslim woman and I cannot let any feces or urine touch my body and ruin its purity. If I did not follow these rules, I wouldn’t be who I am.”

The Muslim community’s strict cleansing rules are an example of Douglas’s concept of the purity ritual because these rules for anal cleansing establish boundaries between those who are Muslims and those who are not. The use of water in Muslim cleansing practices serves to remove that which does not belong, or Douglas’s notion of “dirt,” in order to reaffirm the group’s identity. A variation of the phrase, “it would be out of place and/or improper” was stated by 17 different Muslims in interviews and focus groups combined. Many Muslims who were interviewed felt that the ablutions performed with water before prayer and the anal cleansing practices were defining characteristics of their religion and that those who did not follow these rules were not fully Muslim. For example, Abdul, a Muslim man in New Town,

said in his interview, “It is part of our religion to use water only, without water the act [of cleaning] is incomplete. It is like everything else I must do, along with prayer at *jumu'ah* and fasting for the Lord during Ramadan.” Almost everyone – male, female, Muslim, or Christian – who was asked to differentiate between religious groups in their communities, pointed to the Muslim use of water as a characteristic that set them apart from other groups (98 out of 118 individuals openly stated this).

The Special Case of Muslim Men

In the three focus group discussions and nine interviews done with Muslim men, it became apparent that one pattern of behavior stood out about this group and did not correspond to any other group in the study: their direct relation of cleansing rituals and notions of purity to religious texts. Out of the 30 Muslim men who participated in the study, nineteen made direct references to scriptures found in the *Qur'an* or other holy Muslim texts such as the *Sahîh Al-Bukhâri*, one of the six canonical hadith collections of Sunni Islam which discusses forms of prayer, cleansing rituals, and worship, among other topics. Many individuals, both Christian and Muslim, made the general statement that “Cleanliness is close to Godliness” and referred to the broader link between personal purity and cleanliness, but the majority did not make direct scriptural references. Only four Christian men quoted scriptures from the *Bible* (3) and the *Confessions of St. Augustine* (1), and there was no consistent pattern to point to a deeper ingrained pattern within the larger Christian communities. Only five Muslim women made a total of 10 scriptural references among themselves, which is important to note because no Christian women made any scriptural references. Because more than half of the Muslim male sample population made references to similar lines of scripture, often quoting two to three

different scriptures each, the data suggests that this is a unique trend among this particular social group.

Table 3 shown below relates the scriptural text reference with its source to the quotation made by an individual during a focus group discussion or interview. Although the source was not always stated by the individual who made the scriptural reference, data analysis indicated these to be the likely sources for the quotations. Among these references, the most striking ones point to the sacred and sanitized quality of the most holy Muslim text, the *Qur'an* (made 11 times), *Allah's* praise and love of clean individuals (made 15 times by Muslim males), and ritual bathing practices (made 11 times by Muslim males). I had originally started my study assuming that religion serves the latent, or underlying and unanticipated, function of promoting hygiene beliefs and water sanitation practices in the larger communities of Accra, but based on this data, religion seems to serve a more manifest function in promoting hygiene behavior.

Table 3. Categorization of Scriptural Reference Data

Interview or Focus Group Quotation	Scriptural Text Reference	Number of times referenced
- <i>The Qur'an says that God loves the clean.</i> - <i>It is God's most holy decree for us to be clean in all we do, for that is why he loves us.</i>	"God loveth the clean." (The <i>Qur'an</i> , 9:109).	8 (7 Muslim males, 1 Muslim female)
- <i>God is the one who makes us clean, and he knows if we are not following the proper sanitation rules set forth by the Qur'an, his holy word.</i> - <i>No one should think they are too clean in God's eyes.</i>	"No one of you had been cleansed for ever: but God maketh whom He will to be clean, and God Heareth, Knoweth." (The <i>Qur'an</i> , Sura 24 - Light)	7 (all Muslim males)
- <i>It is clearly set forth in the</i>	"Allah's Apostle said, „Whenever	20 (15 Muslim males, 5

<p><i>Qur'án that we must maintain purity in going to release ourselves. When we go to the bathroom, we should not let anything but water touch our private parts, and never with the right hand.</i></p>	<p>anyone of you drinks water, he should not breathe in the drinking utensil, and whenever anyone of you goes to a lavatory, he should neither touch his penis nor clean his private parts with his right hand.” (Volume 1, Book 4, Number 155, narrated by Abu Qatada)</p>	<p>Muslim females)</p>
<p><i>-God loves those among us who keeps himself pure in heart and clean in mind.</i></p> <p><i>-Allah loves the clean and pure hearted the most, my Imam has claimed it so.</i></p>	<p>“For Allah loves those who turn to Him constantly and He loves those who keep themselves pure and clean.” (The <i>Qur'an</i>, Surah 2)</p>	<p>15 (11 Muslim males, 4 Muslim females)</p>
<p><i>-The Qur'án is a book that is holy in name and in writing. We have been called to maintain its cleanliness.</i></p> <p><i>-Women who are in menses should not touch the holy book of Allah, nor should they enter the mosque, a place of most holy sanctity.</i></p> <p><i>-The Qur'án is clean and we need to exemplify it by maintaining cleanliness ourselves.</i></p>	<p>“That this is indeed a Qur'án most honorable, In a Book well-guarded, Which none shall touch but those who are clean.” (The <i>Qur'an</i>, Surah 2)</p>	<p>11 (all Muslim males)</p>
<p><i>-When we are dirty, we have fallen into Satan's trap and we are removed from the holy place next to Allah.</i></p> <p><i>-God washed our sins in order to remove evil from our hearts and minds.</i></p>	<p>“Remember He caused rain to descend on you from heaven, to clean you therewith, to remove from you the stain of Satan, to strengthen your hearts, and to plant your feet firmly therewith. (The <i>Qur'an</i>, Surah 8)</p>	<p>9 (all Muslim males)</p>
<p><i>-God decrees that we be clean and holy, for our land to be clean and holy.</i></p>	<p>“But first, wash you, be clean; put away evil from your souls, and from before mine eyes, that the dry land may appear.” (Confessions of St Augustine, Book 13)</p>	<p>1 (Christian male)</p>
<p><i>-God punishes those who are not clean. We must be holy as</i></p>	<p>“For there were many in the congregation that were not</p>	<p>1 (Christian male)</p>

<i>was related to us at church last Sunday by the Minister.</i>	sanctified: therefore the Levites had the charge of the killing of the passovers for every one that was not clean, to sanctify them unto the Lord.” (Bible, 2 Chronicles 30:17)	
<i>-I try to be faithful to my Lord because I know that at the end of the day, he washes me clean and, therefore, I am pure of any sin of this world.</i>	“Wash me clean of my guilt, purify me from my sin.” (Psalms 51:2)	2 (Christian males)

To refer back to Merton’s functional system of analysis, manifest functions are the consequences that people observe or expect, and these are explicitly stated and understood by the participants in the relevant action. In light of these findings, the individuals who cited scripture, especially the Muslim men among them, seemed very aware that their religion had influenced their behavioral choices and expected it to continue to produce improved hygiene outcomes for their social group. All of these men were also of the opinion that cleanliness was positive in the larger social context, so it follows that religion holds a manifest function for them. In fact, some individuals explicitly mentioned being grateful to their Imam or the faith in general for placing such a strong emphasis on sanitation and cleanliness. One Muslim man in New Town, Shariff, said:

I wonder sometimes if I would care so much about matters of hygiene if they weren’t emphasized in the writings and in all the religious teachings I have received since I was a child. I am grateful to Allah for maintaining the clean posture of my community. It’s bad enough that our community suffers from so many problems, among them cluttered street gutters, debris build-up on the roads, and poor water quality, but at least we [Muslims] are able to do our part in staying clean. After all, this is not so much for God to ask of us.

Shariff reveals that not only was he brought up in a religious household and taught the importance of ritual cleansing and purity early in life but that he also is grateful for the behaviors these teachings instilled in him. Based on others’ comments, it seems that for most Muslim men

the reason religion bears such an important and clear connection to water sanitation and hygiene is because they grew up with its direct influence on their daily lives. This suggests that religion can serve a manifest, rather than a latent, function in hygiene behavior promotion only if individuals are aware of its influence on their behavior and taught to see direct implications between religion and cleanliness. Not all Muslims made this direct connection, in fact. Salim of New Town stated in a focus group discussion that he knew that the *Qur'an* promotes ritual cleansing practices, but he does not necessarily see how these can be followed in modern-day society. He had previously stated to the group that he did not always feel the need to wash his hands or be free of germs because germs cannot be escaped in a dirty society; nonetheless, he followed the *Qur'an's* teachings on water cleansing because he had been told to do so. In one sense, religion is a large part of Salim's life because it dictates his everyday actions, but he is not hyperconscious of the implications for cleanliness tied to the Muslim faith.

Similarly, many Muslim women follow the teachings on ritual cleanliness and strive to maintain a semblance of cleanliness and a hygienic household, but they do not expect one of religion's functions to be hygiene promotion. Rather, when asked to further reflect on the connection between religion and cleanliness, some women came to appreciate that the rituals were not simply about following God's commands but also about staying clean. Adama of New Town said to Murjana in an interview, "Huh, I guess although I do follow the guidelines set out by the Imam, I don't know where it actually states that we have to do it this way. I'm not sure why our religion teaches us to be clean, but I guess I'm glad it does." The five Muslim women who did make scriptural references to water and holiness in the *Qur'an* were all participants of a focus group discussion conducted at the Islamic Women's Community School in New Town,

where they were teaching themselves Arabic in order to read and understand the scriptural teachings for themselves. It follows that for these women who were exposed to the scripture on a more regular basis that they would see more explicit connections between scripture and practice. Because access to scriptural knowledge has traditionally been barred to women in West African Muslim Hausa communities, it is not surprising that most Muslim women in these communities would not be acutely aware of the connection between religion and cleanliness.

Christians who were interviewed or participated in the focus group discussions rarely, if ever, cited scriptural references to water and holiness from the *Bible* or other texts. Many of the Christians did not see the need to expand beyond making the general statement that “Cleanliness is next to Godliness.” In a few cases, scriptural references were made to highlight the individual’s duty to follow God’s command of cleanliness or the call to keep a holy land. Isaac, one of the Christian men who cited scripture, said,

It’s not easy to be clean because to be honest, I cannot afford soap when it costs 4 Cedis for a 2-week supply, the waste has to be burned or hidden so we don’t get fined by ZoomLion, and I do not always remember to wash my hands after going to the toilet, but I try to be faithful to my Lord because I know that at the end of the day, he washes me clean and, therefore, I am pure of any sin of this world. I might live in a filthy area, but my hope is that my children will adopt clean behaviors and one of the ways I teach them is through the *Bible*.

Isaac openly admits that he does not have the resources to engage in what most people believe constitute proper hygienic behaviors and water sanitation practices— hand washing with soap and methods for human waste disposal – but he is aware that his religion implies that he should be clean. In this case, religion plays a manifest function for the individual, Isaac, but not for most members of his religious group who were interviewed. It follows that Christians in both towns

would not be as aware of the connection between the holy and water cleanliness because the Christian religion practiced in Ghana does not have daily rituals tied to water.

In contrast, Muslims have to perform cleansing rituals, in one way or another, multiple times a day before saying prayers, before stepping into a mosque, and after using the bathroom. Although the ceremonial rite of baptism by water is common in some Christian sects, it did not appear to play a major role in the lives of Christians in Accra. Only 2 Christian interviewees, both of them women, commented on having witnessed full-immersion baptism rituals in New Town, but this was not a common theme. Although cleanliness may not be strongly tied to their religious identity, it is important to note that Christians were not necessarily less hygienic or less likely to engage in proper water sanitation activities than Muslims. It seems that just as many Christians as Muslims engage in open defecation and urination and just as many do not wash their hands regularly after using the toilet. This is evidenced by the fact that 31 Christian male and female study participants openly admitted to neglecting hand washing, compared against 25 Muslim male and female study participants. Similarly, fourteen Christian male and female study participants and 12 Muslim male and female study participants admitted to having openly defecated and/or urinated on more than one occasion. Therefore, although religion serves the manifest function of promoting cleanliness among Muslims, it does most strongly for the specific practices of anal cleansing and ritual bathing before prayer time. Muslims may be more aware of religious motivations for being clean, but that does not mean they actually put into practice what they think is right and true.

