

**Adding Injustice to Injury - Health Perceptions, Plurality, and Power in the
Ongoing Bhopal Disaster**

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Abbreviations

SCI - Supreme Court of India

GOI - Government of India

MP - Madhya Pradesh

UCC - Union Carbide Corporation

UCIL - Union Carbide India Limited

MIC - Methyl Isocyanate

ICMR - Indian Council for Medical Research

TISS - Tata Institute for Social Sciences

ICJB - International Campaign for Justice in Bhopal

Abstract

Standards of health, human rights, and development are typically defined and dictated by policymakers instead of the populations directly affected by so-called development efforts. This paper seeks to contextualize global development efforts by highlighting specific local realities among the community of Bhopal Disaster survivors in Madhya Pradesh, India. As the site of the world's largest industrial disaster, a disaster which is not over but ongoing, Bhopal represents an important population to highlight as the disaster continues. The Political Ecology of Health model was used to highlight political and environmental influences on community health. Within Political Ecology, this study takes a rights based approach to health, emphasizing the Structural Violence influencing health patterns among Disaster survivors. While these frameworks are useful, both focus on the political, social, and environmental systems individuals are embedded in, making an Anthropological perspective necessary to highlight the agency of the people within the "system." Through a critical review of the literature, interviews with Disaster survivors being treated at Sambhavna Trust Clinic, and key interviews with activists and medical professionals, this study seeks to better understand community health and development on the community's terms and, when possible, in Bhopali's own words.

Introduction

Field Study Objectives

“Anyone who wishes to be considered humane has ample cause to consider what it means to be sick and poor in the era of globalization and scientific advancement.”

Dr. Paul Farmer (2003: 6)

Interactions between health, environment, and political economy in understanding human health issues are under-explored today. The Political Ecology of Health model seeks to fill this gap by “examining the political economy of disease, interrogating health discourses, and understanding the interactions between social and environmental systems” (King 2010: 38). This multi-disciplinary theory is especially important to consider in the context of the Union Carbide disaster-affected population in Bhopal, Madhya Pradesh, the site of a highly political disaster impacting human and environmental health. It is important to focus on this population because, as Dr. Paul Farmer articulates, “Medicine and its allied health sciences have for too long been only peripherally involved in work on human rights” (2003: 213). While examining interactions between political economy, environment, and health, the status of inequality and human rights will be considered using Dr. Farmer’s Structural Violence analysis. Structural Violence analyzes the deep connections between public health crises and political and economic injustices to reveal ways in which power imbalances lead to violations of health and human rights (Farmer 2003). Though Farmer focuses on communicable disease transmission and many of the Bhopal disaster survivor-specific health concerns are noncommunicable, the biocultural nature of these health crises remains the same. Patterns throughout the world in the spread of AIDS, Tuberculosis, hypertension, and most of the worlds health epidemics make evident the

international community's inability to fulfill Article 25 of the 1948 Universal Declaration of Human Rights which states:

“Everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including food, clothing, housing, and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age, or other lack of livelihood in circumstances beyond his control”

Analyzing Structural Violence in the context of the Bhopal Disaster reveals the corporate, social, and governmental powers which allowed the Disaster to occur in the first place and allow it to continue today at the expense of some of Bhopal's poorest citizens.

While Political Ecology of Health and Structural Violence analyses are important for understanding disease epidemiology and social determinants of disease, most of the literature thus far limits itself to an Allopathic perspective “with little attention to differing explanatory models of health and disease” (Harper 2004: 295). This is why a “critical medical anthropology interpretation of political ecology is necessary...[as] only through historical analysis and local-level empirical study can the most equitable and effective policy recommendation be made” (Harper 2004: 295-297). This study will try to correct the Allopathic bias in political ecologies of health and public health analyses of gas-victim health by highlighting Ayurvedic approaches to community health needs and by asking patients their own perceptions of health, environment, and development, giving a more holistic picture of health on local terms. The Anthropological interpretation of Political Ecology of Health places human agents at the center of the discussion within their political, cultural, and environmental contexts.

Similarly, as a practicing MD, Farmer's Structural Violence analyses reflect the Allopathic tradition in their observations of disease patterns and recommendations for treatments and health policies. Though Farmer is right to believe all people should have rights to Allopathic medicines and research advances, he neglects to mention the possibility of people exercising

their rights *from* Allopathic medicine or the validity of other healing traditions. In order to avoid an Allopathic monopoly on health perceptions and practices, so-called “indigenous” and “alternative” health systems must be included in Structural Violence and Political Ecology of Health dialogues. This study seeks to promote a more pluralistic understanding of health by examining Allopathy, Ayurveda, and Integrative medicines in practice and attempting to understand the study population’s own preferences and definitions of health. To provide a more concrete context for the Political Ecology of Health and Structural Violence analyses, this study will emphasize the multilayered public health issue of hypertension as addressed by Allopathy, Ayurveda, and Integrated treatments.

Bhopal Disaster survivors represent a crucial population for continued research, especially considering the responsible parties’ inabilities to address the needs of the community and a global lack of awareness of realities of the largest industrial disaster to date. Taking a Critical Medical Anthropology approach to Political Ecology of Health and Structural Violence analyses in this context will help to better understand the current status of environmental and holistic human health in the Bhopal Disaster. Insight gained from a critical review of the literature, interviews with Ayurvedic doctors at Kayakalp in Palampur, Himachal Pradesh, Allopathic and Ayurvedic practitioners at Sambhavna Clinic, Sambhavna patients and activists in Bhopal shed light on seven descriptive questions: (1) How did social and political determinants make the Bhopal disaster possible? (2) How have social and political determinants allowed the Bhopal disaster to continue for some of Bhopal’s poorest citizens? (3) What roles do Allopathy, Ayurveda, and Integrated Medicines have to play in treating victims of the disaster? (4) What are some of Allopathy and Ayurveda’s strengths and weaknesses in promoting health and treating ailments? (5) What are some situations which warrant integration of Allopathy and Ayurveda?

(6) How do patients at Sambhavna perceive Ayurveda, Allopathy, health, environment, and development? (7) What influences Sambhavna patients' preferences for Ayurvedic, Allopathic, or Integrated treatments?; and, finally, the analytic question: How can Allopathy, Ayurveda, and other medical systems better interact to address the needs of the community?

