Tropical medicine rounds

A study on gender differences in newly detected leprosy cases in Sichuan, China, 2000–2015

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Abstract

Background Many researches on gender differences in leprosy found that female patients were detected with the disease later and had more serious disabilities than male patients. We analyzed the gender differences related to epidemiological characteristics of new leprosy cases detected from 2000 to 2015 in Sichuan Province, China.

Methods A retrospective study was undertaken to analyze the gender differences with respect to age, delay in disease detection, the main modes of detection, and disability grade. The chi-squared test and t test were applied for the comparison using Epi Info 7.2 with a significance level of a = 0.05. The data were collected from the Leprosy Management Information System in China.

Results A total of 2900 new leprosy cases were detected from 2000 to 2015, of whom 2075 (71.6%) were male and 825 (28.4%) were female with a gender ratio of 2.5. The gender ratio of patients aged 15–30 was significantly lower than that of patients aged 31–45 and 46–60. Male cases were older than female cases when they were detected. The proportion of Grade 2 Disability (G2D) among men (20.6%) was significantly higher than that among women (17.3%). The average period of delay in detection among male cases was similar with that among females cases.

Conclusions Gender-related differences existed among the leprosy cases detected from 2000 to 2015. Female patients were younger than male patients. The detection of leprosy in women was not later than in the case of men. The disability situation in men was more serious than in women.

Introduction

The resolution for elimination of leprosy, defined as a prevalence level of below one case per 10,000 population by the year 2000 at a global level, was adopted by the 44th World Health Assembly in 1991. This target was successfully achieved at a global level. The global prevalence of leprosy has declined gradually during the last 15 years, while the number of newly detected cases has been relatively stable with a slight drop.¹–⁴

Leprosy not only affects men but also affects women. A study on the impact of leprosy on men and women in Brazil found that leprosy exacerbated existing gender inequalities.⁵ In most Asian countries, leprosy affects men more than women, while in Africa, female patients outnumber males. However, more men than women have been diagnosed with multibacillary (MB) leprosy.⁶ The study on gender differences in Bangladesh found male cases were more than female cases, but women were less aware of leprosy and had fewer opportunities to access the medical services than men, leading to a delay in seeking healthcare, serious disabilities, and social stigma.⁷ The researches in Nigeria on sexual differences indicated that female patients suffered a higher proportion of disabilities than males; women were less aware of causation and symptoms of leprosy and had less access to healthcare coverage than men.⁸,⁹ Female leprosy cases suffered more isolation, rejection, and social stigma than male cases.¹⁰,¹¹

There has been no research on gender differences in epidemiological characteristics of leprosy in China. Therefore, it is important to explore gender differences related to delay in detection, type of leprosy, age, disabilities, and detection modes
so that more attention can be paid to female leprosy cases. Sichuan Province is located in the southwest of China with a vast area of 480,000 square kilometers and had a population of 82.04 million by the end of 2015. It consists of Han and 14 other minorities. The province has 21 prefectures and cities and 181 counties. In this study, we tried to analyze the gender differences related to epidemiological characteristics of newly detected leprosy cases from 2000 to 2015 in Sichuan Province.

Material and Methods
A retrospective study was undertaken to analyze the gender differences in newly detected leprosy cases using descriptive and comparative approaches. The period analyzed in the study began on February 1, 2000, and ended on December 31, 2015 (16 years). The data of all patients diagnosed with leprosy in Sichuan were sourced from the Leprosy Management Information System in China, initially collected at the county level, and supervised at the prefecture and provincial levels. Approvals were obtained from the ethics committee of Sichuan Academy of Medical Sciences and Sichuan Provincial People’s Hospital. Leprosy diagnosis should meet at least two of the following four criteria in China: (i) skin lesion with loss of sensation; (ii) peripheral nerve damage with disabilities; (iii) skin smear positive for Mycobacterium leprae; and (iv) pathological examination showing leprosy-specific characteristics.