Religion as Justification for Gendered Notions of Water Sanitation Roles

Many of the women who participated in the study cited themselves as being the head of household, which entailed them overseeing the provision of clean, safe drinking water for the family and ensuring proper sanitation procedures were followed within the household.

Approximately 90% of the male study participants cited their wife as the main head of household or the individual charged with the responsibility to take care of water sanitation for the entire household. Although both men and women did state that the children of the household helped to fetch water from nearby sources such as open streams, water pumps, or the market places, most of the time the women was still responsible for ensuring that the water was clean for drinking. In terms of what their household sanitation duties include, women cited the following activities: fetching drinking water, buying clean produce and fish from the marketplace, storing water in tanks, boiling water for cooking, cleaning the bucket latrine in the house, and making sure the children do not play in the gutters or dirty street water (i.e., “gray water”). Men, on the other hand, cited the following list of their water sanitation responsibilities: fetching drinking water occasionally, disposing of the household waste, teaching children not to play near the gutters, and discussing water sanitation matters with community councils. It is clear that a sharp division exists between the roles women and men are able to take on in regards to water sanitation within and outside of the household unit.

Although confined to household water sanitation responsibilities and not as active in the public sphere, most women accepted their role with confidence and self-appraisal. For example, Julia, a Christian woman in New Town, said that she knew it was not easy to maintain both the household sanitation and work a full-time job during the day, on top of cooking for the family and taking care of her children, but she was glad that she felt needed and felt more connected to

God by following a strong work ethic. Although she did not make a direct religious reference to justify her water sanitation role in the household, Julia did link her overall job happiness to religious duty. Many other women who were interviewed felt the same way. Out of a total of 54 women who participated in focus groups and interviews, 32 of them made reference to religion to justify how they felt about their responsibility for household water sanitation maintenance.

One woman, Edith, said,

Sometimes it does feel like there is too much work to do, and my back does hurt from having to travel a distance of about 5 miles to fill up the water tank from the most nearby pump, but I don't mind. I think God rewards those who fulfill their duties and help themselves. I know that I have a responsibility to ensure that my children do not get contaminated drinking water. I'm very committed to the church, you know, I used to work as a counselor there. A woman's main job is to take care of her family, so it makes sense that I would be in charge anyway.

Edith recognizes that taking on the responsibility for fetching water and ensuring its safety is not easy, but she appreciates it all the same because she is able to contextualize her experience within a larger religious framework. In this case, religion is serving a latent dysfunction. The reason religion would be dysfunctional in this case is because it is being used as a tool to maintain a gender-constructed hierarchy in water sanitation roles, one in which women are confined to the hard labor tasks of the home without an active political voice in community sanitation reform. Although none of the women explicitly state that their religious beliefs serve as a rationale for their water sanitation role, they do justify the burden they face partly by invoking the name of their religion, God, or purity rituals. In this sense, the dysfunction is latent and unanticipated.

Some women also use religion to understand their hygiene relative to that of men.

Eleven Muslim women who participated in two different focus group discussions directly stated

that they felt that women naturally had to take greater measures to be just as clean as men. The reason most of these women felt this way tied into the fact that they had to deal with menstrual waste, which was not easy to do. Kande, a Muslim women from New Town, said, “I think there’s a reason why we [women] have to do more to stay clean. We have to deal with *haiz* (i.e., menses) once a month, and it gets messy with lots of smells. I cannot always buy the wrappings or pads to take care of it and find it hard to deal with them throughout the day.” Because Kande does not have the resources to easily take care of her menstrual waste, she feels that it is necessary burden. Furthermore, her reference to “messy with lots of smells” indicates that she realizes this is an unsanitary condition but one that is inevitable for her.

For some women, following religious doctrine brings them pride in completing their water sanitation responsibilities, but many women also voiced that they wish more men would take on household sanitation chores. Bushiratu of James Town stated, “Sometimes it would be nice if men took more responsibility for household tasks such laundry washing, cooking, and waste disposal. I guess I accept that I’ve got to do it, but it would be nice.” If religion and traditional gender norms are partly influencing women to accept their place in the home, both of these social factors may be converging to produce a latent dysfunction. Although women want the division of household sanitation to be more evenly divided between the genders, they are willing to accept the status quo because it is what they are used to and they derive value in reaffirming their self-identity through their work role.

Social Deviance in Water Sanitation

According to Merton's Strain Theory and social deviance typology, there are two main types of social deviance: innovation and retreatism. In the context of water sanitation and hygiene behavior adoption, social deviance refers to behaviors that do not fall in line with what a particular social group sees as fitting with their definition of dirt-rejection behavior or their cleanliness and purity norms. In greater Accra, there are many cases of social deviance as individuals are often faced with very limited economic resources and avenues to follow culturally approved paths of water sanitation and hygiene. Moreover, even when individuals have the money and means to follow cultural norms, they may not identify with the broader cultural goals and feel a disjuncture between their own beliefs and those of their social group. In examining the similarities and differences across the four major social groups analyzed in this study, all four types of social behavior along Merton's axes for social deviance emerged (refer back to Figure 1).

The Conformist: It's Easy Being Clean

To refer back to Merton's social deviance classification system, conformity is the process by which one avoids all types of deviance. Conformists attain societal goals through socially acceptable means. The equivalent of the conformist for matters pertaining to this study would be the individual who tries to follow social and religious norms of cleanliness and purity and does not engage in sanitation deviance by openly defecating or urinating in the gutters, refusing to wash up and tidy public KVIP toilets, playing in gutter water, or refusing to hand wash after going to the toilet. The social group that most closely fits the description of the conformist is that of very religious Christians and Muslims. Serving as a proxy to measure an individual's level of religiosity, the number of times one attended a place of worship within a month, roughly

indicated the degree to which Christians and Muslims in the sample were seen as religious. Of the 34 Christians who stated that they attended church weekly and were active within their church, approximately 82% stated that they regularly washed their hands after using the toilet and avoided open defecation and urination into gutters or drains. Of the 48 Muslims who stated that they attended the mosque at all prescribed prayer times and were actively engaged in their religious community, 80% stated that they regularly washed their hands after the toilet, always performed anal cleansing with water, and never openly defecated or urinated into a gutter. A majority of the individuals who fell into either of these categories exhibit behaviors which are completely or mostly in line with community sanitation norms: they all participate in regular hand washing (with or without soap), maintain a clean drinking water supply, cook with clean water, dispose of human waste and garbage properly, try to avoid contact with open gutters, and teach their children proper hygiene and sanitation practices. When asked why they follow some of these practices, many individuals stated religious motivations but also related in one way or another that they wanted to live in a cleaner society and be part of the solution to the current sanitation problem. Mohammed from James Town said,

I look at the current situation in my community, which has recently suffered a lot of economic depression, and know that one basic problem that can be solved is the level of disease exposure due to water sanitation issues. I feel that as a student of Allah and a member of this community it is my duty to care and try my best to be clean. I cannot control what other people do but hope to lead by example. Sometimes, I clean the gutter in front of my house to prevent it from getting choked with rubbish. One day a young boy playing football with his friends near the gutter told me that he can't wait to have my job because I get to find all the best coins in the gutter. I was shocked and said to him, „I am cleaning the gutter so that hopefully you don't have to one day.“ The boy was confused.

From Mohammed's comment, it is clear that he practices cleanliness rituals and goes out of his way to clean for the whole community because he cares about the cultural value placed on

cleanliness and wants to see his society improve in that respect. Others like Mohammed who fit the categorization of the conformist discussed similar ways in which they could bring about a better neighborhood through all their combined efforts on proper water sanitation.

The Ritualist: Clean Without a Cause

Although similar to the conformist, a ritualist is someone who subscribes to the institutional means and displays the correct behaviors but does not actually know or care about the cultural end goals associated with those means. Because ritualists can hide their rejection of the goal, and are even sometimes unaware that they have lost sight of the goal, the rest of society does not typically view them as deviant. The social groups who best fit into the category of the “Ritualist” include some of the Christians and Muslims who practice water sanitation and proper hygiene methods preferred by the larger community but do not see themselves as motivated by any particular cause, religious or secular. There were a total of 17 Christians and 12 Muslims who commented on either not knowing the religious motivations behind their actions or not ascribing to any particular religious purity norm. Amanda, a devout Christian woman from James Town, said,

Sure, I am clean and free of germs. I mean I always wash my hands after going to the toilet, bathe every day, teach my children and grandchildren how to be clean and punish them for going near the gutter to play. I guess I never really thought about why I’m convinced that what we’re doing works best for sanitation. I’m not even sure I believe that for all of my routines I am helping solve the larger problem of sanitation, but I still want to do it. It’s important to do the right thing, and I don’t know, what if the neighbors started judging my family?

As she indicates by her comments, Amanda does not feel tied to the water sanitation practices, but she does them anyway to follow the norms of society and maintain a positive public appearance for her family. It could be that at one point she attached a deeper value to these

activities, but because she has grown wary of the sanitation progress in her community, she may have lost faith in some of the practices.

Another group of individuals who displayed this type of behavior-motivation disjuncture were some of the women who felt burdened by the monotony of daily household sanitation routines but still continued to perform hygiene rituals and take care of household tasks. Out of the 60 women interviewed, 26 women expressed feeling this way in personal interviews and/or focus group discussions. In one of the female Christian focus groups in James Town, a woman named Grace described her views:

I know I do it all, the cooking, cleaning, fetching, and all, but I guess I don't really care from one day to the next, ya know? It's just a part of the problem with living here because we don't always know when the light will be gone and when we don't sell on the streets, we don't eat. I can't care, honestly, because otherwise, I'd be scared for my own sake and that of my children. I just do what I can to teach my kids the right ways and keep our house clean, but it doesn't kill me when things aren't in perfect order. I just have too many others things to worry about.

While Grace does state that she tries her best to adopt good sanitation habits and hopes her children will adopt the same, she also feels overburdened by other problems so much so that she does not always care about the larger cultural goal of hygiene promotion. There were a number of other women who found themselves in Grace's position, especially in James Town where recent problems such as a rise in unemployment and government shutdowns in water supply and electricity have caused individuals to readjust their financial priorities.

The Innovator: Reinventing the Concepts of Dirt and Hygiene

Innovators represent those who attain the cultural goals of society by using normally unacceptable means. They often find or create their own way to go about obtaining society's

standards, even if the ways in which they do so are usually considered deviant. Many of these individuals use unacceptable courses of action because they do not have access to the proper means for attaining cultural goals: they may be limited in terms of finances or social capital. In other cases, Innovators can also represent those individuals who like the general idea of the cultural goal but feel disconnected from it due to their social status, religious identity, or some other social factor. In this study, those who fit the “Innovator” category are those who have experienced recent economic hardships, are generally very poor, or rank low in terms of social status based on the power structure of the larger society. Out of the 36 individuals interviewed, thirteen stated feeling overburdened by economic hardships so much so that they could not buy hand washing soap or pay to use the public toilet. Some of these individuals said they used laundry detergent to compensate for regular hand soap. Some others innovated by offering to clean the public toilets in exchange for free access to them. Even though these 4 individuals, all of them Christian males, said that they could tell others looked down upon them for working in the toilet, they were okay with it because they could not use the bathroom otherwise.

Many women cited feeling overburdened by gender inequalities in the household sanitation sector but few suggested a way to change their situation. It may be that the power structure is so rigidly set in place that even when women realize there are gender inequalities, they are unwilling to be the innovators of change out of fear of being viewed as social deviants within their community. However, about seven women out of 18 interviewed did feel that change was needed and that they could tackle the problem by approaching it from a different method. In one of the focus groups, one woman named Salma related her feelings on this matter to another Muslim woman from New Town named Humu:

Salma: I don't care what the rest of the community thinks, I'm tired of the fact that no one else is willing to see this problem.