Field Study Methods

This study focuses on the Disaster affected community being treated at Sambhavna Trust Clinic, a nonprofit facility in Old Bhopal where Allopathy, Ayurveda, and Yoga are used independently and Integratively to treat Disaster survivors. Interviews with patients were conducted to illuminate patient treatment preferences, perceptions of Ayurveda and Allopathy, hypertension awareness and interpretations, and understandings of health, environment, and development. In total, 13 men and 13 women were interviewed for a total patient sample population of 26. Of the sample population, 16 were interviewed in Sambhavna's waiting area and 9 were interviewed in their own home or the home of a relative, and 1 was interviewed at his work location. No individuals under 18 were interviewed and the identities of all patients are concealed in this report for their privacy. Informed verbal consent was obtained from patient interviewees before interviews which were recorded on a digital device and later transcribed for analysis. A translator was used to translate between English and Hindi and the translator played the role of "friendly listener", establishing a rapport and asking questions in a casual manner with flexibility to ask follow-up questions beyond the interview schedule. One interview was stopped early as the translator observed the respondent became uncomfortable answering questions in front of a man who came nearby to listen. Most interviews were conducted surrounded by curious listeners in the form of other patients at Sambhavna or friends, family members, and neighbors in the home. Its possible that the presence of these individuals influenced respondents answers but would have been culturally inappropriate to ask these people to leave. Additionally, because the translator was a male, female respondents probably chose not to disclose some of their health information and perceptions-especially as it relates to sexual health. A similar effect probably occurred among male respondents as the researcher was female.

Key interviews with three Ayurvedic practitioners at Sambhavna and Kayakalp in Palampur, Himachal Pradesh were conducted to understand their professional opinions on Ayurvedic interpretations of health and hypertension and the benefits and difficulties of integrating the disciplines in general. The purpose of these interviews were to better understand Allopathy and Ayurveda's strengths and weaknesses, their integration in practice and potential, and their interpretations of causes, symptoms, and treatments for hypertension/rakta gata vata. Interviews with two activists were conducted to gain different perspectives on community health as key informants and to understand their perceptions of Ayurveda and Allopathy in meeting community health needs.

the Ongoing Bhopal Disaster

“Green” Revolution

The Bhopal disaster was precluded by a disaster 41 years earlier—the Bengal Famine of 1943 which killed millions in a single year (Padmanabhan 1973). Throughout India’s “development”, the nation has struggled to feed its booming population and in the 1970’s the Government of India ushered in the Green Revolution to increase domestic food production. This period saw the increased use of high yield seed varieties, pesticides, fertilizers, and irrigation. In addition to becoming self-sufficient in grains via increased wheat production, the Green Revolution resulted in the Indian Government inviting foreign companies to produce pesticides and fertilizers in India. The Government entered a partnership with the American Union Carbide Corporation (UCC) in the creation of Union Carbide India Limited (UCIL) to create a plant for



the production of Sevin near Bombay. When the plant moved from Bombay to Bhopal, the Government of India owned 49% of shares of UCIL with the remaining portion owned by UCC (Dinham 2002). Though the land used for the plant was zoned only for commercial and light industrial use, residents of illegal slums in Old Bhopal were displaced for the construction of the UCIL plant in 1982 (Broughton 2005). At this time, UCC had already established a pesticide factory in the United States but decided to cut down on safety systems in the Bhopal factory to cut costs. The Bhopal factory was made nearly

\$8 million cheaper by using ordinary steel instead of stainless steel and by installing large tanks for storing the chemical methyl isocyanate (MIC) so fewer tanks were needed than in the West Virginia plant (Sarangi 2011). By the end of 1984, demand for Sevin diminished as local farmers could not afford the pesticide after years of poor crop yield. The plant had ceased production, laid off workers, and shut down the refrigeration system meant to keep the methyl isocyanate cool (Sarangi 2011).



Dec 2-3, 1984 and Litigation

“On the gas night I was sleeping. I had never heard about Union Carbide or their factory before that night. My nephew was the first to wake up with burning in the eyes. We thought that there were chillies, red chillies, put on the fire because of the burning in the eyes and in the throat that was happening. We opened the door to see people running. We used to live in a joint family, there was 37 members in the family, so when we came to know about that they were in all directions and I along with other people searched for the people. After running for half a kilometer my eyes had swollen shut and my throat was burning with irritation in the lungs[...] The condition was horrible[...] people were asking for death from the god, praying ‘god please give us death.’”

Rashida Bee, Gas Survivor and Trustee at Chingari Rehabilitation Center (2013)

On the night of December 2, 1984, while the citizens of Bhopal slept, the deadliest industrial disaster on record occurred just after midnight as a runaway exothermic reaction at a Union Carbide India Limited pesticide plant pumped forty metric tons of highly toxic MIC gas into the air. Due to the failure of multiple safety protocols, some 200,000-600,000 people were rudely awakened with burning throats and stinging eyes as the gas wafted into their homes and immediate death tolls from the disaster range from 2,000-3,800 (Sathyamala 2012, Broughton 2005, Varma 2005). In the immediate aftermath of the disaster, the Madhya Pradesh (MP) government refused to fund a systematic study on the exposed population leaving the Tata Institute of Social



Sciences (TISS) to do so independently (Sathyamala 2012). Simultaneously, the Indian Council of Medical Research (ICMR) began providing gas-exposed families with unique identification

numbers for research on longterm epidemiology and began conducting double-blind studies to assess the efficacy of Sodium Thiosulphate (NATS) as a treatment for the poisoning (Sathyamala). However, due to opposition from the UCC supported medical lobby in Bhopal, the ICMR did not follow through with its NATS recommendations and the MP government decided to suppress data collected by TISS on 25,259 gas-affected households (Sathyamala).