Epidemiological data were entered in an Excel 97 database. Statistical analysis was performed with the use of IBM SPSS software, version 19. The continuous variables were given as “median” and “range.” The chi-squared test was applied for the comparison between two groups of men and women, and the variables included detection modes, age, delay period, Grade 2 Disabilities (G2D), the WHO classification, and the Ridley–Jopling classification. The t test was used to analyze the differences of average age and average delay period in the male and female groups. The delay in detection (year) was taken as the interval between the time when the leprosy cases showed symptoms and when they were diagnosed with the disease. The WHO classification of leprosy according to the number of leprosy skin lesions and skin smear examination results is as follows: multibacillary (MB) leprosy when there are six or more skin lesions or less than six skin lesions with a positive skin smear result; and paucibacillary (PB) leprosy in case of one to five skin lesions. High-endemic areas of leprosy in Sichuan province include Lianshian Yi ethnic, Ganzi Zang ethnic prefecture, and Guangyuan city, relatively less population live in high-endemic area.

Results
Trends in new case detection
A total of 2900 new leprosy cases were detected from 2000 to 2015, of which 2075 (71.6%) were men and 825 (28.4%) were women, with a male/female ratio of 2.5. The provincial epidemiological data of Sichuan province showed the incidence of leprosy from 2000 to 2010 was stable, and the average newly detected cases each year were around 200. An obvious decline was observed from 2011 onward, the number of average new cases each year being around 100 (Table 1). The proportions of cases with G2D fluctuated from 13.6% to 29.5% from 2000 to 2015. The proportions of MB cases were relatively stable from 2000 to 2011, and an obvious increase was observed from 2012 onward. The proportions of children cases were relatively stable with a slight increase in 2014 and 2015 (Fig. 1). The case detection rates (CDRs) of high-endemic areas fluctuated from 2000 to 2010 with the highest CDR (0.224 per 10,000) in 2008; an obvious decrease in CDRs was observed from 2011 onward with the lowest CDR (0.066 per 10,000) in 2014. The CDRs of low-endemic areas was relatively stable (Fig. 2). The CDR of male and female cases decreased from 0.379 and 0.138, respectively, per 100,000 population in 2000 to 0.135 and 0.074 per 100,000 population respectively in 2015, with average decrease rates per annum of 6.7% and 4.1%, respectively (Fig. 3).

Period of delay in detection
The average period of delay in detection among male cases was 2.85 ± 4.28 years, which was like the delay period of 2.88 ± 4.53 years among female cases (t = 0.168, P = 0.867). We compared the differences of delay periods among men to women in high- and low-endemic areas, and in ethnic and nonethnic areas. We found the difference was insignificant, no matter if the endemic situation was high or low. A similar result was observed related to ethnic and nonethnic areas (Table 2).

Main detection modes
The result showed that the gender difference was significant in detection modes (χ² = 15.804, P = 0.007) (Table 3). The main detection modes of men and women were self-reporting, dermatological clinic, clue survey, reporting by others, and contact examination in sequence. The ratios of men to women in these groups were 2.9, 2.4, 2.5, 2.4, and 1.6, respectively. More men (1461/1981, 73.8%) were detected through passive detection modes (dermatological clinic, self-reporting, and reporting by others) than women (557/795, 70.0%) with a significant difference (χ² = 3.887, P = 0.049). The differences in the male/female ratio between the contact examination group and the other groups were significant and as follows: dermatological clinic group (χ² = 6.607, P = 0.010); self-reporting group (χ² = 14.448, P < 0.001); clue survey group (χ² = 6.947, P = 0.008); and reporting by others group (χ² = 6.243, P = 0.012). There were no differences between any other two groups.

Endemic situation and ethnic group
The male/female ratios were similar in the relatively high and low-endemic areas (2.6 vs. 2.4), and there was no difference (χ² = 0.931, P = 0.335). The male/female ratios were similar in...
the ethnic and nonethnic areas (2.7 vs. 2.3) with no difference as well ($\chi^2 = 3.416, P = 0.065$) (Table 3).

**Age**

Male cases (41.05 ± 14.84 years) were older than female cases (38.94 ± 15.34 years) when they were detected ($t = 3.421, P = 0.0006$). Of these, 73 (2.5%) were children under 14 years, among whom 51 (66.2%) were male and 22 (33.8%) were female with a ratio of 2.3. There was no significant difference in the sex ratios between adults and children under 14 ($\chi^2 = 0.105, P = 0.746$). There was no difference between the groups of cases above 60 years and those below 60 either ($\chi^2 = 0.658, P = 0.417$). We analyzed the cases aged from 15 to 60 years and found the ratios of men to women were 1.9, 2.6, and 3.0 in the 15–30, 31–45, and 46–60 age groups, respectively. The ratio of the group aged 15–30 was significantly different from the group aged 31–45 ($\chi^2 = 9.596, P = 0.002$) and the group aged 46–60 ($\chi^2 = 16.320, P < 0.001$). There was no difference between the group aged 31–45 and the group aged 46–60 ($\chi^2 = 1.602, P = 0.206$) (Table 3).