Humu: But, Salma, com'on, don't you think we should be happy to take care of t the water concerns and teach our children the right ways. . .otherwise, what kind of society are we really preparing them for?

Salma: All I know is that I hope my daughters don't have to work like I do and hurt their back carrying the water, taking the blame when something goes wrong. I guess I don't mind it all, but I wish we could think of another solution. I hope that one day men will want to be more active in household sanitation matters and that women won't have to be burdened by these concerns.

Humu: I guess I can kind of see your point, but don't really know if going against the grain is worth it to me.

Salma: Well, I've been having my husband take care of most of the household chores, like cookin' and cleaning, and for once, he understands how I feel. You can't manage it all. Now, at least we've decided to split things more evenly. The kids are learning how to be clean by seeing the problems first-hand and volunteering in our neighborhood. With their school, they go to unchoke some of the gutter lines.

Humu: Well, yeah, that's great actually. Hm. . .[laughs], I guess I never would have thought it could work.

It is clear that Salma is trying to relate her dissatisfaction with the status quo to Humu because she does not like being the only one who cares about the gender inequality she perceives in labor divisions within the community. Salma indicates frustration with the current norms, suggesting that she may have been keeping these feelings to herself for a while, perhaps to avoid the social stigmatization of being considered a deviant. At first, Humu does not fully understand Salma's viewpoint, but as their dialogue continues, she is more willing to see the benefits of adopting Salma's mode of change and innovation. Although this exchange was especially unique because one individual was able to easily convince another of her non-normative mindset, many of the focus groups conducted with women touched upon this topic in some form or another

Some people cited particularly creative ways to manage their hygiene affairs, regardless of the judgment they may receive from others. For example, Musah, a Muslim male in James Town, indicated that at one point he did not have money to pay to use the public KVIP toilet but because he strongly followed his religion's views on water cleansing, he was unwilling to go to the extreme of openly defecating into the gutter. Musah described the innovative solution he used to resolve his toilet problem:

Musah: I didn't have a lot of money at the time, I was really not going to pay to use the public toilet. In the compound house where I live, we did not have even a single bucket latrine. I have to be clean, and the only way I can do this is with water: it's what my Imam teaches and what I have learned. It might sound crazy, but I actually started to go to the beach and defecate there. I figure, there's water which will clean up the mess, and I can easily wash myself afterwards. No one knows about it except for the fishermen out there. I know my colleagues would judge me if they knew – I mean, I work in water and sanitation now – but it's what I had to do at the time and it made sense to me then.

Larry: Would you do this now?

Musah: No, are you kidding, I know now what I didn't then, that open defecation into the sea is just as bad as open defecation in the gutters. Just because we can see the refuse in the gutters and we can't see what's going on in the ocean, Doesn't make it right. I was poor and pressed for options. To make matters worse, the pipe had been cut off for 2 months and Rasida had only so much water she could bring back to the house.

In this interview exchange, Musah indicates that he knows his previous behavior was actually not in accord with community hygiene sanitation norms, but he also accepts the fact that at the time he was limited in options. Although he never stopped caring about cleanliness norms and continues to under his new post in the water and sanitation sector of James Town, he was willing to be innovative to do what he felt appropriate to follow his religion's and culture's standards for personal hygiene. Innovators differ from the most extreme social norm violators because they still feel a strong level of attachment to the overall cultural goal.

The Retreater and the Rebel: I Can't Afford to Be Clean

In the case that an individual is not able to access the means to attaining a cultural goal for a prolonged period of time, he or she may end up losing faith in the cultural goal altogether. Because of the discontinuity which exists between goals and means, these individuals, classified as retreaters, will often try to reject and replace normative cultural goals with ones that are more easily attainable in their position. In the case that retreaters do actually succeed in replacing old cultural goals with new ones, they are better classified as social rebels. Rebels are not always viewed as social deviants under classical Strain Theory because they do ascribe to a clear set of goals and have established means for reaching their goals. It is only when their goals are in direct conflict with those of the broader society's that they will be strongly judged for their deviance.

Some of the individuals who participated in this study indicated feeling a sense of anomie, or social disjuncture, which Merton would attribute to Retreaters in his social deviance typology. Out of all 118 participants, 42 individuals communicated that they felt this kind of social disconnect from the larger society or religious group of which they were a member. Most of the "Retreaters" were men. For example, one Muslim male from James Town, Umar, stated it this way:

I can't really do anything about my situation, but I know I'd be better off trying to help improve my society's sanitation problems. I just feel at a loss because I've lost my job and don't have a way to provide for my family, much less pay the fees to go to the proper toilet or have the trash picked up. I wish we didn't have all of these problems so that I wouldn't feel so guilty. . .I'll admit it: I do openly defecate in the gutters sometimes, on the far end close to the fishing docks. I don't have soap to wash my hands, and I don't even try to clean it up. I just feel at a loss, and for now, it's all I can do. Maybe, it's easy for others because they really

feel a strong connection to the teachings, but I have even stopped going to the mosque. Imam Ibrahim has tried to get me to come back, but I don't feel I can. I'm too ashamed to step in there for now.

Because he is unable to follow cultural norms of cleanliness, Umar does not feel right stepping into the mosque. In a sense, his recent economic hardships have caused him to lose some supportive networks and feelings of self-worth, as indicated by his feeling ashamed and at a loss to do anything. Although in his personal interview, Umar did not propose a solution to his problem, others in his position cited ways in which they have changed their goals to be more attainable given their economic hardships.

One Christian male from New Town, named Phillip, felt a similar sense of anomie to what Umar described and also admitted to others that had been openly defecating in the gutters because he did not see any other choice. However, Phillip said he changed his entire way of looking at the sanitation problem when he started to think about it in the larger environmental context. Phillip said,

I started to recognize that I was spreading germs into the soil but only because the waste was going into the same water that people fetch for drinking. My friend Ben told me about a way to compost my waste, and now I've started a small eco-tourism business out in the northern province where, we treat and re-use solid human waste to nourish the soil. I don't think our sanitation problems can be solved by looking at the situation from a moral perspective – we shouldn't be shunning those who have no means of going to the toilet or latrine – but we should try to educate ourselves on alternative methods. We should probably cover the gutters so malaria won't get us. It's not enough to just avoid the gutters and wash your hands. I don't buy those media campaigns put on by the AMA (Accra Metropolitan Association). I really think I have benefited from changing the way I look at sanitation.

Phillip is not the only individual who suggested composting as a better way to think about human waste disposal. Of the 31 individuals who also felt that avoiding the gutter was not

enough to avoid the risk of getting disease, 25 individuals suggested fully closing the gutters so that people would not have the option of openly defecating into them. Although a rebel taking on a new environmentally-driven goal and mindset, Phillip is not generally viewed as socially deviant within James Town. He still uses the KVIP when he is at home and tries to educate others on his perspective, but he does not feel the need to be at odds with others on this issue. In this way, Rebels have the potential to transform a community, more than just by taking up new means as “Innovators” would, but by approaching social problems through a non-traditional perspective.

Summary

Overall, the majority of Muslims who participated in the study identified with the “Conformist” category (82%), but no similar pattern was seen with Christian participants taken as a whole. Twenty-nine Christian men fell into the “Retreater” category. Twenty-three percent of all the female participants fell into the “Innovator” category, approximately 20% in the “Ritualist” category, and 75% in the “Conformist” category. Of the Christian female sample, a majority fell into both the “Innovator” and “Conformist” categories, 42 and 45 individuals respectively. In comparison, of the Muslim female sample, 47 of 60 individuals fell into the “Conformist” category, with 21 individuals in the “Ritualist” category. Of all 118 heads of household who participated, 87 fell into more than one category of the social deviance typology. The individuals who only fell into one category were all Muslim males, which corresponds to the other trends in the data (e.g., the “Special Case of Muslim men”) suggesting that Muslim men are most likely to adopt the religious purity norms out of strict adherence to social norms. Although the data suggest that most people conform to the institutional means for attaining

societal goals and that Muslims are less likely to be socially deviant than Christians, these are general trends and should not be treated as precise, quantitative indicators.

Conclusion

Discussion

With this study, I have aimed to apply Durkheim's definition of religion, Douglas's definition of "dirt" and accompanying dirt-rejection theory, and Merton's system of functional analysis and social deviance typology to understand the roles of religion and gender in hygiene behavior and water sanitation promotion within two peri-urban and urban towns in Accra, Ghana. Furthermore, I have examined the cross-section between religion and gender in informing social cleanliness norms and values. In order to categorize the roles religion and gender play in the larger water sanitation norms and cleanliness norms, I employed Merton's system of functional analysis which divides social phenomena based on whether or not they represent a desirable societal function versus a socially disruptive dysfunction and whether or not they are manifest or latent in presentation. In applying this system of functional analysis, I came to see that religion serves both manifest and latent functions, as well as dysfunctions, for the study population's acceptance and rejection of water sanitation behavioral norms and purity norms. By also applying Merton's social deviance typology, developed from his classic "Strain Theory," I was able to describe the variations in social deviance seen among the social groups studied.

My original hypothesis (Hypothesis 1) was that religion serves the latent, underlying function of promoting stringent guidelines for hygiene behaviors and water sanitation practices

among individuals who derive their primary identity from their religious association. I expected that more religious Muslims and Christians in New Town and James Town would be more likely to engage in socially acceptable hygiene behaviors and that those Muslims and Christians who do not follow religiously prescribed norms of cleanliness would be seen as social deviants by their respective religious communities and marked or shunned in some way to indicate their association with dirt, or matter out of place. After completing data analysis, what I have found is that in general more religious individuals are also the ones more likely to strictly adhere to cleanliness norms promoted by their religion. However, this relationship holds true mainly for Muslims, which follows logically because although both Christians and Muslims use water as a religious symbol for purity and spiritual cleanliness, Muslims have to encounter water cleansing rituals many times throughout the day and Christians do not. The Muslim holy texts mandate water cleansing rituals before prayer and mandate anal water cleansing methods for the toilet. No similar laws exist for the Christians living in greater Accra. Furthermore, religious Muslims and Christians are more likely to label those who do not follow purity norms and behaviors as social deviants, and the rest of society follows suit and adopts these labels. This behavior keeps with Durkheim's notion that the general interest of society coincides with the exercise of religion. Similarly, following Douglas's line of thought, because the greater social structure sees water sanitation as a major problem and, therefore, ascribes to the cultural goal of promoting hygienic behaviors, the general community views those who do not ascribe to this goal as social deviants.

I expected that religious Muslims and Christians would publicly shun those who chose to abandon proper hygiene in order to promote their religious values in the deeper structure of

society, but I only witnessed a total of eleven accounts when this was the case and they all took place in Muslim communities. Although social deviants are sometimes aware that they do not fit in with the larger cultural goals or means, and may even believe that their religious group will look down upon them, the reality for these individuals in Accra is that religious groups will not shun them, nor will any other group for that matter. This may be due to the fact that many people in these communities are poor and not able to afford the means to follow proper hygiene and sanitation practices, all of which come with a fee, and so the general community is at once upset by the deviant's behavior but also sympathetic of the deviant's situation.

