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RESEARCH ARTICLE

A REPORT ON THE HEALTH AND LITERACY ATTRIBUTES OF NAGA VALADIA, A RURAL VILLAGE IN INDIA

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ABSTRACT

In an attempt to elaborate on the health and literacy attributes of a rural region in India, quantitative surveys were conducted over two six day periods in the village, Naga Valadia. Data describing the infrastructure, politics, and education as they relate to literacy and health outcomes are reported. Naga Valadia is unique in its sophisticated infrastructure and significant commitment to educating the youth; however, it, like most rural areas in India, it is plagued with substance abuse and non-sustainable sources of income. A profile of Naga Valadia, postulated causes of its successes and failures, and future implications are discussed in detail. This paper aims to elaborate on the state of affairs of Naga Valadia and how the researchers' organization can implement sustainable solutions in an attempt to eradicate the aforementioned issues.

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INTRODUCTION

Although there has been significant improvement in health, education, and infrastructure in rural India over the last few decades, current standards are bleak in comparison to other nations (Agarwal *et al*., 2013). With the Indian government prioritizing reinvestment into rural areas, where approximately 70% of Indians reside, rural poverty rates have declined significantly. Poverty has often been correlated with chronic health issues, illiteracy, and low life expectancy (Fan *et al*., 2000). Many recent government regulation changes have focused on alleviating poverty–often regarded as the root cause of the lack of development in India. Gujarat isthe pioneer of many such changes, and with just 5% of India's population, Gujarat now accounts for over 7% of India's GDP, 10% of its workforce, and a fifth of its exports (Fan *et al*., 2000).

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Gujarat also boasts a 10% higher literacy rate than the national average – many of these attributes have arisen only in the recent decades are a direct effect of the policy advancements of the State Government of Gujarat (Kam *et al*., 2009). Approximately two-thirds of Gujarati Indians reside in rural areas and have benefitted directly from the recent advancements of the state. Villages in these rural regions have seen increased financing for government-run schools and for infrastructure (both water and electricity). Gujarat has one of the most sophisticated electricity grids in India and cites the lowest nationwide rate of blackouts and electricity outages (Naik and Nurullah, 1995). One specific area, and the focal point of USC Project RISHI's (USCPR) efforts, is Naga Valadia – asmall village located near the metropolitan city of Adipur. Compared to urban populations, rural populations often have lower income, lower education levels, and significantly worse health outcomes. Naga Valadia, unlike most other villages, has demographic attributes similar to (and in some cases surpassing) nearby urban populations (Datt and Ravallion, 1992).

Along with a relatively high pediatric literacyrate, Naga Valadia also has well-maintained infrastructure and indistinguishable rates of chronic diseases compared to its nearest city, Adipur. Most of the success can be attributed to a well-established political structure in the village that has made a commitment to allocating the government sanctioned funds actually to the schools, instead of popular other alternatives such as temples. However, Naga Valadia is not devoid of issues: adult illiteracy, death due to common infection, and substance abuse are prevalent. This paper aims to elaborate on the state of affairs of Naga Valadia and how the researchers' organization can implement sustainable solutions in an attempt to eradicate the aforementioned issues.

MATERIALS AND METHODS

USCPR aims to aid vulnerable rural populations by providing them sustainable solutions to problems in the organization's five major tenets: health, water, education, economics, and energy. After Prime Minister Narendra Modipledged significant financial support to his home state of Gujarat, it became a target state for USCPR initiatives. Given that funding would not be a problem for the local areas, USCPR could effectively develop sustainable solutions that utilize the funds appropriately. In rural areas, the lack of development is often not due to a lack of resources, but to a misallocation of them. With the knowledge of incoming resources to rural areas in Gujarat, the USCPR team decided to focus on the rural areas around Adipur, a small city in the Kutch district of Gujarat, because of previous professional and personal connections to the area.

