Improving Ability of Married Women to Prevent Reproductive Tract Infections in Rural Western China

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Abstract

Objectives: The purposes of this study are to investigate and analyze the status of reproductive tract infections (RTIs) in married women in rural western China, and to develop effective strategies for improving the ability of married women to prevent RTIs in this region.

Methods: We conducted in-depth interviews of 142 married women from four villages in three townships. Two questionnaires were used to gather data on married women's health care status, family income, knowledge about RTIs, relevant behaviors, and attitudes toward RTIs. Descriptive, parallel, and logistic regression analyses and the Chi-square test were applied to analyze the relationships between basic conditions and several influential factors.

Results: Over 80% of the respondents were of limited income and had with poor knowledge of and a lack of experience in preventing RTIs. Some 83.3% of the married women had experienced menstrual irregularities; 70.3% of those interviewed had experienced malodorous vaginal discharge with or without perineal itching. It was found that 80.7% of the interviewees did not have good personal hygiene habits in daily living regarding RTIs. It was found that the prevalence of RTIs was lower in women who had accurate information about RTIs. Most married women lacked basic knowledge of ways to prevent RTIs, and this, together with the limited support of the health care system and the absence of medical insurance schemes, was responsible for the observed high prevalence of RTIs.

Conclusions: There is an urgent need to improve the capability of married women in rural China to prevent RTIs, and it is important to find effective ways to prevent these diseases. Three health promotion strategies are presently being implemented to prevent RTIs and to build capacity for disease prevention among married women in rural western China.

Key words: reproductive tract infections (RTIs), married women, health promotion, rural, China

Introduction

All women share the same needs for affordable, accessible, and quality health-related education and health care, not only in urban areas, but in rural districts as well (1). The burden

of reproductive tract infections (RTIs), including sexually transmitted infections (STIs), is a major public health concern worldwide (2). Owing to biomedical, behavioral and societal factors, RTIs are particularly widespread in the Third World (3). The health improvement strategy described in this paper is based on the World Health Organization's first global strategy for reproductive health (4).

The generic term 'RTI' covers two types of disease: lower RTIs (LRTIs) and upper RTIs (URTIs). We defined a woman as having LRTI if she complained of malodorous vaginal discharge, with or without an itching or burning sensation in the perineal region. Eligibility criterion for URTIs was the presence

Received Jan. 31, 2006/Accepted Jun. 12, 2006

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of one of the two following complaints: malodorous vaginal discharge (with or without itching in the perineal region) or menstrual irregularities (2). Vaginal discharge is one of the most common clinical complaints among women of reproductive age in many parts of the world (5). The significance of LRTIs lies not only in their morbidity or possible asymptomatic transmission, but also in their propensity to progress to URTIs (6). Untreated RTIs are believed to increase the chances of contracting HIV by three- to fivefold (7). In this study, we examined the prevalence of RTIs and URTIs in married Chinese women on the basis of interviews, and did not include clinical exams or diagnoses.

In many developing countries, concerted efforts are being made to establish programs for the control of RTIs, including STIs (5), particularly ulcer-causing STIs, which increase the risk of acquiring and transmitting HIV (8). The health problems of women in developing countries remain far too low on the international community's list of priorities (9). Because a large number of factors may influence RTI-related risk, prevention is a difficult problem in rural areas, particularly in poor districts. Over the past several years in China much research has focused on different aspects of women's RTIs in urban areas, however, only a few pilot programs have been developed and implemented to evaluate the effectiveness of RTI-prevention strategies in rural districts, and there have been few studies targeting health promotion in western rural zones. The Chinese government is now beginning to turn its attention to improving health in rural areas, and to that end, a pilot project financed by the Ford Foundation was carried out in Qinghai Province in western China to improve health by reforming lifestyle factors. In this report, we present the results of part of this project. Our aims are to spend the first two years of the study examining basic health conditions and exploring affordable and accessible ways to prevent RTIs, and then to apply these information and methods to helping less-developed provinces in China.