Meanwhile UCC was entrenched in legal battles, attempting to minimize responsibility for the disaster, denying culpability, and refusing to release its toxicological information on MIC (Sathymala 2012). While liability cases dragged on in Indian courts, the District Court of Bhopal ordered UCC to pay interim compensation of Rs. 350 crore which was reduced to Rs. 250 crore by an appeal (Bangia 2008). Indian Parliament passed the Bhopal Gas Leak Disaster (Processing of Claims) Act, effective 20 Feb, 1985, which gave the Government of India (GOI) exclusive right to represent victims of the disaster in the case against UCC. The Supreme Court of India (SCI) applied the principle of ‘absolute liability’, established by *M.C. Mehta v. Union of India*, holding UCC completely liable for the disaster and the company was left to settle with GOI for compensation. Though the GOI had initially claimed compensation of US\$ 3 billion (Dinham 2002), after four years of litigation Union of India settled with UCC for just US\$ 470 million (Rs. 750 crores) compensation to some 50,000 cases (Bangia). Somehow another principle in Toxic Tort set forth by *M.C. Mehta*, that compensation awarded should be proportional to the economic superiority of the offender, was deemed inapplicable to the UCC case (Bangia). Due to the 1985 Bhopal Act, UCC was able to make an “arbitrary settlement” based on gross underestimates with the GOI as the sole representative of victims for “all claims of the present and the future arising out of the disaster” (Sathyamala 2012: 39). After minimal payouts, UCC holds no more legal responsibility over the status of the disaster in Bhopal leaving the GOI

responsible for any additional claims-the question of UCC's moral responsibility to the Bhopal community is less settled.

Beyond 1984 - (Ir)Responsibility and (Ill-)Health

“It has been 28 years since the disaster and even for a single day I have not felt well, I have not gone a single day without taking medicine and I cannot sleep without taking sleeping pills. I have many issues in breathing, high blood pressure, pain in the muscles and the bones. I have never felt one hundred percent after the disaster...”

Rashida Bee (2013)

“We are the gas victims, we cannot do any work, half of my body is paralyzed.. I cannot do anything. I've been having problems ever since the disaster (anxiety, pain..) before the disaster my health was good. We are just living we are nearly dead since the disaster. It would be better if we died because then it would be over and we would not be suffering”

65 Year Old Gas Affected Man

Nearly 29 years have passed and the Bhopal disaster continues. Though the gas stopped leaking back in 1984, ongoing groundwater contamination, chronic gas-exposure related illnesses, lack of adequate compensation, insufficient treatment facilities, lack of sufficient research on longterm health impacts, and apathy of the onlooking global community add up to what has been dubbed the “Second Bhopal Disaster.” An ongoing disaster that shows no end in sight due to the inaction and inefficiencies of responsible parties. DOW Chemicals bought out UCC in 2001 and, despite having settled all of UCC's domestic liabilities after buying out the company, claimed that it was not responsible for the Bhopal disaster as it did not own UCC when the disaster occurred. With no corporation to be held liable for compensating Disaster victims, the Governments of India and Madhya Pradesh are left to deliver services to the affected citizens of Bhopal. The SCI had ordered that a full-fledged, properly equipped hospital be established to serve the gas victims which lead to the creation of the Bhopal Memorial Hospital (BMH) from the funds of UCC's sale of their shares in UCIL.

Victims were forced to take the situation into their own hands by seeking care at BMH and appealing the overcrowded courts for compensation. Within this system, justice was slowed and by 1994 it was found that 74% of victim claims were rejected, interim relief of 200 Rs per person had been discontinued, processing of all compensation was estimated to take 15 more years due to an insufficient number of claims courts, and the ICMR had halted disaster-related medical research (Bangia, Reddy 2012). The legal status of the disaster remained stagnated after the settlement until late 2012 when the SCI passed a judgement with “clear directions to the Government of India, the Government of Madhya Pradesh, and the ICMR to comply with a variety of tasks” (Reddy 2012: 4). This ruling is a step toward justice-but mandating justice and achieving it are two different things. Whether the GOI, MP government, and ICMR will fulfill their duties is another story that only time can tell. MIC’s full impact on human health remains unknown but an estimated minimum of 120,000 survivors still suffer from chronic gas-related illnesses and approximately 30 people die each month from exposure related illness (Dinham 2002). Approximately 44000 people have been affected by contaminated drinking water over the years and three communities still await clean drinking water in Old Bhopal (Roopa 2013 and Dhingra 2013). The Bhopal Disaster affected community faces major public health issues almost 29 years later and treatment facilities are lacking in both quality and quantity. For example, at Bhopal Memorial Hospital and Research Center over 50% of posts are vacant and despite 2 lakh gas victims suffering lung-related problems, relief hospitals are not equipped to treat patients suffering from pulmonary disease (Ayub 2012, Hindustan 2012). These problems of lack of access are reflective of the overall poverty-health scenario in India.

As the factory was built on government-subsidized land in Old Bhopal, home to lower socioeconomic status communities of Bhopal, it was the poor who were most affected by gas-

exposure and continue to suffer disproportionately due to contaminated water, unhygienic conditions, and lack of quality care. In addition to being predisposed to nutritional deficiency disorders and diseases related to lack of hygiene as impoverished communities, gas and water contamination have left Disaster Survivors with laundry lists of multiple diagnoses. Within the sample population of 26 Sambhavna patients, an average of 4.74 health complaints per person were recorded ranging from infertility to dizziness to tuberculosis. This is probably an underestimate as no menstrual disorders were reported and only one case of mental illness was self reported (both common among Disaster survivors and unlikely to be reported due to stigma). The five most common complaints disclosed were hypertension, vision problems, diabetes, shortness of breath/breathing problems, and leg pain. Gas-exposed populations have increased likelihoods of birth defects, chronic breathlessness, menstrual disorders, blindness and vision problems as expected by the nature of MIC exposure. The full extent of MIC on human health is unknown as Union Carbide refuses to release its toxicological information on the substance. Those affected by water contamination are at increased risks of skin, ocular, pulmonary, and gastrointestinal disorders (Roopa 2013). Little is known about the accumulative effects of toxins in contaminated water on other bodily systems. Disaster survivors are also at a higher risk for diseases such as Tuberculosis and Hypertension compared to people of similar socioeconomic backgrounds.

Industrial Medicine in the Industrial Condition

Toxicity and Affordability

“Every system of medicine has its own specialities as well as limitations. In case of chronic illnesses, disorders caused due to chronic exposure to toxins where detoxification is required and diseased conditions where unnecessary use of harmful drugs could be substituted by alternative medicine, Allopathy may not be the best choice of treatment.”