The USCPR team performed a mixed methods analysis in Naga Valadia, a village located 26kilometers (km) from Adipur. The surveys that gathered both quantitative and qualitative data were produced by the USCPR team and measured demographic, health, financial, and cultural data. Most questions required numerical responses to ensure the USCPR's ability to quantitatively analyze the data; however, significant anecdotal evidence was also gathered. The village covered a relatively large area, so the houses were dispersed. As a result, it was impossible to target all the homes. Instead, the team surveyed a select group of 10 homes, and then requested individuals to come to a central location in the village.Each survey interview contained 40-60 questions that were asked in the native language of the villagers (Gujarati). A translator assisted in the dictation to ensure the accuracy of the responses being transcribed. The surveys were also specialized based on occupation and social role in the village; for example, teachers, parents, children, and health practitioners all received different surveys based on their primary role. This was done to increase the efficiency of the interviews and gather more specific data; for example, a parent may not know specifics of his or her child's education, but a teacher would.

VILLAGE PROFILE

1.The village of Naga Valadia is in the Kutch district of Gujarat (Figure 1) (http://www.veethi.com/places/gujarat-kutch-district-288.htm). The village has a population of 1300 residents, and about 400 homes.

Naga Valadia reports about one to two deaths per year, and about three births per year, according to records kept by the village head. The village is almost uniformly Hindu, and the village mandir (temple) is located centrally in the village and serves as a convenient gathering place. Geographically, Naga Valadia is located 2 km from the nearest highway, and entrance in and out of the village is facilitated through one main road. In terms of facilities, the nearest hospital, pharmacy, and market are all located in Adipur, 26 km from the village. Adipur is a mid-sized city, and is the home to the Tolani Institutes– a system of colleges with emphases on management, engineering, and pharmacy.

Infrastructure and Household Utilities

The buildings are organized around the roads and are well-maintained, most being constructed out of concrete composites. The roads are rudimentary dirt clearings, but are well-maintained with few potholes. Asphalt and tar are not used; such structural integrity is not needed for paths with little vehicular traffic, though navigating roads by car is accomplished with ease. Roads are typically 3-4 meters wide, with houses lining both sides. Their dimensions are not consistent in the village, but generally do fall in the previously mentioned range. One road enters the village after splintering from the highway**;** this is the main road of the village that connects the primary health center to the centrally located cow stable, and to the panchayat (administrative center) and temple. Due to recent legislation focusing funding to the development of electricity hubs for rural areas in Gujarat, blackouts, poor connections, and lack of access to electricity have become rare. Naga Valadia has taken full advantage of the government provided electricity, and almost each house in the village has a consistent source of light. The average monthly electricity expenditure for a household is 727 Indian Rupees (Rs) with a range of Rs. 500 – 1100. Of the villagers interviewed, zero complained about lack of sustainable electricity.

While most houses do have areas for defecation, the lack of a sophisticated sewage system still plagues Naga Valadia, even though flush-toilets are present in the school. As a progressive village with proper allocation of funds, segregated bathrooms for males and females were constructed in conjunction with the school. Little attention was paid to the sewage system of the rest of the village. Most in-house toilets contain stagnant wells where the feces accumulate; these are cleaned intermittently, but the frequency of the sanitation is unknown. Despite the lack of centralized sewage and drainage, accumulated waste is not apparent anywhere in the village. This is a significant step forward in comparison to other villages, where practices of defecation in public areas are common (Banda *et al*., 2007).

Access to drinking and bathing water is not a pertinent issue in Naga Valadia. A central silo serves the entire village, and costs are covered by a communal fund which costs Rs. 200 a month per family. Compared to other areas of rural India, where water borne diseases account for a significant health hazard, Naga Valadia provides safe drinking and bathing water maintained by the village government (Jalan and Ravallion, 2003). A general summary of a typical household's utilities is displayed in Table 2.

Figure 1. Location of Kutch region in Gujarat

As the Indian subcontinent becomes increasingly interconnected with technology, USCPR surveyed the means to connect Naga Valadia to other cities and to the world. This includes motor vehicles and other technology. These results are displayed in Table 3.

Table 1. Utilities for the Average Villager in Naga Valadia

Electricity and Sewage
Water from Silo
Running Water
Electricity + Lighting
Bathrooms
Toilets
Stovetop
Refrigerator

Education

The village has a government-run school, which starts at the beginning of November and runs the entire year with the exception of a three-month break. The school was built (and is sponsored by) Eficor (New Delhi) and Sahaara Charitable Trust (Mumbai). The school in the village provides education up to 7thstandard, and children are required to go to the local school until this grade.

