

Original Article

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Awareness of Leprosy in Students of Basic Sciences in Saint James School of Medicine, Bonaire (Dutch Caribbean)

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Abstract

Background: There is a need for the young medical students who become future physicians to be well aware about the signs and symptoms along with management of leprosy. The present study was, therefore undertaken with the objective to assess the knowledge and attitude of medical students towards leprosy in Saint James School of Medicine, Bonaire (Dutch Caribbean). **Methods:** Students of all the four semesters were asked to respond to carefully structured questionnaires comprising 16 questions. **Results:** A high percentage of the students in all the semesters answered correctly on leprosy being an infectious disease rather than being inherited or caused by injury, and on the symptoms of leprosy, consequences of nerve damage, and mode of spread. Majority of the students were aware of disease being endemic in Asia, Africa, and South America, but only a low percent of them knew about the global incidence, and the risk factors. Only a small percentage of students expressed no fear of leprosy. **Conclusion:** It is encouraging to record a high rate of awareness on general clinical aspects of leprosy amongst the medical students of basic sciences in SJSM, Bonaire (Dutch Caribbean). The low level of awareness on some of the psychosocial aspects of the disease emphasizes the need to create awareness amongst students of medical sciences and other disciplines so that they become well informed about the disease and show empathy for the patients

Keywords: Leprosy, awareness, medical students, Bonaire, Dutch Caribbean

Introduction

Leprosy (also known as Hansen's disease) is one of the oldest diseases known to mankind and still continues to be a major problem in many countries due to its continued transmission, potential risk of developing disabilities and deformities, with devastating social and economic consequences [1]. The World Health Organization (WHO) reported in 2010 that 228,474 new cases of leprosy occur globally [2]. In 2011, new leprosy cases were reported from 130 countries: 36 countries in Africa, 27 in the Americas, 10 in Southeast Asia, 22 in the eastern Mediterranean, and 36 from the western Pacific [2]. The clinical spectrum of leprosy varies from very mild and limited cutaneous disease to very severe one with extensive nerve and systemic involvement. The latter form of the disease is attended by various mutilating deformities and disabilities [3]. The resultant complications including bony deformities lead to social prejudice [4]. The disease affects the psychological, social and spiritual wellbeing of the patients. The fear of social isolation makes the sufferers reluctant to seek medical advice in the early stages of the disease or if the patient is suspicious of the diagnosis. The superstitions and myths attached to leprosy are presumed to be based on ignorance and misconceptions about the disease. This would disappear if the community were 'educated' with scientific information and knowledge about the disease, well-being of the patients, their family, friends and the community [4]. Although extensive research has been conducted on the medical aspects of leprosy, comparatively there are only a few studies on psychosocial aspect of this disease including awareness about the disease among different

population groups and their attitude towards leprosy patients

Several surveys have been conducted in different countries to **assess the level of knowledge, social attitude towards patients, and diagnosis and management among school going students** [5], university undergraduate students of humanities, biological, agriculture and medical sciences, communities and general medical practitioners [6-11]. It is imperative for the young medical students who become future physicians to be well aware about the signs and symptoms along with management of leprosy. The present study was undertaken with the objective to assess the

knowledge and attitude of medical students towards leprosy.

Subjects and Methods

Carefully structured questionnaires comprising 16 questions (listed below with answers in bold) were distributed to students in the four semesters of Basic Sciences in Saint James School of Medicine (SJSM), Kralendjik, Bonaire (Dutch Caribbean), West Indies. All students were older than 18 years and were almost equally distributed between males and females. Their educational background prior to joining the medical school generally comprised a degree in biological, physical or social sciences, while some had a certificate in nursing or pharmacy

technician. Each student signed the consent form before participating in the survey.

Questionnaire on Awareness of Leprosy In Students Of Saint James School Of Medicine, Bonaire

Name.....Anonymous

Age..... Sex: M/F.... Semester

Consent: I agree to participate in this questionnaire in my capacity as an individual. I am doing so to contribute on the information on the awareness of this disease, and I am not at any pressure to do.

Signature:.....

1. Leprosy is:

- Inherited disease
- Disease is caused by an injury
- **An infectious disease**
- None of the above

2. Leprosy causes:

- Disfiguring skin sores.
- Damage to nerves in the arms
- Damage to nerves in the legs
- **All of them can be correct**

3. You can get leprosy if you:

- Shakes hands with a person suffering from leprosy
- Sit near a person with leprosy
- **Have a close and repeated contacts with nose and mouth droplets from someone with untreated leprosy**

4. Nerve damage in leprosy can lead to:

- Loss of filing in the arms
- Loss of filing in the legs
- Muscle weakness
- **All of them above**

5. Would you live with a person suffering from leprosy?

- Yes
- **Yes, if a person is under treatment**
- Yes, with application of protective measures
- No

6. How many persons suffer from leprosy?

- **Every hour, 30 new leprosy patients are discovered worldwide**
- Every day 30 new leprosy patients are discovered worldwide
- Every week 30 new leprosy patients are discovered worldwide