**Table 1** The epidemiological data of newly detected leprosy cases in Sichuan, 2000–2015

| Years | New cases | CDR   | MB%  | Child | Male | Cases with G2D | G2D proportion | Population (10,000) |
|-------|-----------|-------|------|-------|------|---------------|-----------------|---------------------|
| 2000  | 222       | 0.027 | 182  | 0.820 | 5    | 166           | 0.162           | 8,240               |
| 2001  | 227       | 0.028 | 194  | 0.855 | 4    | 185           | 0.137           | 8,235               |
| 2002  | 205       | 0.025 | 168  | 0.820 | 4    | 154           | 0.205           | 8,242               |
| 2003  | 198       | 0.024 | 167  | 0.843 | 5    | 149           | 0.237           | 8,237               |
| 2004  | 200       | 0.024 | 161  | 0.805 | 4    | 137           | 0.185           | 8,229               |
| 2005  | 236       | 0.029 | 205  | 0.869 | 8    | 173           | 0.136           | 8,234               |
| 2006  | 193       | 0.023 | 170  | 0.881 | 3    | 130           | 0.212           | 8,219               |
| 2007  | 198       | 0.024 | 158  | 0.798 | 6    | 140           | 0.207           | 8,229               |
| 2008  | 259       | 0.031 | 218  | 0.842 | 7    | 182           | 0.166           | 8,226               |
| 2009  | 187       | 0.023 | 150  | 0.802 | 5    | 125           | 0.214           | 8,235               |
| 2010  | 206       | 0.025 | 166  | 0.806 | 4    | 148           | 0.233           | 8,238               |
| 2011  | 149       | 0.018 | 120  | 0.805 | 8    | 106           | 0.295           | 8,243               |
| 2012  | 127       | 0.016 | 113  | 0.890 | 1    | 84            | 0.220           | 8,239               |
| 2013  | 106       | 0.013 | 94   | 0.887 | 1    | 71            | 0.217           | 8,217               |
| 2014  | 90        | 0.011 | 85   | 0.944 | 4    | 61            | 0.189           | 8,076               |
| 2015  | 97        | 0.012 | 89   | 0.918 | 6    | 64            | 0.206           | 8,198               |

The WHO disability grades of leprosy include grade 1 and grade 2. CDR, case detection rate; Grade 2 Disability (G2D) means the leprosy patient has some visible deformity and disability. Multibacillary (MB) leprosy is when there are six or more skin lesions or less than six skin lesions with a positive skin smear result; and Paucibacillary (PB) leprosy in case of one to five skin lesions.
The proportion of G2D among men (20.6%) was significantly higher than that among women (17.3%) ($\chi^2 = 3.936$, $P = 0.047$) (Table 2). We further analyzed the G2D among male and female groups in different endemic areas and ethnic groups. Both in high- and low-endemic areas, the proportions of G2D among men were higher than those among women, but there were no significant differences. In ethnic minorities, the proportion of G2D among men was slightly higher than that among women with no significant difference. In nonethnic areas, the proportion of G2D among men was significantly higher than that among women ($\chi^2 = 4.968$, $P = 0.026$) (Table 4).

WHO disability grade

The proportion of G2D among men (20.6%) was significantly higher than that among women (17.3%) ($\chi^2 = 3.936$, $P = 0.047$) (Table 2). We further analyzed the G2D among male and female groups in different endemic areas and ethnic groups. Both in high- and low-endemic areas, the proportions of G2D among men were higher than those among women, but there were no significant differences. In ethnic minorities, the proportion of G2D among men was slightly higher than that among women with no significant difference. In nonethnic areas, the proportion of G2D among men was significantly higher than that among women ($\chi^2 = 4.968$, $P = 0.026$) (Table 4).

WHO classification and Ridley–Jopling classification

The proportion of MB leprosy and PB leprosy was similar in women and men (83.9% vs. 84.7% and 16.1% vs. 15.3%), with hardly any difference ($\chi^2 = 0.300$, $P = 0.584$).

