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ORIGINAL ARTICLE

Sexually Transmitted Disease and Leukorrhea in a Rural South Asian Himalayan Community: A Study of Perceptions and Barriers to Treatment

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Abstract

Background: Leukorrhea, or vaginal discharge, is often a primary presenting symptom of sexually transmitted disease (STD) in women of rural Himalayan communities of India. Given the rising prevalence of leukorrhea in these communities, understanding the baseline knowledge and barriers to treatment among women and health-workers is imperative to improving awareness and implementing effective treatment.

Methods: This study took place in the Himalayan South Asian region of Nainital from May to July of 2013. Data was collected from structured interviews administered in the local language. One questionnaire was administered to women attending NGO-led health camps and a second questionnaire was administered to local health-workers over phone.

Results: Over 95% of women and all surveyed health-workers were unaware of the association between leukorrhea and STDs. 68% of women surveyed had experienced leukorrhea. Over 80% of women diagnosed with an STD sought medical treatment after waiting at least one month, citing distance, belief that the symptom would clear up, and not finding the symptom severe as reasons. All health-workers considered the husbands a significant factor preventing adequate treatment of women.

Conclusion: Our study demonstrates that despite rising prevalence of leukorrhea within the rural Himalayan communities, there is a lack of awareness among residents and health-workers that STDs are a potential etiology of leukorrhea. Barriers to effective treatment among women diagnosed with STDs who presented with leukorrhea include, financial costs, distance to travel to an allopathic doctor, and a general belief that the disease will resolve on its own.

Introduction

Worldwide there is a reported 357 million new cases of sexually transmitted diseases (STDs) per year, with over 40 million of these cases expected to draw from South Asia alone [1]. With India lacking in an established and standardized STD surveillance system, accurate measures of prevalence for STDs including Chlamydia, Gonorrhea, and Syphilis are difficult to come by. With the studies available, there has been a notable decline in bacterial STDs since the 1980's and a steady increase in viral STDs including chlamydial infections and human papillomavirus [2].

Leukorrhea, or vaginal discharge, known among women of rural north India as *Safed Pani,* or white water [3], can be a presenting symptom of a number of disease pathologies. Infection of the vulvovaginal area by bacterial vaginosis (BV), candidiasis, in addition to STDs such as Trichomoniasis, Gonorrhea and Chlamydia are noted causes of leukorrhea [4,5]. Though very little research exists regarding this symptom's prevalence in rural mountain communities of India, studies from slum communities as well as rural plain regions of India do exist. One of the few studies from the Kumaoni mountain region of India determined that up to 26% of women presenting for an STD had the primary and solitary symptomatology of thick discharge, with over 66% of women surveyed overall having abnormal discharge [6]. Literature from the slums of Utter Pradesh found

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vaginal discharge to be one of the most common presenting symptoms by women of the region to a tertiary care center.

The long-term sequelae of STDs can be devastating [7]. In the case of Chlamydia and Gonorrhea, the long-term implications draw from subsequent development of pelvic inflammatory disease (PID). PID's association with preterm delivery, increased mortality and infertility (at a rate noted to be 4% and up to 19%) make it all at once shattering, particularly as it is preventable with appropriate diagnosis and treatment [8,9].

Given the rising prevalence of leukorrhea in the rural Himalayan communities of India and its devastating potential long-term consequences, our study seeks to assess the perceptions and baseline knowledge of leukorrhea among both women and health-workers in this region in order to effectively improve education and awareness in the future. Furthermore, our study assesses the barriers to effective and complete treatment in women diagnosed with an STD after presenting for leukorrhea, in order to better understand how to reduce the rising incidence of STD's.

Methods

Design

This cross-sectional qualitative study took place in the Central Himalayan, Kumaoni region, of Uttarakhand near Nainital. Data was collected from May-July of 2013 and was drawn from structured surveys made culturally relevant by Dr. Sonia Chery, one of two local physicians working in the Kumaoni region who has been in the community for over a decade (Appendix 1 and Appendix 2).

The first questionnaire was administered to women attending local health camps. These health camps were organized and managed by the Central Himalayan Rural Action Group (CHIRAG), a local non-governmental organization (NGO). Health camps are mobile clinics in which one physician, and 2-3 health-workers travel to rural villages within the Nainital area, particularly those that are distant from the local hospital. The physician holds individual free clinical visits with all attendees of the camp, while in the waiting area, the health-workers hold educational sessions on a variety of topics including STDs (Figure 1). Each health camp is located within a public facility, most often in public elementary schools after regular school hours (Figure 2).