There are 171 children (76 boys, 95 girls) enrolled in the school with each class containing approximately 20 students (maximum = 29, 2nd grade). Every teacher has a Master's degree from an Indian college. The subjects taught are math, science, Gujarati, and social sciences. English is taught from sixth to eighth grade, although according to Principal Lakhadhira, teachers are not fluent.

Table 2. Technology/Transportation for the average villager in Naga Valadia. *Many villagers do own a tractor for their farms, but all still rent a tractor once every 2 months

Technology	
Cell Phones	(Min. 1 per household)
Motorcycle	
Car	
Tractor	*

Table 3. Yearly and monthly income and expenses in Indian Rupees (Rs)

	Yearly	Monthly	General Expenses Per Month
Maximum Income	Rs. 50,000	Rs. 4166	Rs. 5000
Minimum Income	Rs. 10,000	Rs. 833	Varied

The school has a science laboratory with multiple microscopes. Additionally, there is a computer lab with 11 computers for the students. The principal did mention that the only major element the school would need was a high definition overhead projector. The facilities in the school when visited were cleaner, more equipped, and had significantly better student to teacher ratios than some schools even in the United States (Pong and Pallas, 2001; www.unicef.org/media/files/ Fast_Facts_-_FINAL.doc). Small classroom messes and daily cleaning is performed by the female students, which the villagers considered acceptable and within social customs; however, two outside workers are routinely hired for cleaning as well.

There is no fee for school attendance in the village; however, the fees for uniforms and other necessities are around Rs. 3000-5000 (USD $50-80). Because the tuition for the school is free, there are no financial burdens that would hinder the children from participating; therefore, the required attendance does not impose substantial strain on the parents. Sixty percent of students continue education in nearby villages or Adipur, and pass 12th grade. The students are known to pursue a Bachelors of Commerce or go into the business field. The fees for college in Adipur or at Tolani are typically around Rs. 5,000-10,000 per year.

Political Climate

A defining characteristic of the village is its political continuity over the past two to three generations. Villages in India are often led by a sarpanch – an elected head of a panchayat (local village governmental body) (Pong and Pallas, 2001). The sarpanch holds significant weight in all village matters, from fiscal allotment of funds to cultural practices and customs. The current sarpanch has been the central figure of the village for the past twenty years. She succeeded her husband, who was sarpanch for over thirty years. Now in her late eighties, she has handed over the active duties, such as allocation of funds, organization of community events, and meetings with other heads of villages to Mr. Karson Kangad, a well-respected member of the village. The political stability and seamlessness of transition of power has led to satisfaction with the political system and reverence for the sarpanch.

Economic Climate

While water in the village is not an issue, the inconsistent rains and lack of irrigation in the fields manifest the mselves in a larger economic problem. Most farmers have land in Anjar (neighboring region, 20km from Naga Valadia), and there is no infrastructure for irrigation in these fields. Thus, the villagers depend solely on the rains for their crop yield. Farmers reported their yearly income as a maximum of Rs. 50,000($733 USD), but as low as Rs. 10,000($147 USD). The lack of water in the fields isa very pertinent problem, and less rain directly correlates to a reduced income, as reported by the villagers – sometimes by more than 75%.The expenses of each household can generally run around 5,000 rupees per month ($78) for food and gas. Thus, during healthy rains, the income of the village is in the upper quartile of all rural Indians and generally meets monthly expenses. However during dry seasons, incomes are in the bottom 10% of Indian villagers, and there is a severe disparity in amount of money needed for comfortable living and disposable income (http://ihds.info/ sites/default/files/publications/pdf-files/ 02H Di nIndia.pdf). This inconsistency in yearly income causes obvious instability. This is the self-reported costs of food, electricity, and gas. During the seasons when rain is plentiful, the basic daily needs are sufficiently met. However, during low income seasons, farmers reported that they compensated for the income disparity by lowering the amount spent on food items.