Ayurvedic Dr. Roopa Baddi (2013)

All government hospitals established for Bhopal Disaster survivors are Allopathic facilities. In theory, Allopathy is a system of medicine utilizing treatments with the best bases in current clinical evidence based on the principle that opposites cure. In reality, Allopathy today is “pervaded by a value system characteristic of an industrial-capitalistic view of the world in which the idea that science represents an objective and value free body of knowledge is dominant” (Lock 1988: 3). In favoring pharmaceutical prescriptions, excessive reliance on expensive technologies, and hyper-specialization, most Allopathic practices are reflective of the industrial-capitalistic condition, resulting in isolation of the health of part of a physical human body from other parts of itself, commodification of healthcare, and the physical body’s alienation from its social, psychological, and environmental components. As Dr. Varma points out,

“Physicians interact professionally with patients and derive material benefit. The patient seeks the service of the designated best healer within the limits of affordability for cure and not for testing the merit of science. If one system fails, the patient tries another, and there is a stream of assuring healers ranging from spiritualists to specialists (2011: 20).”

It is obvious that Allopathic medicine has not been able to divorce itself from its industrial, capitalist roots. One consequence of this is observed in adverse drug reactions (ADRs). ADRs are an “important source of morbidity and mortality during medical care” (Shepherd 2012).

While their impact in India has yet to be fully realized, analysis of CDC statistics reveals that

ADRs now kill more Americans annually than illegal drugs (Glover 2012). Though Allopathic providers supposedly abide by the principle of ‘do no harm’, they knowingly prescribe drugs with serious side effects often before attempting milder forms of treatment. Additionally, ADRs disproportionately affect already marginalized populations, such as the elderly, highlighting problems of inequality within the Allopathic system (Shepherd 2012). As the only government facilities provided to Bhopal Disaster survivors are Allopathic, the toxic load on Disaster survivors is compounded by medication. In addition to ADRs inherent to drugs when appropriately prescribed and when prescription instructions are followed, gas-victim hospitals have been found to dole out prescriptions for drugs such as antibiotics and steroids unnecessarily, irrationally, and sometimes dangerously. Frequency of substandard and/or expired medicines in government gas relief hospitals are higher than the India average (Katrak 2010).

In yet another industrial-capitalist hangup of the Allopathic tradition, patients are harmed by the profit-driven nature of pharmaceutical companies. Drug researchers and producers depend on human illness to sustain themselves. As long as companies profit from human sickness, there will be no incentive to provide real, lasting cures for illnesses. Pharmaceutical companies rely on their consumers’ dependence and have incentive to make patients addicts of the drugs they manufacture. As the poor are already under financial stress, this affects them disproportionately as a higher portion of impoverished households’ incomes go towards medical costs. The more money a poor person spends on medications and other healthcare costs, the less money he or she has to allocate towards nutritious food, adequate housing, or education. Without these basic needs, health is further harmed and the individual is trapped in a vicious cycle of ill health and dependence on medical services which can be costly. As the Bhopal Disaster survivors already bear financial burdens and suffer myriad disaster and non-disaster related health problems, this

vicious cycle is one survivor's bodies and wallets cannot afford. The fact that the only government hospitals provided for survivors are Allopathic facilities utilizing potentially toxic and expensive medications and treatments is alarming and highlights gaps in diversity of appropriate, affordable treatment options for Disaster survivors. Sambhavna patients from the sample population visited an average of 3 other facilities before coming to Sambhavna and only 3 individuals were still visiting a facility other than Sambhavna at the time of the study. Others gave up on treatment at government and private hospitals with 75% of respondents claiming that these facilities did not give long-term relief.

“Science of Life” - Ayurveda

“I prefer the Ayurvedic treatment because it has been given by our forefathers, inherited.”
52 Year Old Gas Exposed Man (2013)

Considered one of the oldest medical traditions in the world, the word Ayurveda comes from the Sanskrit *ayur* (“life”) and *veda* (“knowledge”) and is defined by many practitioners as the “science of life” (Ashutosh 2013). Ayurveda is rooted in ancient Hindu Vedic texts, tracing all the way back to the *Atharva Veda* from 1200 BC (PEHP), with the practice primarily based off the early Common Era writings of *Charaka Samhita* and *Shushruta Samhita*, and is deeply entwined with Hindu religion and philosophy (Davis 1996). This “science of life” is based upon the basic principles of the *doshas*, or governing principles that determine and influence physical and psychological makeup. The three doshas, based upon nature’s essential elements, are *vata* (ether and air), *pitta* (fire and water), and *kapha* (water and earth) (Ashutosh 2013, Davis 1996). In Ayurvedic thought, it is believed that each person is born into the world with a unique dosha composition called *prakriti* and health is achieved when the doshas maintain their unique balance

within the individual. The doshas are believed to be highly vulnerable to influences by physical, mental, spiritual, social, and environmental factors and when they are out of balance, disease occurs in the prakriti called *vikriti*.

Ayurveda places less emphasis on specific symptoms presented by an individual and instead attempts to consider them within the context of the individual in its entirety. A typical Ayurvedic consultation includes Rogi Pariksha examination, or an in-depth verbal investigation into the individual's physical, mental, lifestyle, environmental, social, and spiritual wellbeing (Badyal 2013). This holistic investigation into the health of an individual is based on the Ayurvedic axiom that, "One should be more interested in what kind of patient has the symptoms than in what kind of symptoms the patient has." (Davis 1996). Ayurveda seeks to relieve symptoms and promote health by addressing imbalances which are believed to underlie manifested symptoms-getting to the root cause of ill-health and promoting well-being. Ayurveda encourages the individual to take control of their own health by emphasizing dietary, lifestyle, and mental actions patients can take to manage their health. Additionally, Ayurvedic herbs and medicines are often more accessible because they are cheaper and easier to produce than Allopathic pharmaceuticals synthesized in labs. In some cases, patients can grow their own Ayurvedic medicines or find them cheaply the local vegetable market reducing reliance on pharmaceutical companies. Of the Sambhavna patient sample, 31% preferred Ayurvedic treatment to Allopathic with the main explanations being Allopathic medicines do not work to cure and have negative side effects. 46% of respondents preferred Allopathic medicines with the main reasons being that it provided immediate relief and was what they were accustomed to. 23% of patients preferred both with the main reasons being that both systems were good and one system was not enough to provide relief.