The second questionnaire was administered to local health-workers and accredited social health activists (ASHA) via telephone calls. These workers were attendees at CHIRAG's annual health-worker training and were all based in the Kumaoni region.

Data

The first questionnaire administered to health camp attendees was focused on understanding the baseline prevalence of leukorrhea among women of the surveyed villages, the challenges to complete treatment, and the baseline knowledge of the causes of leukorrhea, specifically with regards to STD's. The second questionnaire administered to local health-workers was focused on gathering the baseline knowledge of what leukorrhea is amongst health-workers, challenges to effective treatment, and challenges to educating patients on the causes of leukorrhea.

All respondents were interviewed in their primary language of Kumaoni and responses were directly translated by a trained medical translator who attended all health camps with leukorrhea referred to by the colloquial description, "*safed pani*" or white water discharge.

Figure 1: Health-workers Educating in Health Camps.

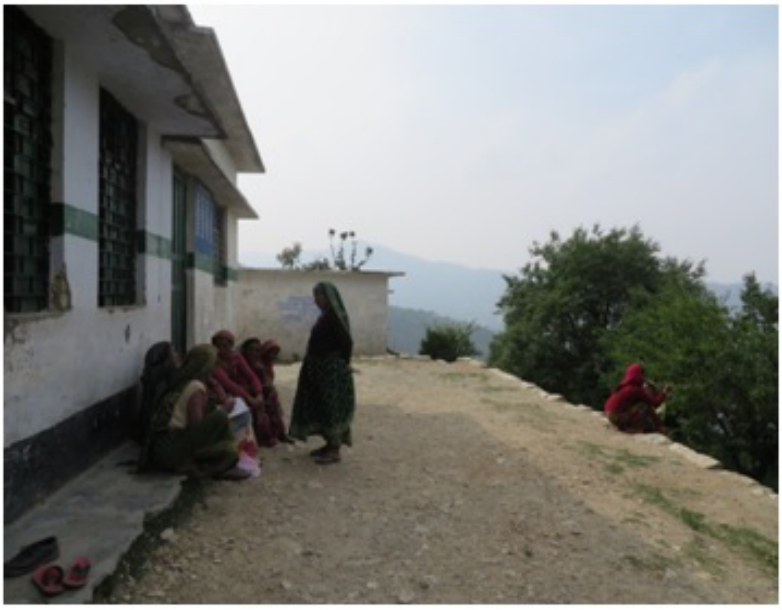

Figure 2: Local Health Camp Setting.

Figure 3: Dissemination of Medical Information in Nainital.

Participants

The first questionnaire was administered to a total of 19 women out of a total of 80 women attending the seven organized health camps. The health camps attended were those organized in the villages of Patta, Gazaar, Pangradi, Pokkiri, Parbada, and Salilekh. All respondents were married, were between the ages of 20 and 39-years-old, and stated that were sexually active with their husbands alone.

The second questionnaire was administered to 8 health-workers/ASHA via telephone. The villages they represented included the villages of Nathuakhan, Malla-Ghena, Khatoli, Sunkiya, Parpada, Gurgaon, and Killaur. All workers surveyed were women and were between the ages of 25 and 40-years-old. Inclusion criteria was that health-workers must have worked as health-workers for at least one year in the Kumaoni region. All participants provided informed consent to be included in the study.

Results

Over 95% of all respondents to both questionnaire one and two did not recognize the association between leukorrhea and STDs with the most common response to the question of etiology being, “weakness of the body” or “dirty water”. Responses from the health-workers, specifically, included “weakness of the body” and “unbalanced diet”. None of the surveyed health-workers recognized the correlation between leukorrhea and STDs despite yearly governmentally sanctioned training on STDs. Only one worker stated that she had received formal training in STDs in addition to the more general health-worker training.

A baseline of 68% of respondents to questionnaire one, health-camp attendees, had experienced leukorrhea in the past, with 85% of those women visiting a doctor for this symptom alone. Upon further questioning, 50% of this group of women stated that they waited at least one month prior to visiting a doctor for this symptom. They cited long distance to visit the allopathic doctor compared to visiting a local healer, known as *Jhaad phoonk*, as their primary reason. Additionally cited reasons for waiting to seek treatment included the belief that the symptom would clear up without treatment, and not considering the symptom as a serious concern. Up to 62% of women who had experienced leukorrhea in the past, stated they had the symptom for two or more years, with one woman dealing with the symptom for 30 years.