Health - Substance Abuse

Most males in the village chew tobacco. According to the sarpanch, over 90% of men in the village are habitual users. Of the men interviewed, all but one claimed to be habitual tobacco users since childhood. Recent studies investigating trends of tobacco usage amongst adults across the nation report a 37% rate of smokeless tobacco usage (Sinha *et al*., 2015). Compared to other rural areas as well, the incidence in Naga Valadia seems to be considerably higher than the 50% reported by Corsi and colleagues (Corsi *et al*., 2014). Men spend anywhere from Rs. 150-750 per month on tobacco.

Health - Systemic Issues

There are multiple angles from which the health of Naga Valadia villagers can be evaluated. First, it should be noted that most of the individuals in the village are disease-free. However, approximately 10% suffer from diabetes. Gujarat has the highest prevalence of diabetics and pre-diabetics in India, according to the National Health Profile of India. Nearly 21% of patients screened in the study were diabetic (*http://www.indiaenvironmentportal.org.in/content/419189/national-health-profile-nhp-of-india-2015*). Though the figures reported by village officials are markedly below the study's findings, the issue may be due to a lack of screening as opposed to a truly lower incidence of diabetes. Diets in Naga Valadia have a high propensity of sugar and carbohydrates. One family of six reported consuming more than six kilograms of sugar per month. Only one of the families interviewed had a refrigerator, and the lack of proper food storage makes starches, grains, and sweets convenient food staples due to their availability at room temperature. This additionally leads USCPR to believe the incidence of diabetes may perhaps be under diagnosed. Dr. Kanchandhani, a physician at the Hari Om Trust Hospital in Adipur, articulated that the majority of village health problems were infectious diseases. Inadequate diets leading to impaired immune systems may have allowed these diseases to perpetuate. This is likely tied to the variable incomes of the villagers, wherein more prosperous months allow for a more nutritious diet than months without significant rain and crop.

Health - Access

One of the major health issues in Naga Valadia is access to care. In the village, there exists a primary health center (PHC), equipped with basic necessities such as folic acid to treat anemia, calcium supplement, and general analgesic (ibuprofen).

There is one nurse that rotates between two other PHCs and administers the medication, prenatal care and infant vaccination. However, for any medical ailment beyond painkiller treatment, the nurse refers villagers to hospitals in Adipur (26 km). As a result, all births in the village (3 per year) are done by the nurse, and all children are up to date with their vaccinations. Due to the limited scope of the nursing practice, the PHC is not regarded as a reliable comprehensive source of medical information or treatment. The nearest hospitals in Adipur are both more than 20 km from the village. A bus ride to the city to see a doctor would require an entire day away from the fields or the home.

Thus, all villagers interviewed claimed to only go see a doctor when they felt sick. For the residents of Naga Valadia, the concepts of preventative care or preventative screenings are not presented as practical options. A manifestation of this lack of preventative care is seen in cataract prevalence. USCPR conducted cataract screening camps with the aid of a local eye hospital. Of the 125 villagers seen, thirty-five presented with cataracts or potential that had not been seen by a medical professional. For most of these patients, the disease had progressed to near blindness, whereas with proper treatment, cataracts are entirely curable. With chronic diseases like diabetes and heart disease, symptom presentation represents a stage of pathology associated with dramatically increased morbidity and mortality. Villagers attribute the deaths of fellow residents to natural causes, but the diets, habits, and lack of access in the village suggest much deeper underlying issues which can only be revealed through increased screening and increased preventative measures.

Adult Literacy

The majority of the adults in the village have not received a complete education. Most of the adult males do not have an education past the 3rd standard. Due to this lack of education, they are typically only able to speak Gujarati. Some of the men are able to speak Hindi as well. However, the percentage of adult villagers who are literate (read, write, and perform basic arithmetic) is near zero. Despite the higher education standard for the younger generations, it can be seen that the older generation has a lack of education. India has the largest population (287 million) in the world of illiterate adults, and this trend is continued in Naga Valadia (Pednekar *et al*., 2011)**.** Though the educational infrastructure for children to learn is established and prominent, there seems to be a large disparity between the education level of the youngest generation and any generation above them.