Medical Colonialism

“Every empire, however, tells itself and the world that it is unlike all other empires, that its mission is not to plunder and control but to educate and liberate.”

Edward Said (2003)

The degrees to which Ayurveda and other Indian systems of health have coexisted, adapted, or been pushed towards extinction by Allopathy vary widely among rural and urban settings and from region to region within India. Throughout the beginning stages of colonization, Allopathy remained confined within particular populations of a few port towns (Bombay, Pondicherry, etc...) without much competition or coordination with “indigenous” medicines. However, in the 1860’s when the Royal Commission on the Sanitary State of the army and provincial sanitary commissioners expanded state medicine and tropical medicine based on germ theory of disease was established in the 1890’s, Allopathy broke out of its “enclavism to become one of the most confident expressions of British political and cultural hegemony in India” (Arnold 1993: 11). This time marks the beginning of Allopathy’s interactions with Ayurveda and other traditions. Institutionalized changes to the Ayurvedic discipline in the 19th century were largely reactionary to Allopathy, “brought about by the vaidya community in order to strengthen their system against the colonial policy of promoting Western medicine” (Sujatha 2011). During this time, Allopathic-style college education was implemented in place of the traditional guru-shishya system of imparting knowledge and medicinal production moved from individualized practitioner production towards standardized bulk production (Ashutosh 2013, Sujatha 2011).

Since then, especially after Indian Independence, globalization, and the growth of India’s formally educated population, Ayurveda continues to evolve. Signs of adaptations are apparent in Ayurvedic medical schools’ Allopathic-style anatomy requirements, development of Ayurvedic treatments for modern conditions, emphasis on treatments and prescriptions,

Ayurvedic practitioners' use of Allopathic diagnostics, and more (Badyal 2013 and Ashutosh 2013). Shifts like these represent Ayurveda's efforts, due to a combination of colonial appropriation, middle-class-driven hegemonic coercion, and voluntary action, to selectively incorporate Allopathic ideology and methods into its practice and compliment the Allopathic discipline. While Ayurveda has been integrating Allopathic practices and perspectives into its discipline for centuries now, Allopathy has tended to resist reciprocating. As Arnold articulates,

“It has aptly been said that the position of medicine today is “akin to that of state religions yesterday.” [Allopathy] has acquired an officially approved monopoly of the right to define health and illness and to treat illness” (1993: 9).

This monopoly on medical thought and practices has resulted in the marginalization of Ayurveda and other medical systems as mere “alternative medicines” to Allopathy instead of being represented as valid medical practices in themselves. This homogenization of medical practices assumes the universal superiority of Allopathy in treating all ailments for all people and is dangerous on many levels. Dr. Varma points out that,

“Allopathy has its limitations. even common diseases such as diabetes and hypertension can be controlled but cannot be cured. Consequentially, one may expect modern and other schools medicine to co-exist in a mutually hostile relationship for a very long time” (2011: 20)

While Varma's prediction has held true thus far, few facilities throughout India and the rest of the world are moving to reconcile this hostile relationship between Allopathy and other systems. Despite vast epistemological differences in the disciplines, some facilities are exploring the benefits of a mutually beneficial relationship through Integrative medicine.

Integration in Practice and Potential

“One is not enough, it's not about what I prefer or like its what I have to do.”
60 Year Old Gas Exposed Woman

Many Ayurvedic philosophies and practices are, in fact, supported by a small but growing body of Allopathic clinical research but largely ignored by Allopathic institutions and practitioners. If Allopathic practitioners truly aspire to practice the most effective, scientifically based medicine, this should include evidence-supported benefits of so called “alternative” treatments. For example, the use of Yoga as a treatment for respiratory disorders has been well established and was established as particularly helpful for reducing drug-dependence among Bhopal Disaster Survivors (Mumtani 2005, Gupta 1984). Many similar treatments, considering the dangers of pharmaceuticals and invasive procedures, could be considered first-line methods of treatments as opposed to mere “alternative” medicines. Considering the worldwide boom of lifestyle diseases, the use lifestyle treatments (i.e. diet, exercise, etc..) are particularly promising as these are the basics of day-to-day health and most dietary plans do not come with the same risk of negative side-effects as pharmaceutical prescriptions. This makes the paucity of research on dietary and vitamin treatments particularly interesting considering the classic Allopathic, Hippocratic oath to “do no harm.” Allopathic researchers and practitioners could benefit from returning to another piece of knowledge from Hippocrates to “let thy food be thy medicine and thy medicine be thy food” (Smith 2004). In a survey of internal medicine interns’ in the US, only 14% believed physicians had adequate training to provide nutritional counseling despite 94% of respondents (n=61) agreeing it was their obligation to discuss nutrition with patients (Vetter 2008). Dietary recommendations represent an important possibility for Allopathic integration of Ayurvedic principles.

But these dietary recommendations must be solidly confirmed to be safe and beneficial in order to recommend them to patients. Ayurvedic Dr. Ashutosh (2013) explicitly admits to giving dietary orders to patients which were “not supported by research-based evidence” (ex: eating

more tomatoes for heart problems since a tomato, like a heart, has four chambers). While this, among other non-evidence based Ayurvedic treatments, may be somewhat beneficial to patients, they could be further refined to the benefit of patients and practitioners. Ashutosh highlights a significant lack of medical research on the use of nutrition as treatment for disorders beyond obesity, high cholesterol, and a few other disorders. Additionally, a high degree of personal interpretation of Ayurvedic texts is required as Dr. Roopa points out,

“Sometimes it is difficult to advice because the Ayurvedic texts explain diet and lifestyle according to the food habits and activities those existed thousands of years ago. Most of the things are extinct or have changed in today’s world. Hence the Ayurvedic Physician has to consider the basic principles of Ayurveda and decide the beneficial and non-beneficial things for the patient. In spite of this if it is not possible then it is better to take a dietician’s or specialist’s advice” (2013).