40% of the women who stated they had leukorrhea were subsequently diagnosed with an STD via an allopathic doctor. Only 36% of these women, who all

sought allopathic treatment, completed the full treatment regimen citing cost of medications, of transport to get medication and the cost to take a day off from work in order to travel as reasons. Details of the STD test utilized, or the medication name and length were not provided by the patients. Notably, the *Jhaad Phoonk,* per many health-workers, are willing to travel door-to-door to provide treatments and thus were more often accessible compared to allopathic treatment.

In specifically questioning health-workers, via questionnaire two, about the role of the husbands in the growing prevalence of leukorrhea, all workers stated that this was a significant factor. Workers stated that the men lacked complete awareness about leukorrhea and likely did not understand their potential role in causality. One worker stated that in her previous experiences, a husband had explained that leukorrhea was "solely a women's issue". All health-workers believed that men "would not go to the doctor even if made aware" and explained their own discomfort with broaching the topic of sexual health with husbands in the community. However, multiple workers added that if the wives were equipped with the proper knowledge, they would be more likely to successfully convince their husband to get medically tested for STDs. It is notable that in the villages where health-workers had noticed a less striking rise in rates of leukorrhea, there was equal attendance of health camps by both men and women, and these villages were closer to a main road.

Discussion

Given the rising prevalence of STDs and leukorrhea in the Kumaoni region, there was a stunning lack of awareness among women and astonishingly all health-workers surveyed as to the possible causes of leukorrhea. Furthermore, socioeconomic factors including the cost of travel, cost of medications, and cost to taking time off from work were noted hindrances to seeking treatment or completing effective treatment for patients who were diagnosed with STDs.

The rising prevalence of leukorrhea among the rural residents in India, noted by our Kumaoni respondents, has been corroborated by results from additional rural sites within India. One study in the Bareilly district, for example, demonstrated that the most common presentation of STDs in rural areas of the Bareilly district was similarly vaginal discharge [10]. Another based in Lucknow, found that there was an increased prevalence of symptomatic STDs among women in the age range of their early 30's and based in rural districts within the city [11].

Despite CHIRAG's and other local NGO's campaigns to improve awareness of leukorrhea and STDs through education at over 39 health camps held the year before, results demonstrated a limited level of awareness among both residents of the villages where health camps were held. Furthermore, while health-workers are expected to receive annual governmental training on healthcare topics including STDs, there was an overall lack of knowledge among workers with regards to etiology. A CHIRAG-led health-worker conference dedicated to the topic of STDs was held in June of 2013, during which health-workers provided their thoughts on the lack of knowledge on leukorrhea. They explained how health information is spread in the villages. In the Kumaoni region, the dissemination of healthcare information and education begins with local NGOs and physicians, travels first to local health-workers and ASHA workers through trainings, and then finally reaches the people of the villages through educational sessions in the health camps or through house calls from health-workers (Figure 3). The lack of knowledge amongst health-workers is, thus, evident when looking at the lack of knowledge amongst attendees of the health camps.

With regards to effective and complete treatment of those diagnosed with an STD after presenting with leukorrhea, a number of social determinants became evident including funding, time, and gender roles, whereby the issue of leukorrhea is generally viewed as a "women's issue alone". The cost-benefit analysis formulated by the respondents was in many ways skewed by the fact that all respondents did not recognize the potential severity and cost of long-term STDs for fertility on women of a reproductive age [8]. These findings regarding the financial and social determinants have been corroborated by data from similar studies based in mostly urban settings within India including Rajkot city, Gujarat and Tamilnadu [12,13]. A number of women mentioned the proximity and familiarity of *jhaad phoonk* as further reason to remain at home and not seek out allopathic treatment. The topic of local healers has previously been noted with regards to treatment of psychiatric diagnoses including bipolar disorder and schizophrenia, with our study as one of the first to detail the reasons for why they retain a role in sexual health of rural residents [14,15].