DISCUSSION

To our knowledge, this study is the first to report on the overall state of affairs in Naga Valadia in order to successfully implement sustainable solutions. Our findings suggest that although Naga Valadia has sophisticated infrastructure, sufficient access to water and energy, and an exceptional school system, there are still numerous health, education, and economic disparities prevalent in the village. The health effects of tobacco have been greatly studied in India due to its prevalence. Several studies have established a significantly higher risk of oral or oropharyngeal cancer amongst users of smokeless tobacco in India itself (Critchley and Unal, 2003; Hirayama, 1966; Sankaranarayanan *et al*., 1989). In addition, other studies have investigated smokeless tobacco's link to higher rates of heart disease, with Bolinder and colleagues linking smokeless tobacco use to increased cardiovascular mortality (Critchley and Unal, 2004; Bolinder *et al*., 1994). The prevalence of tobacco has led to devastating morbidity in India. Sinha *et al*. determined that smokeless tobacco was the cause of over 350,000 deaths in one given year. Our findings suggest that nearly 90% of men in Naga Valadia chew tobacco, the majority of which began as children (Sinha *et al*., 2014). The near ubiquitous usage of smokeless tobacco in Naga Valadia amongst men and its devastating health effects indicates that tobacco cessation efforts are not only recommended but a public health necessity.

While the effects of chewing tobacco to the health of the villagers is rather self-evident, the underlying causes and motivations for the continued use require further discussion. One potential reason comes in regards to the awareness by rural villagers to the detrimental health impacts of tobacco usage. Awareness of tobacco and its effects tend to be extremely low in rural areas, and, many times, villagers consider tobacco palliative in its effects and a cure for toothaches, headaches, and stomach aches (Gupta *et al*., 1986). This sentiment was displayed by one of the tobacco users interviewed, who claimed he first started using tobacco because his tooth became infected, and has continued use ever since. Thus, a lack of awareness of tobacco detriments is one potential mechanism by which tobacco usage is maintained (Gupta and Ray, 2003).

Anantha *et al*. found that community education programs focusing on the health hazards of tobacco lowered user rates by nearly 11.3% in males and 17.2% in females. In addition, nearly 26.5% of males and 40.7% of females completely quit the habit after the intervention (Anantha *et al*., 1995). These results can be interpreted as a lack of awareness of the impact of tobacco serving as the impetus to cessation in nearly 30% of the overall population of tobacco users. Similar studies have been conducted in which education, awareness and encouragement to quit are emphasized. According to the village sarpanch, no such tobacco intervention program has been conducted in the village. Thus, should the villagers of Naga Valadia be informed and aware of the impacts of tobacco, similar reductions in usage would be expected. Considering that a majority of the population is involved in agriculture, Naga Valadian families experience fluctuations in financial stability that may be connected to the amount of rainfall. Anecdotal responses indicated that during periods of low rainfall, and income, men often forgo their own meals in order to provide enough food for their families. Tobacco serves as a stimulant and potent appetite suppressant; one potential result of this effect may be the use of tobacco as a stimulant to get through irregular meals (Jo *et al*., 2002). Such decisions may actually be detrimental to the overall health of a family, even from a financial perspective. In a study conducted in rural Bangladesh, it was found that the average tobacco user could provide an additional five hundred calories for themselves or their family with the money saved by forgoing a tobacco habit (Efroymson *et al*., 2001).

This vicious cycle of unstable income and increased dependence on tobacco serves as an additional mechanism by which tobacco increases its prevalence and usage in the Naga Valadia community.

Access

Although Naga Valadia is located in close proximity to a metropolitan area, the residents are isolated from frequent exposure to the urban environment, with implications that have manifested in many ways. The village remains sheltered from new or developing medical treatments, which may have exacerbated the substance abuse epidemic in the male population of the village. The lack of tobacco alternatives often available in urban areas may lead to the perpetual dependence on the current tobacco products, a phenomenon previously shown in other rural areas (Cahn and Siegel, 2011). Lack of access to the surrounding areas (due to geographic isolation, a lack of means to travel to the city) may also lead to ignorance about possible medical procedures and treatments for current ailments. Especially in India, the lack of knowledge about allopathic medicine has led to significant hesitance with it (Srinivasan, 1995). This uneasiness may lead to a perpetuation of infectious diseases, currently highly prevalent in Naga Valadia, which could have been prevented if more proactive care had been pursued.