While the hypothesis is partly supported, there are many variations on this theme that should be noted. Individuals who see religion as serving the manifest function of promoting purity rituals and water sanitation norms are also the most likely to be Conformists, adopting both the institutional means for proper hygiene and the larger cultural goal driving such behavior. In contrast, many more individuals, especially seemingly religious women who regularly attend services at their church or mosque and engage in publicly acceptable forms of water sanitation and hygiene behaviors seem to be described more accurately by the category of "Ritualist" rather than "Conformist." Most of these individuals follow social norms in going along with the motions but have either lost confidence in the water sanitation sector of Accra or feel strong pressures to adopt norms that have never been fully explained to them. Innovators and Retreaters, often viewed as socially deviant by the rest of society, are usually those who lack sufficient financial resources, supportive social networks such as religious groups, and/or social status to adopt the socially acceptable means for attaining the greater cultural goal of water sanitation. Innovators will adopt new means to meet the goals they still identify with, but

oftentimes find that because the new means are not socially acceptable, they cannot actually change their situation with regards to hygiene and sanitation. Retreaters are generally those of especially limited social and economic ability to meet the cultural goals set out for water sanitation and because too much time has passed, they usually give up on the larger goals, as well. Most of the people in the study who can aptly be labeled as retreaters are those who have recently become unemployed or lost faith in their religious identity. The common factor linking Innovators and Retreaters is that they both usually do not have the funds to pay for the public toilet, dispose of trash properly for truck pick-up, or to purchase clean drinking water and soap. Some cases of Retreaters observed in this study were able to adopt a new outlook or approach to the larger sanitation problem, which allowed them to take on the new role of Rebel and live their life through a new set of social norms. It is important to note that because an overriding majority of individuals fell into more than one social deviance typology category, Merton's system of classification does not serve to create distinct, mutually exclusive labels. People choose to adopt or not adopt hygiene norms based on a variety of factors related to how they perceive their religious identity and gender identity in relation to the larger social structure.

The results of this study indicate that religion does play a major role in influencing individual sanitation behavior and cleanliness norm adoption; however, instead of playing solely a latent role, religion also seems to play a much more manifest and publicly visible role in promoting water sanitation behavioral norms. There are many nuances on this theme, as this relationship only strongly applies to very religious Muslims and Christians and does not seem to be the case for those who do not identify strongly with their faith. For others in the community, religion may still play a latent role in promoting cleanliness norms because not only are both the

Christian and Muslim communities very actively engaged in the larger public health media sector of greater Accra, but most people do associate cleanliness with holiness.

Apart from religion's latent dysfunction for Muslims who have to use water in anal cleansing and consequently cause damage to the dry public latrines, religion also serves a strong manifest function within this community. Since Islam places a great emphasis on daily water rituals and water-based anal cleansing methods, Muslims are socialized to adopt purity and cleansing rituals, which directly corresponds to their increased adoption of hygienic water sanitation practices. This is especially true for Muslim males, as a majority of them quoted directly from the *Qur'an*, as well as other holy texts, to make it clear that they knew holiness and cleanliness were tied together and that this relationship should be expected and made explicit. As noted below in Table 4, Muslim men who participated in the study attended religious services more often within a given month than any other social group studied. The average number of times for monthly religious service attendance can serve as a proxy variable to measure religiosity, in this context. Given this relationship, although not indicative of a full picture of religiosity, Muslim men are the most religious group who participated in the study. Taking account of all of these factors, it follows that they would be most likely to be aware of the connection between religion and cleanliness, since they have studied the scriptural texts and the texts place a great emphasis on cleansing rituals and the notion of purity. This goes along with the data showing that Muslim men are also most likely to fall into the social deviance typology category of "Conformist."

Table 4. Correspondence between Religiosity and Frequency of Scriptural Reference

<i>Social Group</i>	<i>Number of times scripture cited in Interview or FGD</i>	<i>Avg number of times attends religious services monthly</i>
Muslim Men	35 times	48

Muslim Women	10 times	35
Christian Men	5 times	12
Christian Women	2 times	22

Although Muslim women were the second most religious group based on the measure indicated above, they made scriptural references 10 times in total, with only 5 people making the references. At first, this data puzzled me because I did not understand why Muslim men would feel a greater need to refer to scriptural texts to directly link cleanliness to holiness, but after doing more extensive background research, I understood the reason for this discrepancy. Muslim women have traditionally been barred from gaining scriptural literacy in male-dominated West African societies (Coles and Mack 1991). The reasons for such a situation are many but lie largely in the Westernized nature of education which emphasizes that schooling be controlled by the State and be taught away from the home, indigenous social roles that assign young girls significant domestic responsibilities and confine them to the home, and fears that girls will be rendered unsuitable for marriage by experiences of religious school life (Coles and Mack 1991).

Nevertheless, for centuries women have pursued education and roles as teachers within the realm of Quranic education. Through their poetry and homilies, women scholars have contributed significantly to the intellectual development of the Muslim world in Africa. In particular, Nana Asma'u is a Nigerian woman who is most well-known for founding the Islamic spiritual community of Sokoto Caliphate during the Fulani Jihad of 1809, and for founding the Yan Taru movement to extend Muslim education of women into the peri-urban and rural areas (Mack and Boyd 2000). Today, Muslim women in Ghana and elsewhere look to her religious writings for spiritual inspiration. Although some Muslim women see themselves as Innovators

like Nana Asma'u and take on more active roles within the greater water sanitation sector, most women in the study accept their lower social status and the household sanitation responsibilities that accompany this position. In some cases, women went as far as justifying their role in terms of the religious beliefs they hold about appropriate standards for gender labor divisions. In this view, religion, or rather the way religious doctrine is being interpreted by men and women alike, may be serving the latent dysfunction of holding women back from greater opportunities.

My second hypothesis (Hypothesis 2) was that women are more likely than men to be conscious of the role dirt plays in marking boundaries of “unclean” and “impure” and that they are more likely to feel pressured to adopt and model behaviors consistent with dirt-rejection theory. Based on this hypothesis, I expected that women are currently taking on a more active and visible role in water sanitation and hygiene behavior promotion in the greater Accra community. However, my hypothesis was only partly supported because although women are likely to internalize social pressures to adopt cleanliness behaviors and are more likely to be aware of how dirt can affect others’ perception of themselves, they are not necessarily more conscious of the connection between cleanliness and purity. To reiterate an earlier point, this may be due to the fact that many women, especially in the Muslim communities, have traditionally been prevented from studying the scriptures, and therefore, may be less aware of the religious connection between cleanliness and purity.

Furthermore, although women are largely responsible for managing household sanitation affairs, which is consistent with the literature on gender labor divisions, they do not take on more active and visible roles in community water sanitation, contrary to what I had originally

expected. This may be due to larger social constraints preventing women from entering the public work domain and misinterpretation of religious doctrine (for the Muslim faith) preventing women from taking on innovative roles in water sanitation. Women are viewed as less hygienic by many men in Ghanaian society, and so therefore, feel greater social pressure to do more in terms of personal upkeep to give off the impression of cleanliness. This was a major theme that stood out in both interviews and focus groups. In addition, women are relegated the responsibility of maintaining household water sanitation not simply because of the gendered notion that the household is a woman's work domain but also partly because many Ghanaians feel that women are already less clean than men and can handle the "dirty work." Since cleanliness norms are greatly shaped by religious doctrine in both the Christian and Muslim faiths, although more so in the Muslim faith, and men have been traditionally viewed as wielding power over scriptural teaching and interpretation, it follows that religious norms of cleanliness serve the latent function of maintaining gender discrepancies within the existing power structure.

In returning to reflect upon my original overarching research question: how do religion and gender intersect to inform the water sanitation and hygiene behavior beliefs and practices of communities in New Town and James Town, Accra, Ghana, I can extract that religion and gender do not operate in a cultural vacuum but rather interact in complex ways to simultaneously enforce water sanitation and hygiene behavior norms and modify these norms to fit with the goals and means of particular social groups. Religion sometimes serves the functional and positive purpose of being a moral deterrent to ensure that individuals are adopting clean personal hygiene behaviors and socially permissible water sanitation practices promoted by the larger society, but in other ways, religious norms that are too strongly enforced can also hold individuals back and prevent innovation in the field of water sanitation. This finding holds true

with Douglas's view that dirt-rejection theory, in this case operating through religious sub-contexts, is not black and white in nature and that cultures will sometimes redefine the boundaries of what is allowed in and what should be kept out, thereby changing the meaning of dirt and choosing to participate in dirt-affirmation behaviors to meet a different social goal. Certainly the street gutters in Accra are the exemplar models of this phenomenon as they are not simply "dirty" or "clean," but represent different meanings to different individuals.

Similar to religion, gender operates on many different levels to inform individual values and expectations regarding sanitation roles and hygiene norms. It is important to note that although men in general claim that female hygienic standards are not up to par with male hygienic standards, women are more aware of the need to maintain a sense of cleanliness, and they more strictly adopt dirt-rejection norms and establish purity boundaries. This may be because women feel the judgment of others in society when they do not appear to be clean or hygienic. In turn, women are aware that they represent their entire family's cleanliness within the community, and many women take pride in this fact. They view their household job of hygiene maintenance as a role unique to them. The other side of this double-edged sword is that many women feel overburdened by their share of sanitation responsibilities and lack a voice in community water sanitation politics. Social pressures are simultaneously restricting women to matters of household sanitation rather than community affairs while also helping women derive value from their work and maintain an increased state of visible and public cleanliness.

Dirt is not simply "matter out of place" which everyone chooses to avoid because of purity norms they have adopted within a social group, nor can dirt be seen as only having evolved to serve as an innate biological signal in disease prevention. From my extensive

analysis, I feel that dirt has variable ranges within which it can be tolerated and that individuals vary in dirt-rejection behavior based on a complex set of factors, including their level of religiosity, their access to and understanding of religious doctrine, their access to water sanitation resources, their level of socioeconomic status, and their level of acceptance of cultural goals. The connection between dirt and purity is part of a large and complex set of biological and social relationships, which we are constantly trying to define and understand in order to put our experiences in the context of society's value system and larger cultural goals.

Policy Implications

Hygiene behaviors and water sanitation practices are only partly influenced by gender and religion norms in greater Accra. Nonetheless, it would be useful for local policymakers in Accra to take into account how these social factors do shape individuals' understandings of water sanitation issues. For example, if women's opinions are given more credence in the larger Water Sanitation Sector (WSS), many useful changes can be implemented to make their job of household water sanitation management easier and more efficient. Since women are the ones most knowledgeable of water sanitation problems on the household level, it follows that if women are allowed to become more active in the public WSS sector, community sanitation would greatly benefit from their insights.

Because religion plays such an integral role in social organization within Accra communities, policymakers would also do well to tap into the pre-existing structure of these groups to promote hygiene behaviors in the larger community. The Muslim and Christian communities can more strongly urge people within their respective communities to follow hygiene norms and avoid socially deviant water sanitation practices by building on the

connection between cleanliness and holiness and educating their respective members of the health and environmental hazards that socially deviant practices produce. Furthermore, if Muslim women in particular are allowed more access to scriptural education, they, too, can serve in the capacity to teach their children about the connection between cleanliness and holiness. Some of these women who currently feel removed from larger cultural goals because of external social pressure may feel less burdened by their social responsibilities and less socially disconnected from the larger culture if efforts are taken to increase gender equality in religious education.

Limitations of Research

Inherent to any study design and implementation are limitations that may restrict the extent to which inferences can be drawn from the data. For this study, the sample size was small, so it is difficult to assess the degree to which patterns that were observed in the theoretical data analysis are generalizable to the entire study population from which the sample was drawn. To verify some of the interview statements made about topics such soap use and household sanitation facilities, it would be helpful to conduct a direct observation study and interview individuals in their homes. For the few cases when this option was available to me, I was able to gain valuable insights into the level of correspondence between what individuals told me they did and to what degree their home surroundings reflected this (e.g., availability of soap in the house, the type of latrine in the house, etc.). Another limitation was the time frame of the research. It would have been ideal if Maryam and I could have conducted another complete set of focus group discussions for comprehensiveness, but this was not possible given that we only had three months to manage everything from community entry, research tool design, pilot

testing, data collection, and preliminary data analysis for a Gates Foundation report and proposal our mentor Dr. Bernard Keraita wanted us to complete before we left Ghana. Additionally, Maryam was only able to stay in Ghana until mid-June, so I conducted a majority of the interviews and focus group discussions on my own, making the process even more time-consuming.