- Every month 30 new leprosy patients are discovered worldwide
7. In which countries leprosy usually occurs?
- USA
 - Africa
 - South America
 - **Asia and Africa and South America**
8. Is leprosy curable?
- **Yes, but treatment lasts several months**
 - Yes, but treatment last few months
 - Drugs only ease symptoms
 - Leprosy is not possible to treat
9. Should a leprosy patient be the outcast from society?
- Yes
 - **No**
 - I cannot say
10. What are the risk factors for leprosy?
- Traveling in some are of the world where the disease is prevalent
 - **Poor living conditions and poverty**
 - Frequent injuries
 - Working in the forests
11. Are there ocular changes in leprosy?
- Yes, they are always present
 - They can be present in some cases
 - I do not know, I have never heard about it
 - No, it is not eye disease
12. Does leprosy has a different psychological impact according the gender and age?
- **Yes, psychological impact on women and children is more sensitive**
 - There is no different sensitivity between the genders, but children are more sensitive
 - Men are more sensitive to psychological impact of leprosy
 - The psychological impact of leprosy is the same for all people
13. Would you employ persons suffering leprosy?
- Yes, they need to be accepted, and they can do all jobs that they are qualified for
 - Yes, but to do jobs that cannot affect the others
- **Yes, they are eligible for employment if they don't pose public health risk**
 - No, they need to stay at home and family or society has to take care of them
14. What are the early signs of leprosy?
- Skin rash or nodules
 - An area of numbness or "pins and needles" sensation
 - Patches which are paler in colour than their normal skin
 - **Early signs of leprosy are variable**
15. Can leprosy be prevented?
- Specific vaccine against leprosy is available
 - Prevention is not available
 - **Prompt secondary prevention in all contagious cases reduces the infectivity of such cases**
16. Are you afraid of leprosy?
- Fear is a moderate because
 - Fear is intense because
 - I have a healthy life and I do not think about illness in general
 - **I am not afraid**

Results

The results of awareness on different aspects of leprosy amongst the students of Basic Sciences in SJSM are presented in Table 1. Awareness on some aspects of leprosy was noticed in significant number of students in all four semesters. As can be seen in the Table 1, a high percentage of the students in all the semesters answered correctly on leprosy being an infectious disease rather than being inherited or caused by injury (Q1). A similarly high percentage of correct answers on the symptoms of leprosy, consequences of nerve damage, and mode of spread (Qs 2, 4, & 3 respectively) was recorded in the responses by students of all the four semesters. However, only a small percentage of students (37.3-46.7%) seemed to know that ocular changes occur in leprosy (Q11) and also about the early signs of the disease being variable -Q14(25%-46.7%). Knowledge of the global incidence being 30 cases per hour (Q6) was lacking (9.1-22.2%), as also the knowledge the of risk factors -Q10 (12.8-45.1%); on the other hand awareness of the disease being endemic in Asia,

Table 1: No (%) of correct responses on questionnaire of leprosy awareness of SJSM medical students MD1-MD4

Correct answers	MD1 N = 27 (% of correct answers)	MD2 N = 11 (% of correct answers)	MD3 N = 16 (% of correct answers)	MD4 N = 15 (% of correct answers)
1. Leprosy is - An infectious disease	23 (85.2%)	9 (81.8%)	15 (93.8%)	12 (80%)
2. Leprosy causes... - Disfiguring skin sores - bumps and damage to the skin	22 (81.5%)	9 (81.8%)	13 (81.2%)	12 (80%)
3. The disease is transmitted by: - a close and repeated contacts with nose and mouth droplets from someone with untreated Leprosy	24 (88.9%)	9 (81.8%)	15 (93.8%)	13 (86.7%)
4. Nerve damage in leprosy: - leads to muscle weakness	25 (92.6%)	9 (81.8%)	14 (87.5%)	14 (93.3%)
5. Living with a person suffering with leprosy if he/she is under treatment is safe? - yes	13 (48.1%)	10 (9.1%)	2 (12.5%)	3 (20%)
6. Global incidence of leprosy being: - Every hour, 30 new pat.	6 (22.2%)	1 (9.1%)	2 (18%)	3 (20%)
7. Leprosy is endemic in: - Asia and Africa and south America	17 (63%)	8 (72%)	12 (75%)	13 (86.7%)
8. Leprosy being curable? Yes, but treatment last several months	40.7%	36.4%	56.3%	60%
9. No social boycott of leprosy patient: - agreed	17 (63%)	10 (90%)	14 (87.5%)	12 (80%)
10. Poor living conditions and poverty are risk fact	13 (48.1%)	6 (54%)	9 (56.3%)	5 (33.3%)
11. Ocular changes occur in some cases	12 (44.4%)	6 (54.4%)	6 (37.5%)	7 (46.7%)
12. Psychologically women and children are more sensitive to this disease	12 (44.44%)	0 (0%)	0 (0%)	12 (80%)