Adult Literacy

Our survey results indicate that a large majority of adults in Naga Valadia can neither read nor write Gujarati, the primary language spoken in the region, and are considered to be illiterate according to the standards set forth by the National Literacy Mission (NLM). The NLM defines "literacy" as being self-reliant in basic reading, writing, and counting (http://www.nlm.nic.in/nlmgoals_nlm.htm). One explanation for the scarcity of literate adults in Naga Valadia may be that this population did not have the opportunity to learn how to read or write when they were of school age. Of the participants who were interviewed, all were above the age of 60 and it is probable little emphasis was placed on education when the interviewees were children. In addition, it may be possible that the illiterate population has not experienced any deterioration in their quality of life because they have never been able to read or write.

There may be an understanding amongst the population that an education is not necessary for them to continue their current lifestyles.Possible consequences of poor adult literacy rates may be a lack of upward mobility in career and industry for the village members. In his 2011 article, James argues that high rates of illiteracy have resulted in an adult population in India that is not prepared to join the growing modern economy (James, 2011). Likewise, many farmers in the village concede that there are higher paying jobs (for example, trucking, which has a steady, high paying wage). However, it may be possible that village members are forced to stay in the economically unstable agriculture industry because they are unable to pursue other career choices that require being able to read or write. Our interview results indicate that poor literacy rates among women in Naga Valadia may force them to further depend on men for basic necessities.

For example, one group of women of the same household discussed that one of the younger men in the family had to go to Adipur to get the medication for the household, as the women could not read, count, or do basic arithmetic. Women's dependence on men may be a cultural phenomenon; however, our observations suggest that Naga Valadia is a progressive village with respect to women's rights and their independence. In most other rural regions of India, however, women engage in unpaid agricultural work and are often confined to household activities (Desai and Jain, 1994). Yet, in Naga Valadia, females are allowed to attend the same school as males and separate bathrooms have been constructed in order to further promote attendance. In addition, the village sarpanch has been a female for the last twenty years, suggesting that women are well-respected in Naga Valadia.

School

Our observations established that the governmental children's school in Naga Valadia is well-equipped with advanced technology, proper facilities, and qualified teachers. However, in other rural areas across India, government schools are not equipped to support large numbers of students. Schools in these areas often do not have enough teachers to effectively instruct large class sizes. In addition, schools are generally lacking in facilities, like all-weather classrooms (Drèze and Kingdon, 2001). Naga Valadia's school, however, is exceptional and may be a result of the village's positive sentiment towards education, as described by Mr. Karsanbhai Kangad. Constant electricity in the school, classroom technology such science and computer laboratories, a core curriculum that includes English, and a hired cleaning staff indicates that education is a high priority for the villagers. Parental attitudes towards education in Naga Valadia may differ compared to other rural areas across India.

A common sentiment is that children do not attend or dropout of school because of parental indifference. Additionally, child labor also plays a factor in deterring children from attending school, as many are expected to work 12 hours a day on average (31). However, in Naga Valadia, these sentiments may not be of concern as 100% of the children attend the local village school until the 7^{th}standard. Low drop-out and high pass rates of the children are indicative of the village's positive sentiment and commitment to education. The students, especially females, may feel more inclined to attend school regularly because of the appropriate facilities, like sanitary, gender-specific bathrooms. Additionally, parents may be more likely to send children to school knowing that hygiene is not an issue. Combined, it is possible that this has allowed for increased female school attendance in Naga Valadia (100%), compared to other many other rural areas of Northern India (46%) (31). From a financial standpoint, it is possible that the excellent educational system in Naga Valadia may increase the economic sustainability of the village. With a 0% dropout rate, it is likely that most students complete 7th standard and move on to secondary education, which may allow them to pursue a wider-range of career paths. This could bring a diverse range of income sources for the village, potentially lifting the burden off the economically unstable agriculture industry.

Health

Interviews with village officials and Dr. Kanchandhani of the Hari Om Trust Hospital in Adipur indicate that villagers from Naga Valadia go to the hospital primarily for infections that likely arise from poor diets. Water-borne diseases that spread through defecation, like cholera, do not seem to be present in Naga Valadia. The village boasts a sophisticated infrastructure, highlighted by efficient waste removal to prevent accumulation in public areas and subsequent spreading of the germs and safe drinking water. In addition, efforts to control open defecation in the village by allocating designated areas in homes have also likely contributed to the low prevalence of the disease.