Interviewer bias may have also influenced the study results. Although the focus group facilitators and translators were trained beforehand, they may have been leading some of the subjects on to the questions, rather than asking the questions objectively. Since neither Maryam nor I knew any of the local languages, we were not able to verify that questions were being asked appropriately. The five translators may have also translated the data recordings from the local language back into English differently, depending on their understanding of the local language, level of fluency, and the type of dialect they spoke. Furthermore, there were problems in hearing the dialogue from the recordings in a few cases, either due to background noise or low speaking volume. For these reasons, some of the original wording and meaning may have been lost during the transcription process.

Social desirability bias may also have been a limitation to this study, as respondents may have replied in a way that they perceived as favorable (e.g., saying “yes” to using soap for hand washing or indicating that their children do not play in gutter water, when clear contradictions were present in the background setting). This may have been compounded by Maryam’s or my presence during the interviews and focus groups, since we were looked upon as foreign college students. The male focus groups and interviews may have been affected because it was clear at

various times that the male participants were afraid of saying something inappropriate in the company of women. Furthermore, some male participants tried to flirt with either Maryam or me, but Abdullai, Larry, and Alex helped to explain our role to the men so that they were not worried about our presence. There were some interviews and focus groups for which I removed my presence altogether in order to remove the possibility of this bias.

Difficulties encountered while conducting the interviews and focus group discussions included the limited availability of respondents to meet, even if they initially agreed to a particular time. Oftentimes, the road traffic in central Accra, especially in the early morning or early evening made it difficult for a group of 10 individuals to meet at the same place and time, so we had to cancel and reschedule nine focus group discussions and start a majority of them later than expected. Since most individuals in the study were at work between 6am and 6pm, it was difficult to schedule a time for 10 people to meet to complete a focus group, since this was usually a 2-3-hour commitment in full. One inevitable difficulty with the nature of our research was that Muslims in both communities adhered to a strict prayer schedule and had to make compulsory visits to their local mosque throughout various points during the day. We tried to take this into account by scheduling interviews and discussions in 2-3-hour blocks of time that would not conflict with prayer times, but were unsuccessful on two occasions and had to dismiss a group for prayers and allow them to return in the middle of a session. Another scheduling problem arose during the FIFA World Cup 2010, as individuals would not want to meet if the “game was on.” We had to reschedule a few focus group discussions and interviews due to this.

We had an especially difficult time scheduling with women because most of them not only had to work at a job during the day but had to complete a “second shift” at home in the evening, cooking dinner for their family and taking care of their children. Some ideal candidates for female interviews were not interviewed for this reason. Even when women could bring their children with them to the focus group discussion, they were sometimes distracted by the needs of their child and had to leave for a few minutes at a time. In terms of recording, babies crying in the background of some female focus group discussions made it difficult to understand the dialogue, resulting in some of the conversation being lost in the transcription process. There were only a few instances in which individuals were asked to leave a focus group discussion, one in which someone was visibly intoxicated with alcohol and two others in which the individuals did not actually speak the language of the rest of the group.

Future Areas of Research

In order to expand upon this research study, it would be useful to analyze the degree to which other social factors, such as socioeconomic class and age, play a role in determining how committed individuals are to contemporary water sanitation norms being promoted by government-administered media campaigns and international public health organizations. It may be that religion and gender have some influence on individual and group motivations for adopting particular hygiene behaviors and purity norms, but this could vary based on confounding factors of age and socioeconomic status. Because all of the individuals who participated in this study were of lower socioeconomic status, the results are only applicable to a single socioeconomic cross-section that lives in the greater Accra region. Middle and upper class residents live in other urban areas very close to New Town and James Town, the two sites

chosen for this study. Moreover, it would be helpful to examine whether or not these results are consistent in rural areas within Accra. I expect that because gender hierarchies and religious institutions are more rigidly held in place in rural areas of Ghana that individuals there would be just as likely, if not more so, to adopt purity and cleanliness norms and hygiene rituals and that there would not be as many cases of social deviance from the cultural norms. However, because water sanitation is not as much of a problem in some rural areas, due to lower population densities and less pollution, the feeling of social responsibility to the community's sanitation structure may not be as much of a concern for rural households.

It would be helpful to do more analysis of what kinds of public shunning rituals are in place in the study sites to understand how religious groups outcast members who do not follow purity norms and hygiene rituals. Based on the results of this study, it seems that these types of "whistle-blowing" behaviors that call to attention the incidence of social deviance occur more frequently in close-knit Muslim communities. Nonetheless, there were not many instances in which the act of public reprimand or shunning was brought up by the study participants. I had to derive my understanding of the incidence of this behavior by drawing upon direct observations in which I saw someone publicly shaming another for breaking norms. By understanding how strongly linked the shunning rituals are to the negative behaviors associated with them, I would be able to gain a clearer picture of how religion functions to serve as both a moral deterrent and norm-enforcing tool in various contexts.

Another area of importance that warrants further analysis is the degree to which the different social groups in this study discuss their opinions with one another. I am interested in

knowing the degree to which women tell men how they feel about the gender inequalities they perceive in the household water sanitation sector and the degree to which Christians and Muslims from each of the two towns discuss ways in which they can work together to promote water sanitation in ways which are compatible with each group's religious norms. Because each social group identified ways in which they judge their own "hygiene identity" in terms of other groups' beliefs and behaviors, it would be interesting to see how much of this information is transmitted and openly shared between groups. If social deviants were able to more publicly voice their reasons for evading hygiene and water sanitation norms to Conformists and Ritualists, these two sets of social groups -- which are less distinct than Merton's original Strain Theory suggests -- could better understand each other's perspective. I propose that an extension of this study be undertaken with mixed-gender and mixed-religion education groups to examine how intergroup dialogue affects individual perceptions of cultural norms and broader community sanitation behaviors.

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Appendix 1: In-depth Interview Guide

In-depth Interview Guide

Water Sanitation and Hygiene Practices

Composed by Shivani Jain and Maryam Khalid

We are going to start the interview by discussing questions related to your household's water access and sanitation practices and your personal uses of water.

1. Are you the head of your household?
 - 1a. If yes, what are your responsibilities to make sure that the rest of your family has safe water to drink and to use in cooking?
2. Do you fetch the drinking and cooking water yourself or does someone else do this for the household?
3. Where do you get your water from?
 - 3a. How far away are the different water sources from your house?
 - 3b. How long does it take to walk there?
4. Do you allow the children in your house to play with water nearby?
 - 4a. If yes, where?
 - 4b. What do they do there?
 - 4c. How much of their body is exposed to the water there?
5. Are there sanitation practices which are encouraged among children in the house?
6. Do you buy fresh produce (vegetables and fruits) and fish from the local market for your family to eat later?
 - 6a. If yes, where do you go?
 - 6b. What specific types of produce and/or fish do you purchase there?
 - 6c. Do you know the produce and fish vendors personally, and if so, do you trust them?
 - 6d. Do you wash the produce before preparing it? Do you boil water on the stove to prepare the produce for cooking?
 - 6e. If so, who told you to do these things? Why did you trust their opinion?
7. Do you think your family has drinking and cooking water of high quality?
 - 7a. (If respondent answers, "yes" to main question 5) What have you done personally to ensure the high quality of the drinking and cooking water your family uses?

Now, we will move on to ask questions about your society at large, in the context of a variety of water sanitation and hygiene practices.

8. Do you think there are differences among social classes, education levels, and among varying religious traditions in your society?
 - 8a. Can you describe some of these differences?
9. Are there gender differences in sanitation practices? If so, please explain.
10. Are there differences in sanitation practices among people of different faiths?
 - 10a. Does your religion affect how you handle excreta?
 - 10b. What are the best ways to dispose of excreta? Is this what your religion teaches you? If not, what does your religion teach you?
11. What are the differences in handling a child's excreta versus an adult's excreta?
12. Is urine as contaminated as feces?
13. What type of under cleansing is most common? Please describe the procedure if you would like to do so.
 - 13a. Are there any reasons people don't follow this method?
14. Are there different toilet facilities for men and women?
 - 14a. If there are currently no separate public toilets for men and women, would you like there to be?
 - 14b. Do you think separation of toilet by gender is/would be good? Why or why not?
 - 14c. Which toilet facilities- men's or women's –do you see as being cleaner and safer?
15. Do you think there is a difference between closed versus open street gutters? If so, what are they?
 - 15a. Do you prefer one over the other?
 - 15b. Is one safer than the other? Why or why?
 - 15c. Is one cleaner than the other? Why or why not?
16. What are the typical activities that take place over a drain or gutter?
 - 16a. Are these activities okay with you? Why or why not?
17. Do you ever see people peeing or defecating into a drain or gutter? If so, are they children or adults?
18. What could be done to improve the gutters? *(only ask if an individual clearly expresses dislike, discomfort, disapproval, or other clear verbal sign of negativity regarding condition of street ditches and drains)*
19. Do you think people wash their hands after going to the toilet? If yes, do you think they use soap? *(If respondent answers with "yes" to both prompts, ask him/her the following: "Why do you think they use soap to wash their hands?") OR (If respondent answers with "no" to both prompts, ask him/her the following: "Why do you think they don't care to use soap after going to the toilet?")*
20. Are soap and clean drinking water readily available to you?
 - 20a. Is soap or clean drinking water expensive? Do you feel you have enough money to afford purchasing these items?
 - 20b. *(Only asked of individuals who responded with "no" to main question 20 and answered that soap and clean drinking water were too expensive for them to purchase)* Would you purchase soap and/or clean drinking water if you had the money to buy it?
21. Where do you think you get the most exposure to dirty ("gray") water?

- 21a. Is this exposure unavoidable – for example, do you have to pass by this area on your way to work, your house, or other daily route?
- 21b. Are you worried about your exposure to the dirty (“gray”) water?
- 21c. What is the worst thing that this exposure to dirty (“gray”) water would cause to happen? How would you change this outcome if you could?
22. Who in your household has the most exposure to dirty (“gray”) water? Is it the mother, father, children, elder, someone else?
- 22a. Why do you think this person is getting this exposure?
- 22b. Do you think that their extra exposure is affecting their safety? Why or why not?
23. Who in your household is exposed to the most human excreta/waste in the street? Why is this individual getting this exposure?
- 23a. Do you think this is okay, safe, fair?
24. What kind of toilet do you use or own? Do you have any advice regarding maintenance of the toilet, whether private or a public KVIP facility?
- 24a. Who is promoting this advice?
- 24b. Why do you think they are promoting this advice?
- 24c. How useful do you find the advice? Do you use any of it, why or why not?

Appendix 2: Focus Group Discussion (FGD) Guide

Focus Group Discussion Guide

Welcome & Introduction

We would like to thank everyone for coming to this discussion today, we appreciate your time. My name is _____ and I am here to serve as a moderator for the discussion. Please make sure that your mobile phone is turned off. This is Shivani and Maryam. They are going to be note-takers and record the discussion for later data analysis in their research. The students doing the research are here from the States and are working with the Environmental Health Organization to identify your views on sanitation and wash-system practices that you conduct and see happening in your community, and what you think should be done to improve sanitation.

Your participation in this discussion group is completely voluntary. So if you prefer to no longer be part of the discussion, you can feel free to leave. However, we value everyone's views on the topic and hope that you will stay and share your opinions. All the information which we discuss today will remain confidential and only be used for research purposes. It will be stored anonymously and secretly so that it is not accessible to anyone outside the research team.

I would like to say that there are no right or wrong answers in this discussion. We will simply be discussing your views, opinions, and experiences on a range of topics related to water sanitation and hygiene beliefs, so please feel comfortable to say what you honestly feel. During the discussion Shivani and Maryam will be taking notes, so they will remind me if I forgot to ask something. However, so that she does not worry about getting every word down on paper, we would also like to record the whole session on both on audio and video recordings. Please do not be concerned about this the recording will remain completely confidential and will only be used for this research project. Is everyone comfortable with recording this discussion? If at any point, you do not feel comfortable with the recording procedures, the discussion which unfolds, or for any other reason, you can let me know immediately and we will stop the recording and allow you to leave the discussion. Moreover, your responses will be removed from our records.