Ayurveda, among other medical traditions, could benefit from further applications of Allopathic-style clinical research for evidence supported treatments. Conducting clinical research on Ayurvedic treatments, diets, and prescriptions can ensure those treatments are not harming patients and can lead to more efficient treatments. While this runs the risk of damaging Ayurveda’s legitimacy by revealing some ineffective or even harmful treatments (for example, potentially harmful levels of heavy metals in some traditional Ayurvedic medications as highlighted by Dargan (2008) and others) it ultimately will benefit health of patients. Additionally, the notion that Ayurveda and other “traditional Indian medicines” have remained in their pristine, pure states throughout the years, especially as evident in changes throughout colonialism, is false (Arnold 1993, Ashutosh 2013, Badyal 2013, Sujhata 2011). Just as biodiversity is necessary for the health of the Earth’s ecosystems, medical diversity and a pluralistic, dialectical understanding of interactions between medical systems in India and the world is necessary. Diversity of thought and practice is necessary in medical practice to better

preserve and promote healthy human lives. Though this study emphasizes Allopathy and Ayurveda, Integrative Medicine must remain open to diverse medical traditions.

It is important to note that not all aspects of Allopathy which have been integrated into Ayurveda necessarily should be. Sujatha (2011) points out that the pharmaceuticalization of Ayurveda today represents negative ramifications of integrating the wrong aspects of Allopathy. Selectivity is necessary when assimilating medical knowledge and it is important to closely monitor the directions of such integrations. On a similar note, not all potentially beneficial aspects of Allopathy have been fully integrated into Ayurveda yet. However, Ayurvedic dietary advice is also closely tied to Hindu religious diets such as naturalizing vegetarianism and supporting the “cultural taboo of cow eating” which do not necessarily need to be propagated (PEHP:177). Just as not all aspects of Allopathy should be integrated into other practices, Ayurveda comes with its own cultural heritage making direct exportation of Ayurveda difficult and in some cases, inappropriate.

Allopathy will benefit if it incorporates the evidence-supported importance of complete physical, spiritual, psychological, emotional, social, and environmental well-being into its paradigm. The industrial-capitalistic bias towards pharmaceuticals in Allopathy must be addressed if the discipline truly aspires to meet the holistic health needs of people. Ayurveda and other medical disciplines can better inform Allopathy’s transition in this direction. Similarly, Ayurveda and other medical systems stand to benefit by integrating appropriate Allopathic perspectives and practices to prevent harm and improve outcomes and through an adaptive, symbiotic relationship. Perfecting their practices by testing them on the “anvil of contemporary science” (PEHP:177). By understanding and selectively embracing each others’ methods and ideologies and becoming self aware of internal weaknesses, Ayurveda, Allopathy, and the

medical practices of the world can work cooperatively to strive for the highest level of holistic health. A 2004 review of the literature on “Complimentary and Alternative Medicine” practices for treating cardiovascular disease found that there is a lack of data on the effects of such therapies on clinical outcomes and knowledge about potentially adverse effects and interactions between Allopathic therapies and herbs and supplements is also lacking (Miller et al.). This highlights the need to Integrate medical systems cautiously with close attention to possible negative interactions between treatments of the different disciplines.

Possibilities at Sambhavna Trust

Established in 1995, Sambhavna Trust is a facility offering Ayurvedic, Yogic, Allopathic, and Integrated treatments free of cost to gas and contaminated-water affected community members in Bhopal. Sambhavna has registered over 23,000 gas and water affected persons who are largely low-income survivors (Katrak 2010). The word “Sambhavna” translates from Hindi to mean possibilities—a fitting name for a facility demonstrating what is possible if practitioners from diverse schools of thought overcome epistemological differences to treat patients cooperatively. Sambhavna supports individuals’ rights to health by providing consultations, treatments, and medications free of cost to Disaster affected patients and by locating itself in the heart of impoverished, disaster-affected communities in Old Bhopal. Sambhavna attempts to address holistic aspects of community health through community outreach with community health workers, educational programs, recreational facilities, a canteen, a serene natural environment, and engagement in community events. Though Sambhavna’s model seems to be an exemplary one, whether it is replicable in other circumstances or on a larger scale is unclear as it is funded largely by foreign donations and depends on the small community of committed workers and activists who are so committed to this cause.

Of course, no system is perfect and especially with a system so novel there is always room for improvement. Sambhavna does its best to remain self-critical and aware of its flaws. This was evident at weekly Sambhavna staff meetings which were very democratic in nature, with all staff members’ voices carrying equal weight and all aspects of the clinic open for discussion. Though interviewed patients expressed satisfaction with the quality of care at Sambhavna, they expressed concerns about certain barriers to access they encountered. Patient

complaints about barriers to care at Sambhavna highlighted the cost of transport to the clinic (19% of respondents), long waiting times (15.3%), lack of emergency services (11.5%), difficulties walking to the clinic (11.5%), limited hours of operation (7.7%), doctor absences (7.7%) and 19% of patients did not mention complaints or recommendations for Sambhavna Trust. To address the problems of cost of transport to Sambhavna and difficulties walking to the clinic, one man suggested some form of free transportation bus for patients to and from Sambhavna. The problems of long waiting times, lack of emergency services, and limited hours of operation would require increased resources in both money and manpower for Sambhavna. However, the problem of doctor absences seems easily remediable. One woman visited Sambhavna two mornings in a row, arriving early before the clinic had opened to avoid waiting in line for the doctor all day, only to discover after a few hours that her doctor was not coming that day. She claimed even if she calls in the morning to ask whether her doctor will be in, the guard who answers could not tell her and thus she wasted two mornings waiting for her doctor who was out of the office. If Sambhavna could have their doctors report whether or not they will be absent before 5 am the morning of the absence-then patients could call to confirm whether their doctor will be in the office or not before traveling to Sambhavna to wait in line.

Additionally, Sambhavna's treatment of mental health is lacking as there is currently no counselor or psychologist on staff and the Allopathic and Ayurvedic Doctors were not practicing outright counseling at the time of this study. This was concerning as one 59 year-old gas exposed respondent noted her "mind has not been right since the disaster" (2013). Another patient, not an interview respondent, approached the interviewers in the Sambhavna waiting area and, without provocation, began to cry and express his depression in life. As mental health is highly stigmatized and the disaster was a highly traumatic event its likely many more people than these

two individuals suffer mental disturbances. This underlies a less emphasized public health problem in the Bhopal Disaster-the lack of adequate mental health facilities in Bhopal. Though this is a problem common throughout India, the likely high prevalence of Post Traumatic Stress Disorder in Bhopal makes this lack of mental health care especially tragic. Sambhavna's potential to fulfill a significant gap in mental health treatment could be in the form of Yoga which is a well established form of treatment for depression (Broad 2012).