By using the chi-squared test, we discovered the gender difference among the different Ridley–Jopling classification groups ($\chi^2 = 6.904$, $P = 0.028$). The male/female ratio among indeterminate (I), polar tuberculoid (TT), borderline tuberculoid (BT), mid-borderline (BB), borderline lepromatous (BL), and polar lepromatous (LL) leprosy were 2.0, 2.9, 2.5, 1.6, 2.5, and 2.5, respectively. The male/female ratio of the BB group was significantly different from the TT group ($\chi^2 = 6.621$, $P = 0.012$) and the LL group ($\chi^2 = 3.565$, $P = 0.059$), and the I group ($\chi^2 = 0.330$, $P = 0.566$). There was no other difference between any other groups (Table 3).

Discussions

The endemic level of leprosy in China was relatively low with regard to prevalence since the 21st century, but the number of newly detected cases each year still lay among the front-ranked countries of the world. The national epidemiological data showed that more men were diagnosed with leprosy than women with a ratio of 2.3 in China.1–4 Sichuan province is a relatively high-endemic area in China, 2900 new leprosy cases were detected from 2000 to 2015 with the ratio of men to women being 2.5. The decline of CDRs in men was more obvious than in women. The overall proportion of G2D fluctuated obviously from 13.6% to 29.5% without an obvious trend. The proportions of MB cases increased with the decline of overall endemic situation since 2012. The incidence of children was stable on a relatively low level; children cases in 2014 and 2015 were 4 and 6, respectively, we supposed it was because some children cases were not detected in 2012 and 2013 in time, then were detected with a delay in the following 2 years. The CDR of leprosy in high-endemic areas in 2008 was the highest; we speculated it was because of massive active case detection activities carried out in 2008, extra funds from governments were inputed in leprosy control when an earthquake took place.
in Sichuan province in 2008. After 2012, an obvious decrease in newly detected leprosy cases was observed in high-endemic areas.

Research in India on gender differences in leprosy cases has found that there were more men cases than women cases, especially in rural areas.\(^{14}\) Victoria indicates that globally the average male/female ratio was 2:1, but more women could be suffering in silence than men.\(^{15}\) John argues that leprosy causes not only physical but also psychosocial and economic problems, especially in the case of women in developing countries.\(^{16}\) We did not find that the differences of the male/female ratio in low and high-endemic areas, either in the ethnic and nonethnic areas, implied that men cases dominated in the Sichuan province no matter the endemic or ethnic situation. The ratio of male to female was highest in the ethnic area at 2.7, but there was no significant difference. We assumed that this might be related to the conventional delay in seeking healthcare and a lower access to health services for women in the ethnic area. We felt there was a need for further research.

We did not find any significant difference in the average delay period between men and women, and the detection of female cases was not later than in male cases. We studied the delay in different areas further, such as in high-endemic areas and in ethnic areas, but we still did not discover any difference in the delay period between men and women, which was different from the research results on the delay of detection of leprosy from 1984 to 1998 in China. The author found that the delay was greatest in the areas where leprosy was endemic