We will only use first names during the discussion, so please write your name on the card we've given you. None of your name cards will show up in the video recording and, later, your names will be removed and replaced with a letter and number code in the audio recordings.

We will now explain the structure of this discussion.

- You do not need to speak in any set order, but only one person should speak at a time because it is difficult for the recorder to pick up more than one voice. It is important that everyone be able to hear other speakers so that you all can have a group discussion.
- We would like to hear from everyone. It is important that you share your ideas with the group. If you agree or disagree with what other people say, please do not hesitate to share your personal opinions with the rest of the group.
- It is important that there be a true group discussion. Please talk to the whole group and not just the person seated next to you.
- I am here to facilitate the group but am not an expert on the topics. The reason for my being here is to hear your thoughts and opinions.

We would like to spend about 60-90 minutes with you. Are there any questions before we start?

Let us begin:

As an introduction, let us go around the group and have everyone start out by saying what part of the town you are from and how many people live in your households.

Households

Perceptions	Leading question: Could you please describe where you find water in your community and how you use this water?
Practices	Probe 1.) What are the ways the children in your community play with water? Where are the water sources for these activities? (Alternative wording: When and where do children contact or play with water in your community) Probe 2.) What are the activities done to maintain your toilet? This can apply to any kind of toilet, but please be sure to tell us in as much detail as possible which type of toilet you are referring to, though.
Perceptions	Probe 3.) Who advises your community on hand washing practices? 3a.) How do media outlets such as radio, TV, and AMA campaign emphasize hand washing practices? Why do they do this?

Toilet Facilities & Sanitation Behaviors: Collection, Containment, Disposal

Transition:	Now I would like us to discuss sanitation practices.
Practices	Leading question: Please describe you and your family's daily routine for going to the toilet facility and handling excreta/toilet waste. Probe 1.) Who is responsible for collecting the water for your house? Probe 2.) What sanitation practices did you grow up with or learn when you were a child? Probe 3.) What are some sanitation practices which your religion emphasizes?
Perceptions	Probe 1.) Please elaborate on the advantages and disadvantages of using a toilet.

Exposure

Perceptions	Leading question: Where do you think that you or your children get the most exposure to gray water and sewage?
Beliefs	Probe 1.) What do you think happens when you or your family comes into contact with gray water and sewage?
Practices	Probe 2.) What are some ways to avoid coming into contact with gray water.
Perceptions and Beliefs	Probe 3.) Where can you find excreta/waste in your community? How does it get there?

Drains and Gutters	
Transition	Now, let's all please shift to a discussion of the the water and drainage system in your community.
Beliefs	Leading question: What would be the ideal drainage system for your neighborhood?.
Perceptions	Probe 1.) What purposes does the drain serve in your community?
Beliefs	Probe 2.) Please share your opinions about whether an open or closed gutter /drain is better
Practices	Regarding water in the gutters and drains, do you use this water for anything in your daily routine? What happens to this water after it is used – where do you dispose of it?

Beliefs and Practices

Transmission of Health Messages	
Practices	Leading question: Which hygiene and health messages do you teach your children?
Beliefs	Probe 1.) Why are these messages important to your community?
Practices	Probe 2.) What are your community's prescribed practices for anal cleansing?

Beliefs Probe 3.) What do you all think about hand washing and the regularity of it within this community?
Probe 4.) Who are the most valuable information sources on hygiene and water sanitation in this community?
Perceptions

Ending Questions: The group discussion is about to end, so I want to close with two more questions.

Considering all of the issues discussed this afternoon, which do you feel are the most important in terms of your community's water sanitation?

If you had just five minutes with the Minister of Health based here in Accra, which key issues from our discussion would you highlight?

Appendix 3: Survey Recruitment Tool

Date of Interview: ___/___/___

Data Entry Completed by: _____

Entry Date: _____

Location and Stats

Name of Enumerator: _____

Date of Interview: _____

Community Name: _____

Household ID Number _____

GPS reading for position of house: North: _____

West: _____ Elevation: _____

Introduction

[Enumerator: Read the following introductory statement].

My name is _____ and I am working on this survey about sanitation and hygiene practices. The research is a student summer training report and the information collected from you will lead to developing appropriate sanitation and hygiene interventions for your community. The interview will be completely confidential and will take less than 30 minutes.

A. GENERAL INFORMATION

1. [Enumerator: What is the gender of the respondent?]

___ (0) Male

___ (1) Female

2. Age

___ (1) less than 20

___ (2) 20-25

___ (3) 26-30

___ (4) 30-45

___ (5) above 45

3. Marital status

___ (1) Married

___ (2) Single

4. Religion

___ Christian

___ Muslim

___ Traditionalist

5. Occupation

___ Farmer

___ Fisherman

___ Trader

___ Other _____ (please specify)

6. [Enumerator: Household is defined as dependants]

What is the size of your household including yourself?

___ No. of individuals

7. Composition of households

Age	Number
Less than 5 years	
5-11	
12-19	
Total	

8. What is the highest level of education you have completed?

	Illiterate	Primary school	JSS	Tertiary
Respondent				

B. SANITATION AND HYGIENE PRACTICES

B1. Toilet type and location (*Check as appropriate*)

System	Location:			How far?		
	Inside or attached to the house	In the household premises	Outside household premises	Less than 10 meters away (< 1 min walk)	10-50 meters away (1-3 min walk)	> 50 m away (> 3 mins walk); please specify
Flush with piped sewer system						
Flush with septic system						
Pour-flush to the pit						
Flush or pour flush elsewhere						
KVIP/ Simple latrine with floor/slap						
Bucket latrine (where excreta is manually removed)						
No facility (field, bush, plastic bag)						

B2. Methods used for anal cleansing

Water Paper Other: specify

When scarce, what do you do/use?

B3. Handwashing

Do you always wash your hands after going to the toilet?

If yes, do you use soap?

C. For the following household activities please put an X under whose responsibility it is to take care of it.

Activity	Mother	Father	Older Boy	Older Girl	House Help	Other, please specify
Laundry						
Dirty dishes						
Bathing children						
Disposal of child excreta						
Disposal of adult excreta						

D. PERCEPTIONS

D1. Rank the following in order of which you think is the cleanest to the dirtiest (5 being the cleanest, 1 being dirtiest).

Child excreta ____ Adult excreta ____ Urine ____ Animal excreta ____ Grey Water ____

D2. Religious practices influence your handling of excreta in my household. To what extent do you agree/disagree to this statement?

Totally disagree Disagree Indifferent Agree Totally agree

If yes, how?

D4. Preferred toilet facility. Which is the preferred toilet facility for

C4.1 For adults..... Why?.....

C4.2 For children..... Why?.....

D5. Improper handling of human excreta contaminates food and water and lead to diseases in households. To what extent do you agree/disagree to this statement?

Totally disagree Disagree Indifferent Agree Totally agree

D6. If D5 is positive (agree), identify three main ways in which excreta can contaminate food and water in your household, and how you can control it

How contamination takes place	How to control it
1.	
2.	
3.	

D7. Men should be more involved in sanitation work. To what extent do you agree/disagree to this statement?

Totally disagree Disagree Indifferent Agree Totally agree

If D7 is positive, what will you like them to do?

E. INFORMATION SOURCES

E1. For the listed categories provide the source of the information, the frequency you hear from that source, rank the relevance of that source as low medium or high and a method of.

Category	Source of information	Frequency of Source Information	Relevance of the source from Low, Medium, and High	Method
Sanitation	Mass Media (TV, Radio, AMA etc)			
	Parents			
	Religion			
	School			
	From Child			
	Friends			
Hand Washing	Mass Media (TV, Radio, AMA etc)			
	Parents			
	Religion			
	School			
	From Child			
	Friends			
Handling Excreta	Mass Media (TV, Radio, AMA etc)			
	Parents			
	Religion			
	School			
	From Child			
	Friends			
Under Cleansing	Mass Media (TV, Radio, AMA etc)			
	Parents			
	Religion			
	School			
	From Child			
	Friends			

Appendix 4: Post Interview and Focus Group Discussion (FGD) Memo

Date:

Interviewer:

Respondent:

Location:

1. Main themes and summary statements:

2. Questions and/or explanations about what was discussed:

3. Overall impression of the interview (or, FGD); does anything in particular stand out?

4. Possible revisions you would make to the Interview (or FGD) questions that were asked?

Appendix 5: Coding Scheme for In-depth Interview and Focus Group Discussion (FGD)

I. Practices

A. Community-based

-Market produce and fish purchasing practices

- Perceptions of “clean” or “unclean” produce and fish
- Reasons for going to particular market vendors
- Preparation undertaken to cook food, purify food
 - Reasons for following such practices
 - Religious teaching
 - Gender norms
 - Parental teaching
 - Formal education from school
 - Fear of infection
 - Someone in the community told me to
 - No reason

-Gutters and street drain

- Preference for open gutters and drains
 - Safety reasons
 - Cleanliness reasons
 - Functions of gutter, personal attachments and symbols
 - Religious advisory from local imam or minister
 - Just following community norms
 - Disease prevention
- Preference for closed gutters and drains
 - Safety reasons
 - Cleanliness reasons
 - Religious advisory from local imam or minister
 - Just following community norms
 - Disease prevention

-Household responsibilities

- Water source
- Who collects drinking and cooking water
- Expense and time
- Perceptions of water quality
- Perceptions of facility to access clean water
- Teaching children hand-washing and sanitation habits
 - Who’s responsibility
 - Religious reasoning used to teach them
 - Give them scientific explanation for avoiding germs
 - To what degree, children actively involved in water collection
 - To what degree, children exposed to dirty, or “gray,” water
 - What open or “gray” water sources children are exposed to

B. Personal Hygiene Practices

-Reason for Hand washing, based off of responses for larger community and the individual him/herself- comparison to community norms on hand washing

- Religious teaching
 - Scriptural reference
 - Imam or Minister's advisory
 - Learned from parents
 - Learned from church of mosque in general
 - "that's what we do – self-reference to religious group identity"
- Media influences
 - Radio messages from the AMA
 - Television campaigns
 - Billboard campaigns
 - Government regulations
- Disease Prevention
 - Reference to malaria prevention
 - Reference to diarrheal disease prevention
 - Reference to germs in general
 - Reflects accurate understanding of germ theory and disease transmission
 - Reflects inaccurate understanding of germ theory and disease transmission

-Anal Cleansing Methods and Toilet Practices –personal practices under larger practices category

- Toilet Type
 - Private – in-house bucket latrine, in-house pit, WC flush toilet
 - Public - KVIP, non-flush, open pit, latrine
- Perceptions of toilet cleanliness
 - Based on gender
 - Based on religious norms for cleanliness
 - Hearsay
 - Personal experience
- Anal cleansing/washing practices
 - Toilet paper – T roll
 - Graphic paper – newspaper
 - Washing
 - Combination of methods
 - Based on religious teaching
 - Scriptural reference
 - Imam or Minister's advisory
 - Learned from parents
 - Learned from church of mosque in general
 - "That's what we do – self-reference to religious group identity"
 - Based on availability
 - Based on social norm modeling

-Human excreta perceptions and disposal procedures

- Notions of “clean” and “unclean” surrounding fecal matter disposal and urine
- Difference in perception regarding adult versus child excreta
- Waste disposal procedure
 - Wherever convenient
 - In gutter/drain
 - Pay to have picked up by Zoomlion sanitation waste management company
 - Tie in bag and hide

-Exposure to disease

- Reference to disease resulting from poor sanitation
 - Malaria
 - Respiratory illness
 - Diarrheal disease
 - Germs in general
- Procedures taken to avoid exposure
- Relation of exposure to dirty, or “gray,” water
- Concerns about safety of self and others

II. Social Beliefs about Purity and Group Hygiene

-Moral connection to hygiene

- Source of legitimacy, government versus religious authority
- Strict versus relatively loose interpretation of religious laws
 - With or without direct reference to scriptural teachings
- How one gender perceives the other’s cleanliness versus its own
- Concerns about moral responsibility to larger group
- Concerns about maintaining self-purity

Appendix 6: Informed Consent Form for Survey Recruitment Tool

Emory University Global Health Institute
Consent to be a Research Subject

Title: Sanitation Systems and Strategies in Ghana:
Cultural Assessments and Policy Recommendations

Principal Investigator: Alison Kernohan

Co-Investigators: Shivani Jain, Maryam Khalid, Sheri Halpern, Bilal Alkatout

Funding Source: Global Health Institute

Introduction

You are being asked to be in a research study. You were chosen to be in this research study because of your location of residence. Approximately eighty participants are expected to be surveyed in this research study. The expected duration of the study is three months.