The topic of counseling men within the village as a tool to help reduce the incidence of STDs is one that has been demonstrated effective in a number of international sites. One particular study based in Pune, India found that ongoing counseling aimed at men over a long-period of time can effectively reduce high-risk behaviors including lack of condom use and visiting commercial sex workers. The study clarified, however, that counseling cannot be a generic general presentation but rather specifically formulated based on the participant age, education, marital status, and previous STD diagnoses [16]. The Sonagachi Project based in Calcutta demonstrated that female sex worker empowerment strategies, particularly with regards to framing the issues of STDs by way of human rights, led to sustained increased condom use and decreases in STD prevalence among women [17]. Similar results have been replicated

in Mysore and Andhra Pradesh [18,19]. While the women in this study were traditionally considered low-risk for acquiring STDs because they are married and state they are sexually monogamous with their husbands, the notable rise in India in this population makes evident a possible need for intervention. We recommend considering the implementation of similar prevention strategies trialed in those previous studies with this group of women to empower these women and reduce the rise of ST Ds within the community [20]. Further study on this concept in addition to methods to empower middle-aged married women of rural districts is called for.

Our data also demonstrates the importance of the health-worker in information dissemination. Despite the discomfort of the female health-workers in discussing sexual health with men in the village, a number of health-workers affirmed that implementing role-play exercises during the annual health-worker training would be helpful to alleviating the anxiety. These exercises would involve the female health-workers being paired with male health-workers and trialing the discussion of sexual health. This study is one of the first to present the importance of the role of the health-worker to counseling and empowering of local women to educate the men of the village to reduce high-risk sexual practices.

There are a number of limitations to this study. First is the limited sample size of both respondents from health camps and of health-workers partially limited by the availability of trained medical translators. Second, as the majority of respondents were drawn from health camps, there is potential for bias in representation with our respondents perhaps being more likely to recognize the symptom of leukorrhea and more likely to get tested for a diagnosis of STDs compared to the general population. Furthermore, given that the respondents were women were attending the camps, it may be understood that they take full ownership of their health and thus may have felt more comfortable with the idea of taking on the role of educator to their husbands about taboo topics such as STDs compared to the general population of women in the rural Kumaoni region.

Conclusion

Our study demonstrates the rising prevalence of leukorrhea and STDs within the rural Himalayan region of India and the concurrent lack of awareness among local residents and health-workers that STDs are a potential etiology of leukorrhea. Barriers to effective and complete treatment among women diagnosed with STDs who presented with leukorrhea include financial costs, distance to travel to an allopathic doctor compared to *Jhaad Phoonk*, and general belief that the disease will resolve on its own.

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Appendix

Appendix 1: STD Survey for Women Health Camp Attendees

1. Do you/have you had leucorrhea?
    a. What symptoms were you having and was any one of them in particular more concerning than the others?
    b. How long have you had/did you have leucorrhea?
2. Have you visited the doctor?
    a. If yes, how long did you wait to visit the doctor?
    b. If not, why not?
    c. What treatments were prescribed (Ayurveda/allopathic)?
    d. Did you take the medication?
        i. Did you complete the full round of medication?
        ii. If no, why was the medication stopped?
3. Did the treatment work?
    a. If not, did you go back to see doctor (same/different doctor)?
    b. Did you try any treatments outside of the doctor's prescription?
4. What do you think caused the problem?
    a. What do you know about leucorrhea?
        i. (Food/water/hygiene/husband etc...)
    b. Some infections that cause leucorrhea are transmitted through "sambhandh". Is this something you were aware of?
        i. What do you think? Do you think this may apply to you?
        ii. What do you think your husband would think of this? Would he be prepared to accept treatment?
            1. (If this is the case, and you get treatment and he doesn't, then there is a chance you could get infection again)

Appendix 2: STD survey for Health-workers and ASHA workers.

- **Background:**
    - Village?
    - How long have you been ASHA worker?
    - Age?
- Knowledge of **leucorrhea**
    - How common is leucorrhea? How do you diagnose it?
    - What supposedly causes leucorrhea?
    - What are your recommendations for treatment? Do people follow through:
    - What are the hindrances to **continuity of care**, and how do you approach follow up?
        - **Do you revisit the patients, do they visit you?**
    - What are your biggest challenges with patients that have leucorrhea (informing and diagnosing)?
        - How often do husbands get tested/treated in your experience?
            - What are the challenges to making this common practice?
    - Why is there such little awareness, especially about the sexually transmitted aspect?
        - **What causes the gap in knowledge from the health worker level to the village level?**
    - What are the current methods of training ASHA workers on diseases (such as leucorrhea)?
- **Health Education:**
    - Are there any obstacles in health education in your village:? (i.e. embarrassment in talking about the issue, responsiveness, commitment to action, access to all households, beliefs of illness)
    - What do you think will encourage your community to practice healthier habits/inform them about disease? (i.e. incentives, scare tactics-money, cancer, more serious illnesses-anecdotes)?