| Variables                      | Male          | Female        | Total          | M/F ratio | $\chi^2$ | P     |
|--------------------------------|---------------|---------------|----------------|-----------|---------|-------|
| **Detection modes**            |               |               |                |           |         |       |
| Dermatologic clinic            | 499 (24.1%)   | 206 (25.0%)   | 705 (24.3%)    | 2.4       | 15.804  | 0.007 |
| Self reporting                 | 612 (29.5%)   | 208 (25.2%)   | 820 (28.3%)    | 2.9       |         |       |
| Other reporting                | 350 (16.9%)   | 143 (17.3%)   | 493 (17.0%)    | 2.4       |         |       |
| Contact examination            | 127 (6.1%)    | 80 (9.7%)     | 207 (7.1%)     | 1.6       |         |       |
| Clue survey                    | 393 (18.9%)   | 158 (19.2%)   | 551 (19.0%)    | 2.5       |         |       |
| Unknown                        | 94 (4.5%)     | 30 (3.6%)     | 124 (4.3%)     | 3.1       |         |       |
| **Endemic situation**          |               |               |                |           |         |       |
| High-endemic                   | 1315 (63.4%)  | 507 (61.4%)   | 1822 (62.8%)   | 2.6       | 0.931   | 0.335 |
| Low-endemic                    | 760 (36.6%)   | 318 (38.6%)   | 1078 (37.2%)   | 2.4       |         |       |
| **Ethnic groups**              |               |               |                |           |         |       |
| Ethnic                         | 1190 (57.3%)  | 442 (53.6%)   | 1632 (56.3%)   | 2.7       | 3.416   | 0.065 |
| Nonethnic                      | 885 (42.7%)   | 383 (46.4%)   | 1268 (43.7%)   | 2.3       |         |       |
| **Age**                        |               |               |                |           |         |       |
| 0–14                           | 51 (2.5%)     | 22 (2.7%)     | 73 (2.5%)      | 2.3       | 18.534  | 0.001 |
| 15–30                          | 460 (22.2%)   | 242 (29.3%)   | 702 (24.2%)    | 1.9       |         |       |
| 31–45                          | 746 (35.9%)   | 283 (34.3%)   | 1029 (35.5%)   | 2.6       |         |       |
| 46–59                          | 572 (27.6%)   | 189 (22.9%)   | 761 (26.2%)    | 3.0       |         |       |
| 60                             | 246 (11.8%)   | 89 (10.8%)    | 335 (11.6%)    | 2.8       |         |       |
| **WHO disability grade**       |               |               |                |           |         |       |
| With G2D                       | 427 (20.6%)   | 143 (17.3%)   | 570 (19.7%)    | 3.0       | 3.936   | 0.047 |
| Without G2D                    | 1648 (79.4%)  | 682 (82.7%)   | 2330 (80.3%)   | 2.4       |         |       |
| **WHO classification**         |               |               |                |           |         |       |
| MB                             | 1741 (83.9%)  | 699 (84.7%)   | 2440 (84.1%)   | 2.5       | 0.300   | 0.584 |
| PB                             | 334 (16.1%)   | 126 (15.3%)   | 460 (15.9%)    | 2.7       |         |       |
| **R-J classification**         |               |               |                |           |         |       |
| I                              | 36 (1.8%)     | 18 (2.1%)     | 54 (1.9%)      | 2.0       | 6.904   | 0.228 |
| TT                             | 307 (14.8%)   | 105 (12.7%)   | 412 (14.2%)    | 2.9       |         |       |
| BT                             | 316 (15.2%)   | 125 (15.2%)   | 441 (15.2%)    | 2.5       |         |       |
| BB                             | 62 (3.0%)     | 38 (4.6%)     | 100 (3.4%)     | 1.6       |         |       |
| BL                             | 409 (19.7%)   | 164 (19.9%)   | 573 (19.8%)    | 2.5       |         |       |
| LL                             | 945 (45.5%)   | 375 (45.5%)   | 1320 (45.5%)   | 2.5       |         |       |
| **Total**                      | 2075 (100.0%) | 825 (100.0%)  | 2900 (100.0%)  | 2.5       |         |       |

Detection mode implies how the new leprosy case is detected, such as through dermatologic clinic, contact examination of the leprosy case, reporting by the case himself/herself, reporting by other people, or clue survey when an active case is found through certain clues. The Ridley–Jopling classification is based on clinical features, bacteriologic index, and pathological features, including indeterminant (I), polar tuberculoid (TT), borderline tuberculoid (BT), mid-borderline (BB), borderline lepromatous (BL), and polar lepromatous (LL) leprosy.

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Table 4 The differences of Grade 2 disability (G2D) between men and women in different areas

| Variables            | Male with G2D | Female with G2D | Sum | $\chi^2$ | $P$ |
|----------------------|--------------|-----------------|-----|----------|-----|
| No./total            | %            | No./total       | %   |          |     |
| Endemic situation    |              |                 |     |          |     |
| High-endemic         | 282/1315     | 21.4            | 97/507 | 19.1    | 1.88 | 0.176 |
| Low-endemic          | 145/760      | 21.4            | 46/318 | 16.0    | 1.078| 0.001 |
| Ethnic group         |              |                 |     |          |     |
| Ethnic               | 251/1190     | 21.1            | 87/442 | 19.7    | 0.390| 0.532 |
| Nonethnic            | 176/885      | 20.6            | 56/383 | 15.9    | 4.968| 0.026 |

The WHO disability grades of leprosy include grade 1 and grade 2. G2D means the leprosy patient has some visible deformity and disability.