This form is designed to tell you everything you need to think about before you decide to consent (agree) to be in the study or not to be in the study. It is entirely your choice. If you decide to take part, you can change your mind later on and withdraw from the research study. The decision to join or not join the research study will not cause you to lose any benefits you would otherwise receive.

Purpose

The scientific purpose of this study is to look at potential new approaches to sanitation in Ghana.

Procedures

We are conducting household surveys with residents of metropolitan Accra, Ghana. The survey contains questions related to individual sanitation attitudes and behaviors and personal hygiene practices and standards. The 15 to 25-minute survey will be administered with the help of a local translator who speaks the local dialect. Some questions on the survey pertain directly or indirectly to sanitation assessment of the individual's house.

Risks and Discomforts

There is no foreseeable risk or discomfort associated with this study.

Benefits

This study is not designed to benefit you directly. This study is designed to facilitate the development of cultural assessments and policy recommendations. The study results may be used to help other people in the future. There may be no direct benefit from this study to you as a participant.

Compensation

You will not be offered monetary payment for being in this study. You will, however, receive a sewing kit for volunteering your time to participate.

Confidentiality

Certain offices and people other than the researchers may look at your study records. Emory employees overseeing proper study conduct may look at your study records. The offices of these Emory employees include the Emory Institutional Review Board and the Emory Office of Research Compliance. Emory will keep any research records we produce private to the extent we are required to do so by law.

Withdrawal from the Study

Participation in this study is voluntary. You have the right to leave a study at any time without penalty. This decision will not affect in any way your current or future care/services or any other benefits to which you are otherwise entitled.

The investigators have the right to stop your participation in this study without your consent if:

- They believe it is in your best interest;
- You were to object to any future changes that may be made in the study plan; or
- For any other reason.

Questions

Contact Shivani Jain at sjain22@learnlink.emory.edu:

- if you have any questions about this study or your part in it, or
- if you have questions, concerns or complaints about the research

Contact Maryam Khalid at this local telephone number, +233 548279722.

If you have questions about your rights as a research subject or if you have questions, concerns or complaints about the research, you may contact the Emory Institutional Review Board in the US at 00 1 404-712-0720 or e-mail at irb@emory.edu. The mailing address of Emory Institutional Review Board is listed below:

Emory University
 1599 Clifton Road, 5th Floor
 Atlanta, Georgia 30322

Consent

We will give you a copy of this consent form to keep. Do not sign this consent form unless you have had a chance to ask questions and get answers that make sense to you.

Nothing in this form can make you give up any legal rights. By signing this form you will not give up any legal rights. You are free to take home an unsigned copy of this form and talk it over with family or friends.

Please sign below if you agree to participate in this study.

Name of Subject

Signature of Subject

Date Time

Signature of Legally Authorized Representative (when applicable)

Date Time

Authority of Legally Authorized Representative or Relationship to Subject
 (when applicable)

Signature of Person Conducting Informed Consent Discussion

Date

Time

Appendix 7: Informed Consent Form for In-depth Interview

Emory University Global Health Institute
Consent to be a Research Subject

Title: Sanitation Systems and Strategies in Ghana:
Cultural Assessments and Policy Recommendations

Principal Investigator: Alison Kernohan

Co-Investigators: Shivani Jain, Maryam Khalid, Sheri Halpern, Bilal Alkatout

Funding Source: Global Health Institute

Introduction

You are being asked to be in a research study. You were chosen to be in this research study because of your location of residence. Approximately eighty participants are expected to be interviewed in this research study. The expected duration of the study is three months.

This form is designed to tell you everything you need to think about before you decide to consent (agree) to be in the study or not to be in the study. It is entirely your choice. If you decide to take part, you can change your mind later on and withdraw from the research study. The decision to join or not join the research study will not cause you to lose any benefits you would otherwise receive.

Purpose

The scientific purpose of this study is to look at potential new approaches to sanitation in Ghana.

Procedures

We are conducting 1-hour in-depth interviews with residents of metropolitan Accra, Ghana. The topics to be discussed are individual sanitation attitudes and behaviors, community-set sanitation goals, personal sanitation values, local leadership and infrastructure available to bring about widespread change in individual behaviors and practices, the role of open-drains and recreational water sources in the community, individual's connection to their water sources, local farming and produce consumption patterns, and personal hygiene practices and standards. The interview will be led with the help of a local translator who speaks the local dialect and will be recorded for future analysis and research application.

Risks and Discomforts

There is no foreseeable risk or discomfort associated with this study.

Benefits

This study is not designed to benefit you directly. This study is designed to facilitate the development of cultural assessments and policy recommendations. The study results may be used to help other people in the future. There may be no direct benefit from this study to you as a participant.

Compensation

You will not be offered monetary payment for being in this study. You will, however, receive a

gift of stationary for volunteering your time to participate.

Confidentiality

Certain offices and people other than the researchers may look at your study records. Emory employees overseeing proper study conduct may look at your study records. The offices of these Emory employees include the Emory Institutional Review Board and the Emory Office of Research Compliance. Emory will keep any research records we produce private to the extent we are required to do so by law. After being transcribed and translated, the audio-recordings will be archived at Emory University for study reference purposes. Only those individuals originally given permission to listen or watch the recordings will have permission to use them for research reference purposes.

Withdrawal from the Study

Participation in this study is voluntary. You have the right to leave a study at any time without penalty. This decision will not affect in any way your current or future care/services or any other benefits to which you are otherwise entitled.

The investigators have the right to stop your participation in this study without your consent if:

- They believe it is in your best interest;
- You were to object to any future changes that may be made in the study plan; or
- For any other reason.

Questions

Contact Shivani Jain at sjain22@learnlink.emory.edu:

- if you have any questions about this study or your part in it, or
- if you have questions, concerns or complaints about the research

Contact Maryam Khalid at this local telephone number, +233 548279722.

If you have questions about your rights as a research subject or if you have questions, concerns or complaints about the research, you may contact the Emory Institutional Review Board in the US at 00 1 404-712-0720 or e-mail at irb@emory.edu. The mailing address of the Emory Institutional Review Board is listed below:

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Please sign below if you agree to participate in this study.

Name of Subject

Signature of Subject

Date Time

Signature of Legally Authorized Representative (when applicable)

Date Time

Authority of Legally Authorized Representative or Relationship to Subject
(when applicable)

Signature of Person Conducting Informed Consent Discussion

Date

Time

Appendix 8: Informed Consent Form for Focus Group Discussion

Emory University Global Health Institute
Consent to be a Research Subject

Title: Sanitation Systems and Strategies in Ghana:
Cultural Assessments and Policy Recommendations

Principal Investigator: Alison Kernohan

Co-Investigators: Shivani Jain, Maryam Khalid, Sheri Halpern, Bilal Alkatout

Funding Source: Global Health Institute

Introduction

You are being asked to be in a research study. You were chosen to be in this research study because of your location of residence. Approximately eighty participants are expected to be in this research study. The expected duration of the study is three months.

This form is designed to tell you everything you need to think about before you decide to consent (agree) to be in the study or not to be in the study. It is entirely your choice. If you decide to take part, you can change your mind later on and withdraw from the research study. The decision to join or not join the research study will not cause you to lose any benefits you would otherwise receive.

Purpose

The scientific purpose of this study is to look at potential new approaches to sanitation in Ghana.

Procedures

We are conducting focus group discussions with residents of metropolitan Accra, Ghana. The discussion should last from 1 hour to 1 hour and 30 minutes. The groups will consist of 8-12 individuals and be divided by gender. The topics to be discussed are individual sanitation attitudes and behaviors, community-set sanitation goals, personal sanitation values, local leadership and infrastructure available to bring about widespread change in individual behaviors and practices, the role of open-drains and recreational water sources in the community, individual's connection to their water sources, local farming and produce consumption patterns, and personal hygiene practices and standards. The discussion will be led with the help of a local translator who speaks the local dialect and will be recorded for future analysis and research application.

Risks and Discomforts

There is no foreseeable risk or discomfort associated with this study.

Benefits

This study is not designed to benefit you directly. This study is designed to facilitate the development of cultural assessments and policy recommendations. The study results may be used to help other people in the future. There may be no direct benefit from this study to you as a participant.

Compensation

You will not be offered monetary payment for being in this study. You will, however, receive a gift of stationary for volunteering your time to participate.

Confidentiality

Certain offices and people other than the researchers may look at your study records. Emory employees overseeing proper study conduct may look at your study records. The offices of these Emory employees include the Emory Institutional Review Board and the Emory Office of Research Compliance. Emory will keep any research records we produce private to the extent we are required to do so by law. After being transcribed and translated, the audio-recordings will be archived at Emory University for study reference purposes. Only those individuals originally given permission to listen or watch the recordings will have permission to use them for research reference purposes.

Withdrawal from the Study

Participation in this study is voluntary. You have the right to leave a study at any time without penalty. This decision will not affect in any way your current or future care/services or any other benefits to which you are otherwise entitled.

The investigators have the right to stop your participation in this study without your consent if:

- They believe it is in your best interest;
- You were to object to any future changes that may be made in the study plan; or
- For any other reason.

Questions

Contact Shivani Jain at sjain22@learnlink.emory.edu:

- if you have any questions about this study or your part in it, or
- if you have questions, concerns or complaints about the research

Contact Maryam Khalid at this local telephone number, +233 548279722.

If you have questions about your rights as a research subject or if you have questions, concerns or complaints about the research, you may contact the Emory Institutional Review Board in the US at 00 1 404-712-0720 or e-mail at irb@emory.edu. The mailing address of the Emory Institutional Review Board is listed below:

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Consent

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Please sign below if you agree to participate in this study.

Name of Subject

Signature of Subject

Date Time

Signature of Legally Authorized Representative (when applicable)

Date Time

Authority of Legally Authorized Representative or Relationship to Subject
(when applicable)

Signature of Person Conducting Informed Consent Discussion

Date

Time

Appendix 9: Coded Record of Participants for Interviews and FGDs

To protect the privacy of interview respondents, interviews are cited in the text using a two-part code: For example (NT-MM1) or (JTCF2). The first part of the code refers to the location: either NT for New Town or JT for James Town. The second part of the code refers to religion and the gender of the participant: MM for Muslim male, MF for Muslim female, CM for Christian male, and CF for Christian female. The numbers that follow the second part of the code refer to the number assigned to that interview or focus group discussion for record-keeping purposes.

In-depth Interviews

New Town Muslim Males:

NTMM1, Interview with Larry Zahir and author. E. P. Bethel School, Accra, Ghana, 18 June 2010.

NTMM2. Interview with Larry Zahir and author. E. P. Bethel School, Accra, Ghana, 22 June 2010.

NTMM3. Interview with Larry Zahir and author. E. P. Bethel School, Accra, Ghana, 22 June 2010.

NTMM4. Interview with Larry Zahir and author. E. P. Bethel School, Accra, Ghana, 23 June 2010.

NTMM5. Interview with Maryam Khalid. E. P. Bethel School, Accra, Ghana, 23 June 2010.

NTMM6. Interview with Larry Zahir and author. E. P. Bethel School, Accra, Ghana, 24 June 2010.