No More Bhopal

Recommendations for Further Study

“We need to make room in the academy for serious scholarly work on the multiple dynamics of health and human rights, on the health effects of war and political-economic disruption, and on the pathogenic effects of social inequalities, including racism, gender inequality, and the growing gap between rich and poor.”

Paul Farmer (2003: 241)

Huge gaps in research on the full impacts of MIC, water contamination, and birth defects related to the Bhopal Disaster remain to be done by the ICMR and independent research groups. Research on efficacy of non-pharmaceutical treatments and Integrative treatments for the Disaster survivors and for medical practices in general represent vast opportunities for future clinical research. Additionally, research into enforceable standards, preventative strategies, and disaster preparedness can help to prevent future Bhopals from occurring. Its important that such research be conducted and funded by groups without vested interests in the industries being examined as self-monitored research is what lead to the Bhopal disaster in the first place. Sambhavna’s well kept electronic patient-history records represent an interesting opportunity for future research projects, especially in investigating the efficacy of Allopathic, Ayurvedic, and Integrated treatments. It would also be interesting to compare Sambhavna to other area hospitals, clinics, and private providers by interviewing both patients and practitioners to determine average number prescriptions at the facilities, comparative patient awareness of their diagnoses and treatments, patient demographics, patient and practitioner definitions of health, etc.

Recommendations for Future Action

“Even 28 years after the disaster people are still suffering in Bhopal. The conditions have gone from bad to worse. The diseases have come in the second and third generations and the number of victims is increasing. So, wherever, the United States or any other part of the world, wherever they see that there are companies like Union Carbide and they are spreading the chemicals like the poison and everything they should try and struggle against the setting up of the company. They should fight against the corporate crimes and they should take Bhopal as an example and they should make sure that such things do not repeat themselves. There should be no more Bhopal and that would be the biggest victory of the struggle. To make people aware of the poison spread by the company and the harm this company caused for humanity... So people should take Bhopal as an example and make sure that no such thing happens again in the future like Bhopal gas tragedy and whenever they see the company that is committing corporate crimes which could lead to such disasters in the future they should fight against them.”

Rashida Bee (2013)

“it is time to take health rights as seriously as other human rights, and that intellectual recognition is only a necessary first step toward pragmatic solidarity, that is, toward taking a stand by the side of those who suffer most from an increasingly harsh “new world order.”

Farmer (2003:246)

“Even if I say something what can a man do to change things?”

101 Year Old Gas Affected Man (2013)

Critical scholarship is not enough to right injustices like the ongoing Bhopal Disaster. Too often, research does not figure into the interests of the researched. Though researchers play a critical role in exposing injustices, what matters most is what we do with these revelations. Throughout interviews with patients at Sambhavna, two reoccurring themes emerged. The first was a call for adequate compensation. The longer the affected community goes uncompensated, the longer their health problems will be left to fester and worsen and the more people will die prematurely. As Adam Smith, known as the father of capitalism, articulates,

“The necessities of life occasion the great expense of the poor. They find it difficult to get food, and the greater part of their little revenue is spent in getting it. The luxuries and vanities of life occasion the principal expense of the rich... It is not very unreasonable that the rich should contribute to the public expense, not only in proportion to their revenue, but something more than in that proportion.”

People in Bhopal have waited almost 29 years for appropriate compensation and cannot afford to wait any longer. While GOI, MP government, and Union Carbide/DOW Chemicals have passed the buck for nearly three decades, tens of thousands of Bhopalis have died due to Disaster related complications. Citizens must put pressure on all of these groups to provide adequate compensation and contribute their own resources to ensure local demands are finally met. The second major theme respondents made clear was that such a catastrophe should never happen again. The Bhopal Disaster is not only ongoing in Bhopal but reoccurring throughout the world. During the period of this study alone, two major industrial disasters, the pesticide plant explosion in Waco, TX and the Bangladeshi garment factory collapse claimed hundreds of lives. With the knowledge of these ongoing events, it was hard for this researcher to keep from breaking down when a 60 year-old gas exposed woman looked her in the eye to tell her,

“Life is very important, whether in your country or in another. So if there is something that can hurt lives you shouldn’t have it in your country or another. God doesn’t give us the right to kill anyone. People who have done this they should not be forgiven.” (2013).

Through oversight and negligence, the worlds biggest corporations make it clear they value profit over people. Every time a company evades liability and gets away with insufficient compensation, they receive a signal that such acts are forgivable. These situations cannot be characterized as “accidents” but must be represented for what they truly are - preventable, manmade disasters.

It’s easy to feel powerless in the face of a disaster the scale of the Bhopal Disaster, especially after the passage of so much time. But if corporations and governments cannot be held fully accountable for the world’s largest industrial disaster, when can they be held accountable? Beyond putting pressure on GOI, MP government, and UCC/DOW, Individuals can support Bhopal Disaster survivors by donating time, resources, or skills to local organizations such as Chingari Trust Rehabilitation Center, Sambhavna Trust Clinic, or the International Campaign for

Justice in Bhopal. Individuals can utilize the power of their status as consumers and educate themselves to become more responsible consumers-refusing to support corporations who pollute environments and bodies with toxins, who exploit human and natural resources, and who do not protect the health and safety of their workers or the communities they work in. Most importantly, individuals can take interest in the Bhopals happening in their own backyards. Any fight against corporate crimes, throughout the world, is an act of pragmatic solidarity with Bhopal Disaster survivors to ensure there are no more Bhopals.

“History says, Don't hope
on this side of the grave.
But then, once in a lifetime
the longed-for tidal wave
of justice can rise up,
and hope and history rhyme.

So hope for a great sea change
on the far side of revenge.
Believe in miracles
and cures and healing wells.