LIMITATIONS

Experimental Bias

After reviewing the experimental method, it became clear that there were certain issues that may have led to confound in our data. In the surveying process, people were requested to arrive at a central location to be interviewed. This may be susceptible to a voluntary bias, where a certain subset of the population is more likely to come to be surveyed. However, when we requested individuals to come, there were no obvious consistencies in the population (age, gender, SES, health status). It was hypothesized that due to the novelty of college students from the US arriving to the village, the voluntary bias has little to no impact on the survey results. Furthermore, due to geographical constraints, door-to-door surveying was limited to the houses closest to the central portion of the village, which may be another factor influencing the data. A potential fear that the individuals living closest to the central location may be the wealthiest was overridden when socioeconomic surveying showed no such pattern.

Operational Limitations

The efficacy and sustainability of aid are largely derived from an organization's methodology. A common pitfall for Non-Governmental Organizations (NGOs) is a lack of objective rigor in purpose, and implementation. NGOs must avoid typical experimental errors, such as the false generalization of the success of a particular initiative - which may in turn mistakenly lead to incorrectly addressing the symptoms of a phenomenon rather than the root cause. Another psychological trap that may jeopardize an initiative is socio-cultural ignorance (an unwillingness to integrate local cultural traditions into a philanthropic framework to bolster operations), which becomes pertinent when an initiative relies largely upon foreign volunteers and fails to leverage the local populace. Impacts upon both the people and the land being served must be duly considered, and forcing foreign ethnocentrism upon a target population (or not being in touch with local customs) may discredit the organization and its operations as well as destabilize trust within the community for future initiatives. Short-sighted frameworks fail to establish the groundwork for future expansion of initiatives and impact the sustainability of philanthropy. The proposed solution to mitigate potential limitations on NGO operations is to take a scientific approach, a methodology USCPR has integrated into its philanthropy.

Extensive quantitative and qualitative data was collected via surveys before the implementation of any initiative, tailoring USCPR's aid to the needs of the community being served. Data collection methods (interviews, surveys, liaison communication) were constructed in a holistic manner, examining all possible avenues for the delivery of humanitarian aid. For example, an approach independent of religion allowed USCPR to impartially construct a village profile and guide secular village interactions. Initiatives were tailored to have a minimal environmental impact, focusing primarily on improving health and decreasing income inequality within the community. All logistical procedures were optimized to be both cost-effective and time-efficient. Extensive communication was maintained with local liaisons in the community, allowing for consistent updates on initiatives' successes and failures and maintaining trust amongst the populace being served. Adherence to scientific rigor infused with a community-oriented approach bolstered for sustainability has allowed USCPR to construct a highly detailed profile of the village of Naga Valadia and analyze chains of causation in identifying lifestyle deficiencies in the target population.

Conclusion

Oftentimes, villages are regarded homogenously. When describing rural aid, philanthropies, governments, and academics alike regard all villages as one, with equivalent problems and equivalent solutions. Our results demonstrate that villages contain complex hierarchies and are each their own independent ecosystem. Naga Valadia is a relatively prosperous village, with well-maintained roads and a very advanced school. Their ideals are remarkably progressive, evident by the village's emphasis on education for children, the number of children that leave the village for the city, and women's independence. Thus, projects that apply methodologies that work in Naga Valadia to villages with much more conservative values, or a less developed infrastructure, would be expected to encounter difficulties that come with the differing terrain. For example, any philanthropy project enacted in Naga Valadia would undoubtedly be under the supervision of the sarpanch due to the sheer reverence villagers place in that figure. In other villages, this approach may be overzealous or inappropriate. This paper serves to elucidate how intricate village problems can be, and how a much more targeted approach for rural development is necessary for true alleviation of the many issues faced in rural India. We argue that there needs to be a development of a systematic way to classify villages, as even neighboring villages can harbor different problems that warrant classifications. Until a thorough rubric of metrics to group villages is developed, rural development aimed to improve the lives of millions of villagers will disproportionately benefit some while harboring little to no impact on others.

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