New Town Muslim Females:

NTMF1. Interview with Larry Zahir and Maryam Khalid. E. P. Bethel School, Accra, Ghana, 21 June 2010.

NTMF2. Interview with Rahel and author. E. P. Bethel School, Accra, Ghana, 21 June 2010.

NTMF3. Interview with author. E. P. Bethel School, Accra, Ghana, 22 June 2010.

NTMF4. Interview with author. E. P. Bethel School, Accra, Ghana, 22 June 2010.

NTMF5. Interview with Rahel and Maryam Kahalid. E. P. Bethel School, Accra, Ghana, 23 June 2010.

NTMF6. Interview with Maryam Khalid. E. P. Bethel School, Accra, Ghana, 23 June 2010.

New Town Christian Males:

NTCM1. Interview with Maryam Khalid. E. P. Bethel School, Accra, Ghana, 18 June 2010.

NTCM2. Interview with Larry Zahir and author. E. P. Bethel School, Accra, Ghana, 18 June 2010.

NTCM3. Interview with Larry Zahir and author. E. P. Bethel School, Accra, Ghana, 21 June 2010.

New Town Christian Females:

NTCF1. Interview with Murjana Lawan and author. E. P. Bethel School, Accra, Ghana, 23 June 2010.

NTCF2. Interview with Murjana Lawan and author. E.P. Bethel School, Accra, Ghana, 23 June 2010.

NTCF3. Interview with Murjana Lawan and author. E. P. Bethel School, Accra, Ghana, 24 June 2010.

James Town Muslim Males:

JTMM1. Interview with Abdulai and Maryam Khalid. JTMM1's house, Accra, Ghana, 24 June 2010.

JTMM2. Interview with Abdulai. Seaview Hotel, Accra, Ghana, 25 June 2010.

JTMM3. Interview with Alex. Seaview Hotel, Accra, Ghana, 25, June 2010.

James Town Muslim Females:

JTMF1. Interview with author. Seaview Hotel, Accra, Ghana, 1 July 2010.

JTMF2. Interview with author. Seaview Hotel, Accra, Ghana, 1 July 2010.

JTMF3. Interview with Murjana Lawan. Seaview Hotel, Accra, Ghana, 2 July 2010.

James Town Christian Males:

JTCM1. Interview with Alex and author. Seaview Hotel, Accra, Ghana, 24 June 2010.

JTCM2. Interview with Alex and author. Seaview Hotel, Accra, Ghana, 24 June 2010.

JTCM3. Interview with Abdulai. Chief's Palace in James Town, Accra, Ghana, 1 July 2010.

JTCM4. Interview with Abdulai. Seaview Hotel, Accra, Ghana, 1 July 2010.

JTCM5. Interview with Alex. Seaview Hotel, Accra, Ghana, 2 July 2010.

JTCM6. Interview with Alex. Seaview Hotel, Accra, Ghana, 3 July 2010.

James Town Christian Females:

JTCF1. Interview with author. Seaview Hotel, Accra, Ghana, 1 July 2010.

JTCF2. Interview with Murjana Lawan. Seaview Hotel, Accra, Ghana, 2 July 2010.

JTCF3. Interview with Murjana Lawan. Seaview Hotel, Accra, Ghana, 3 July 2010.

JTCF4. Interview with Murjana Lawan. Seaview Hotel, Accra, Ghana, 5 July 2010.

JTCF5. Interview with Murjana Lawan. Seaview Hotel, Accra, Ghana, 5 July 2010.

JTCF6. Interview with Rahel. Seaview Hotel, Accra, Ghana, 6 July 2010.

Focus Discussion Groups

NTMM1. 10 participants. Conducted by Larry. E. P. Bethel School, Accra, Ghana, 16 June 2010.

NTMM2. 10 participants. Conducted by Larry. E. P. Bethel School, Accra, Ghana, 15 18 June 2010.

NTMF1. 10 participants. Conducted by Murjana Lawan. Islamic Women's Community School, Accra, Ghana, 30 June 2010.

NTMF2. 8 participants. Conducted by Murjana. Islamic Women's Community School, Accra, Ghana, 7 July 2010.

NTCM1. 10 participants. Conducted by Abdulai. E. P. Bethel School, Accra, Ghana, 17 June 2010.

NTCF1. 6 participants. Conducted by Rahel. E. P. Bethel School. Accra, Ghana, 12 July 2010.

JTMM1. 10 participants. Conducted by Abdulai and Larry Zahir. Seaview Hotel, Accra, Ghana, 15 June 2010.

JTMF1. 10 participants. Conducted by Murjana Lawan and author. Seaview Hotel, Accra, Ghana, 30 June 2010.

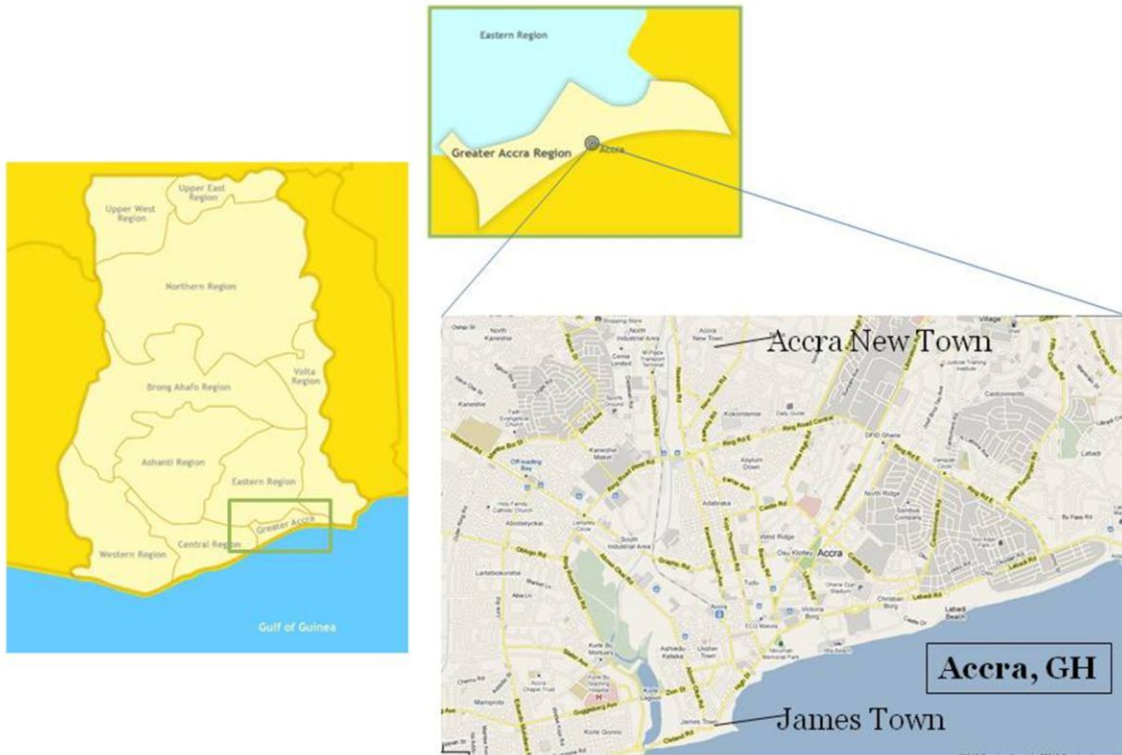
JTCM1. 8 participants. Conducted by Alex. Seaview Hotel, Accra, Ghana, 20 June 2010.

JTCM2. 10 participants. Conducted by Alex. Seaview Hotel, Accra, Ghana, 18 June 2010.

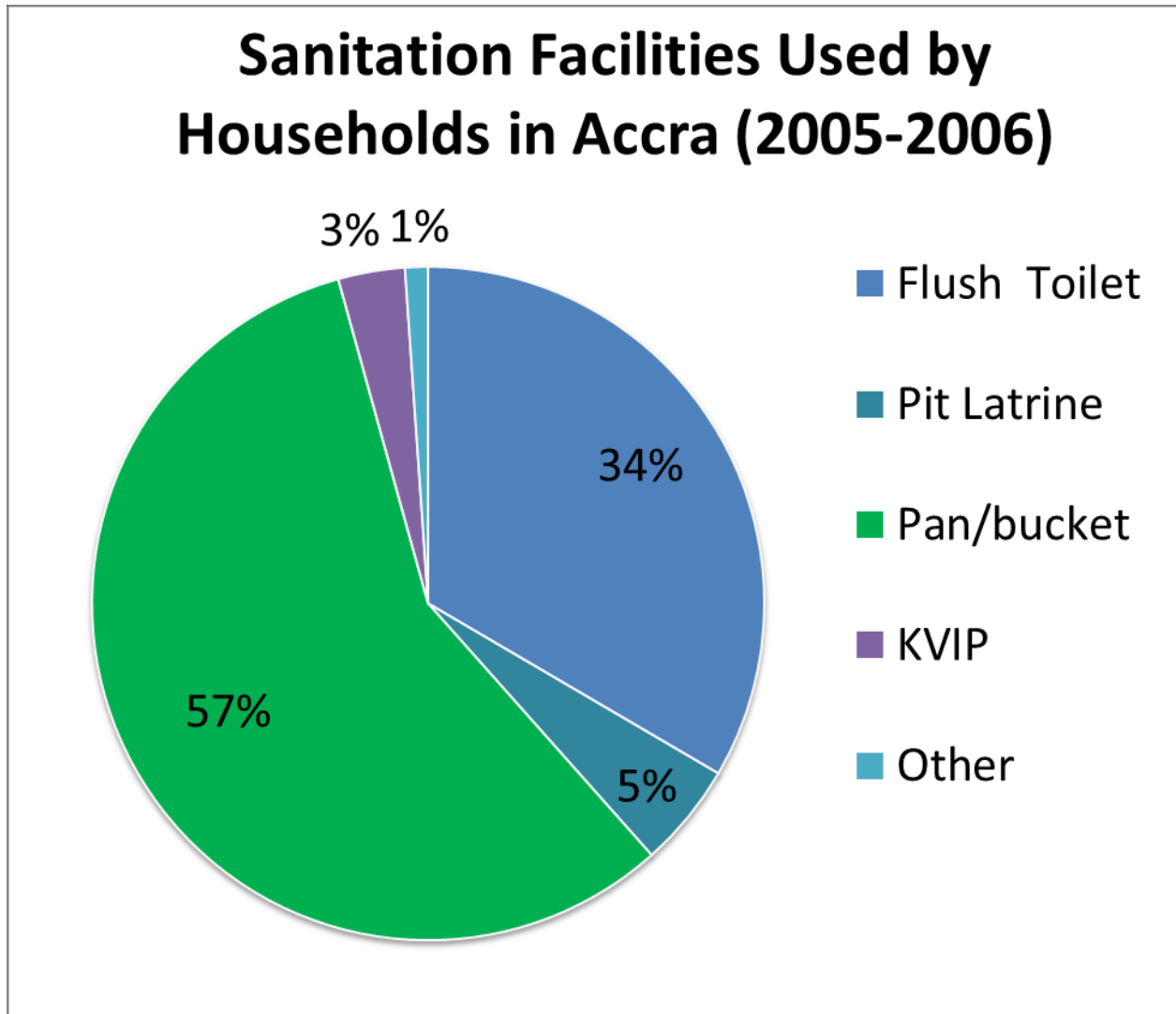
JTCF1. 10 participants. Conducted by Murjana and author. Seaview Hotel, Accra, Ghana, 20 June 2010.

JTCF2. 10 participants. Conducted by Murjana and author. Outdoor closed patio area in central James Town, Accra, Ghana, 27 June 2010.

Appendix 10: Map of Study Area



Appendix 11: Sanitation Facilities Used by Households in Accra (2005-2006)



Appendix 12: Institutional Structure of Ghana's WSS

MAJOR PLAYERS IN GHANA'S WATER AND SANITATION POLICY