Call the miracle self-healing:
The utter self-revealing
double-take of feeling...”
— Seamus Heaney

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Appendix I. Medical Professional Interview Questions

What are your qualifications (degree(s)/location of studies)?

How long have you been practicing? How long have you been practicing at Sambhavna?

To what extent do you interact with the Allopathic doctors at Sambhavna? Do you ever discuss patient's cases with the Allopathic doctors? Do you refer patients to the Allopathic doctors?

What ailments are hardest to treat with Allopathy?

What ailments are hardest to treat with Ayurveda?

What ailments are best treated with Allopathy?

What ailments are best treated with Ayurveda?

What situations warrant the integration of Allopathy and Ayurveda?

What are some of the advantages and disadvantages of integrating Allopathy and Ayurveda?

Do you believe all people can be treated using Allopathic medicine? Are there any groups of people who should not be treated using Allopathic medicine?

Do you believe all people can be treated using Ayurvedic medicine? Are there any groups of people who should not be treated using Ayurvedic medicine?

How do you adjust your treatments when you know a patient is also taking Allopathic treatments?

How do you define rakta guta vata?

How do the Ayurvedic texts explain rakta guta vata?

How do you interpret rakta guta vata as relating to hypertension?

What are some underlying causes to rakta guta vata?

What treatments work best for rakta guta vata?

What lifestyle recommendations, if any, do you suggest to patients with rakta guta vata?

Do you think your patients are likely to follow your dietary or lifestyle recommendations for rakta guta vata? Why or why not?

Do you think your patients are likely to follow your Ayurvedic medication instructions for rakta guta vata? Why or why not?

Is it easier to get your patients to adhere to dietary/lifestyle recommendations or medications?

What does the word “health” mean to you?

What does “environment” mean to you?

How does “environment” impact your health?

India is considered a “developing” country and many changes have occurred in recent years due to economic expansion and “modernization”. What does “development” mean to you? Who do you think is benefitting from this development? Who do you think is being harmed by this development?

In the U.S., the vast majority of allopathic physicians do not feel adequately prepared in their educational backgrounds to provide nutritional counseling to patients. As a physician, do you feel adequately prepared to provide nutritional counseling to patients?

Do you feel adequately prepared to provide psychological counseling to patients? Do you ever refer patients to a psychologist or counselor?

What do you believe are some of the biggest health issues facing the gas-affected community in Bhopal today? What needs to be done to solve these issues?

How does “development” impact the environment here in Bhopal?

Who is benefiting from India’s “development”? How?

Who is being harmed by India’s so-called “development”? How?

Appendix III. Patient Interview Schedule

Name: Age: Gender: Occupation (if any):

Health Background

How long have you lived in Bhopal? (If grew up elsewhere-where are you from?)

How were you affected by the UC disaster? Gas exposure? Exposed family member? Water contamination?

What health effects do you experience today because of the disaster? Do you have any non-disaster related health problems?

What health facilities (ex: private doctors, Bhopal Memorial Hospital, etc...) have you tried in the past?

Did you find relief from treatments there?

Are you visiting any doctors outside of Sambhavna now?

Do you regularly visit the same doctor(s) or do you frequently visit different doctors?

How did you find out about Sambhavna?

Health Preferences

Why do you come to Sambhavna instead of other facilities today?

Which type of doctor do you prefer? Allo/Ayur/both/other?

Has a doctor at Sambhavna ever referred you to Yoga? Did you go? Do you still go?

Has a doctor at Sambhavna ever referred you to another hospital? Did you go? Did you receive the treatment you needed there?

Are you currently on any medications or receiving any treatments regularly? How many Allopathic? Ayurvedic?

If you had chronic headaches, would you prefer to visit an Ayurvedic or Allopathic doctor and why?

How could Allopathy help relieve a headache?

How could Ayurveda help relieve a headache?

What ailments are best treated by Ayurveda?

What ailments are best treated by Allopathy?

What ailments are best treated by Yoga?

Are there any reasons Allopathy and Ayurveda should not be used together?

General Health and Lifestyle Questions

What does “health” mean to you?

What do you do in your day to day life to promote your health?

Describe your typical breakfast. Lunch? Dinner? Do you prefer rice or chipati? What type of chipati? Do you, or whoever is doing the cooking in your home, put salt in your subzi and other dishes? Do you snack between meals? What do you snack on? How often do you eat dessert? What do you eat for dessert? Do you take sugar in chai? How many cups of chai do you drink in a day?

What is your main form of exercise? How often do you do it and for how long?

What happens to a person’s health if they do not exercise? Why?

Hypertension

Has a health care professional ever told you that you have hypertension or high blood pressure?

If yes-What do you think hypertension or high blood pressure is? What type of treatment/medication are you receiving for hypertension? Has this worked to reduce your BP and/or related symptoms? Did the doctor tell you about dietary choices to help your hypertension? Lifestyle choices? Do you know how hypertension can affect your health?

If no- Does anyone you know have hypertension? Do you know what you can do in your day-to-day life to prevent hypertension? What foods are good for lowering blood pressure? What foods can raise blood pressure? Do you know how hypertension can affect your health?

Diabetes

Has a health care professional ever told you that you have diabetes?

If yes-What do you think diabetes is? What type of treatment/medication are you receiving for diabetes? Has this worked to reduce your blood sugar levels and/or related symptoms? Did the doctor tell you about dietary choices to help your diabetes? Lifestyle choices?

If no- Does anybody you know have diabetes? What do you think diabetes is? Do you know what you can do in your day-to-day life to prevent diabetes? What foods are good for diabetic patients? What foods should be avoided?

General Environment/Development

What does “environment” mean to you? How does the environment impact your health? How has the environment been affected by the Union Carbide factory?

There is a lot of talk of India as a “developing” country and the importance of economic development. India’s GDP is expected to increase by 5.7% this year meaning the economy is expanding and more money is coming in to India. Some people interpret this as meaning the country is rapidly “developing” economically. What does “development” mean to you? Has your life been affected by this “development”? Do you think this economic development has harmed you, benefitted you, or had no impact? How? Who do you think is benefiting? Does this “development” impact your health? How has “development” impacted the environment?

Many people in the United States and throughout the world are unaware of the disaster situation here in Bhopal today, do you have any message you would like to be shared with such people?