and/or where access to health services was poor. Our result was not the same as the result of researches in other countries either, for example, Peters ES found that the average delay of women related to diagnosis and treatment was much longer than that of men, almost twice. Rao observed that the delay in noticing the skin lesions as the symptoms of the disease was needed more attention. We speculated that the behavior of delay in seeking healthcare and manual agricultural activities needed more attention. We speculated that the behavior of delay in seeking healthcare and manual agricultural activities may be the cause for the serious disability situation in female cases in the ethnic areas. Also, the lower social status of women and inaccessible health services could be the cause of women seeking healthcare late. Rashmi argues that women in developing countries seek any kind of healthcare late, and leprosy as a disease with stigma attached to it could further add to this behavior. In Nepal, fewer women with leprosy seek treatment than men affected by the disease, and the difference is significant. Guerrero found that the delay in diagnosis and incidence of disability was greater in women than in men in Colombia. Researches in Ethiopia and Mali have shown that the incidence of foot ulcers in men was higher than in the case of female patients. This is not because of foot ulcers being underdiagnosed in women but because of the delayed presentation by female patients, which resulted in more serious disability.

The most common groups of the Ridley-Jopling classification of men and women include LL, BL, BT, TT, BB, and IL successively. We found the ratios of men to women in LL, BL, BT, BB, and IL groups were 2.5, 2.5, 2.5, 2.9, 1.6, and 2.0, respectively. The ratio of men to women in the BB group was significantly lower than in the TT and LL groups, indicating that

importance of promoting information about healthcare of leprosy patients, especially for the women at home, to improve early self-reporting among women. John assessed the needs for quality care among women with leprosy and was convinced about giving a high priority to provide culturally acceptable health education to household women for promoting early reporting. Contact examination, as one of the active case detection modes in China, is worth carrying out due to intradomiciliary transmission of leprosy. Contact examination could find relatively more female cases than male cases, because women are mainly housewives. Our results showed that more men were detected through passive modes, while women through active modes; the results also showed no difference of delay period between women and men. The reality of women mainly being housewives may be a confounding factor which caused bias in the detected age and delay period among female cases and also influenced on health seeking behaviors of women, so there is a need for further research. On the other hand, since the dermatological clinic was the second-most main detection mode, dermatologists needed to know that leprosy may exist for a long time at a low endemic level. So, the training of dermatologists needed to be undertaken regularly for early case detection.

In our study, the proportion of G2D among men was significantly higher than in women, and the same situation was observed in the nonethnic areas. However, there was no difference of proportion in G2D among men and women in the ethnic areas, which means that the disability situation of women in the ethnic area was more serious and was like the situation of men. The disability situation of female cases in the ethnic areas needed more attention. We speculated that the behavior of delay in seeking healthcare and manual agricultural activities may be the cause for the serious disability situation in female cases in the ethnic areas. Also, the lower social status of women and inaccessible health services could be the cause of women seeking healthcare late. Rashmi argues that women in developing countries seek any kind of healthcare late, and leprosy as a disease with stigma attached to it could further add to this behavior. In Nepal, fewer women with leprosy seek treatment than men affected by the disease, and the difference is significant. Guerrero found that the delay in diagnosis and incidence of disability was greater in women than in men in Colombia. Researches in Ethiopia and Mali have shown that the incidence of foot ulcers in men was higher than in the case of female patients. This is not because of foot ulcers being underdiagnosed in women but because of the delayed presentation by female patients, which resulted in more serious disability.

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women were more likely to have the BB type of leprosy with an unstable immune condition. We did not find any difference in the proportion of male and female cases in the MB group, and so our findings were different from the reported results of other researches. The researches in Ethiopia, Indonesia, Nepal, Brazil, and Malawi have revealed that in the MB category, the proportion of men cases was much higher than that of women cases. We assumed that this might be due to the endemic level of leprosy in China being lower than that in the countries mentioned above.

Several limitations should be taken into consideration in our study. All the data were collected by health workers at the county level and supervised at the city and provincial levels. Some of the data were incomplete. We did not have the social-economic details of new leprosy cases, such as their educational level, marital status, and occupation, which could have a significant influence on healthcare-seeking behavior. We also do not have sufficient information about cultural and religious aspects among female cases, which could influence the health seeking behaviors of women and their social participation.

Conclusion

Despite the limitations, we understood that the characteristics of new female leprosy patients detected from 2000 to 2015 were different from those of male patients. Female patients were younger and their detection was not later than in the case of men. The disability situation in male patients was more serious than that in female patients. We stress the importance of leprosy control for both men and women. The health education of women in households needs to be promoted. More attention needs to be paid to the disability situation among men patients. However, we have not been able to arrive at any conclusions about gender differences related to health accessibility, healthcare-seeking behavior, and social discrimination.

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