Correct answers	MD1 N = 27 (% of correct answers)	MD2 N = 11 (% of correct answers)	MD3 N = 16 (% of correct answers)	MD4 N = 15 (% of correct answers)
13. Leprosy patients are eligible for employment if they don't pose public health risk	14 (51.9%)	3 (27.3%)	9 (56.3%)	7 (46.7%)
14. Early signs of disease are variable	9 (33.3%)	5 (45.5%)	4 (25%)	7 (46.7%)
15. Prevention is possible by identifying all contagious cases as quickly as possible	8 (29.6%)	2 (18.2%)	6 (37.5%)	3 (20%)
16. Not afraid of leprosy:	8 (29.6%)	5 (45.45%)	6 (37.5%)	6 (40%)

Africa and south America (Q7) was quite high (63-83.6%). Regarding some of the socio-psychological aspects, a significant number of students in all semesters (63-90%) responded there should be no social boycott of leprosy patients (Q9), and 9.1 to 48.1% agreed to live with a patient of leprosy under proper care. The women and children being psychologically more sensitive to the disease (Q12) was answered correctly by 44.4% of the students in the first semester and 80% of the students in the fourth semester, and incorrectly by all students of the first and fourth semester, The level of awareness on the preventive and curative aspects of leprosy (Qs 15) was markedly low as shown in the table 1. Finally regarding the fear of leprosy, 29/6-40% expressed no fear of the disease.

Discussion

Our survey of awareness of leprosy in students of basic medical sciences in Bonaire constitutes the first study of its kind in the Caribbean. It is encouraging to note that a high percentage of students in all the four semesters were well informed about the nature of the disease, its general symptoms, transmission and endemicity, though they did not seem to know the exact incidence as expected from their limited knowledge of the disease acquired per the curriculum. Similar results have been obtained in a study dealing with high school students in India [5] and university students in Mexico [6]. On the other hand, a study in Pakistan [11] found that 23.5% of general medical practitioners were unaware of

leprosy; this is surprising when the disease is known to be endemic in Pakistan. Early signs and symptoms of the disease were poorly perceived in our survey of awareness, a finding similar to that recorded in an earlier study adult members of a community in Nepal [8]. Negative attitude regarding employing a person with leprosy demonstrated in our study has also been reported in a study dealing with university students in Mexico (6), and undergraduate students in India [7].

It is surprising that a greater percentage (48.1-56.3%) of students in 1st, 2nd and 3rd semesters responded that leprosy is associated with poor living conditions than 4th semester students (33.3%). This can be presumably explained by their forgetting what they learnt on this aspect of the disease in 3rd semester.

The need for creating greater awareness of different aspects of leprosy amongst students of medical, biological, social sciences and other disciplines to improve knowledge of the disease and promote a positive attitude to the patients cannot be over emphasized.

No conflict of interest

The study did not require clearance from the ethical Committee of SJSM

References

1. Gould T. Disease Apart: Leprosy in the Modern World 2005

2. World Health Organization (2011) Weekly Epidemiological Record. Leprosy update, 2011.
3. Briton WJ, Lockwood DN. Leprosy. *Lancet* 2004; 33:1209-19.
4. Fao R. Message. *Infect Dis J.* 1998;5: 2.
5. Kanodia SK, Dixit AM, Shukla SR, Seth AK, Balothia V, Gupta R. A study on knowledge, beliefs and attitude towards leprosy in students of Jaipur, Rajasthan. *Indian J Leprosy* 2012; 84:277-85.
6. Omar G-M, Enif E, Cruz V-de La, Ramírez-Dueña MG, Alvarado-Navarro A. University students' knowledge and attitudes towards leprosy. *J Infect Dev Ctries* 2013; 7:658-64.
7. Tiwari R, Srivastava DK, Bansal M, Adhikari P, Mishra S. An assessment of one day training programme on knowledge and attitude of undergraduate students on leprosy at 'GR Medical College, Gwalior, Madhya Pradesh. *National J Comm Med.* 2013;4 :334-48.
8. Kumar A, Prasad NS, Sirumban P, Anbalagan M, Durgambal K. Community awareness about leprosy and participation in National Leprosy Control Programme. *Lepr India* 1983; 55:701-11.
9. Agrawal S, Jha N, Agarwalla A, Agrawal CS, Niroula S. Community awareness about leprosy in a district of Nepal. *J Nepal Med Assoc* 2003; 42: 137-41
10. Bajaj DR, Matlani BL, Soomro FR Iqbal MP. Knowledge, attitude and practices regarding leprosy among general practitioners at Hyderabad. *J College. Physicians & Surgeons, Pakistan* 2009: 19: 215-8.
11. Soomro FR, Pathan GM, Bhatti NS, Hussain J. Awareness of leprosy - knowledge and practices among general practitioners in leprosy endemic areas of Larkana region, Sindh, Pakistan. *J Pak Assoc Dermatol* 2013;23:300-3.