The Ottawa Charter defined health promotion as the 'process of enabling people to exert control over the determinants of health and thereby improve their health' (10). Health promotion is described as a process, the purpose of which is to strengthen the skills and capabilities of individuals to take action, and the capacity of groups or communities to act collectively to affect the determinants of health.

Methods

A survey was carried out using two questionnaires. One was used to collect information from village doctors and village managers in four villages to obtain basic information on women's education, financial status, health resources and health services regarding RTIs. The other questionnaire was directed toward married women, who were asked about family income, educational level, number of family members, menstrual status, presence or absence of vaginal discharge, habits regarding bathing or cleaning the perineum, habits regarding washing undergarments, whether they had sought health care for RTIs, and whether they had used health care. The subjects were 142 married women, from about 35 families per village, representing 10.1%, 15.8%, 20.1% and 15.6% of the married

women in Xia Zaza, Zhang Jiazhuang, Qing He, and Xiu Jiazan villages, respectively.

The survey was divided into two steps. First, we surveyed ten married women in each village to evaluate the effectiveness of the questionnaire. After revising the questionnaire, we conducted the overall survey. Interviewers were trained before the survey using role-playing and other methods, to help them deal with sensitive issues. This survey was a double blind prospective randomized controlled trial. A subject was selected from a sampling frame by systematic random sampling and subject random sampling, starting from randomly selected door numbers (addresses). Each interviewer was regulated to locate specified door numbers and enroll the selected families. Interviews were conducted face to face to reduce data loss. The survey was carried out over six days by two teams, which consisted of three teachers working at Qinghai University Medical College, five women from the Qinghai Health Education Institute, six women from the Qinghai Province Department of Health, and two village managers.

In this paper, we do not present a lot of statistics or epidemiological information on married women or RTIs, but rather broadly address some of the key factors that might help reduce the prevalence of RTIs among rural married women. We will begin by highlighting some of the difficulties involved in preventing RTIs among married women. Then, we will introduce a number of factors that should encourage us to respond with innovative policies and programs at the local level, based on realistic factors affecting married women, and we will conclude by discussing several opportunities for promoting quality health care for women regarding RTIs. By some issues, we think could made substantial contributions to the promotion of women's health and drawing national attention to issues and policies affecting the health and well-being of women, including their access to quality health care. We hope to work with a broad range of constituencies by discussing issues and promoting women's health regarding RTIs. We divided the subjects into three age cohorts in this study, because after the preliminary survey, we found that rural married women were generally too shy to discuss RTIs openly, and that it was difficult to gather useful data when young women and their mothers-in-law were questioned together. The marked differences between these two age groups in terms of education and background tend to influence the group's attitudes towards RTIs in rural poor areas. Data were collected by authors, and descriptive, parallel and logistic regression analyses and the Chi-square test were applied, using SPSS13.0 software, to identify basic conditions and influential factor for RTIs.

Results

Basic Sociodemography

In the study, 142 women from 120 families were interviewed. Qualitative (quantitative) analysis was performed on the basis of 124 interviews. The mean age of the study population was 37.54 (S.D., 10.12) years, the mean number of family members was 4.22 (S.D., 2.12), and the mean of the number of years the women had been married was 15 (S.D., 7.60) years.

Table 1 Relationships of age with family income level, education level and total number of children in family

Study variable	All-women (%)	Lower than 30 years (%)	31–40 years (%)	Morn than 41 years (%)
Family income	(n=124)	(n=28)	(n=59)	(n=37)
≤US \$199	12 (9.7)	1 (3.6)	5 (8.5)	6 (16.2)
US \$200–299	26 (21.0)	7 (25.0)	13 (22.0)	6 (16.2)
US \$300–399	56 (45.2)	13 (46.4)	25 (42.4)	18 (48.6)
US \$400–499	22 (17.6)	6 (21.4)	11 (18.6)	5 (13.6)
≥US \$500	8 (6.5)	1 (3.6)	5 (8.5)	2 (5.4)
Education	(n=124)	(n=28)	(n=59)	(n=37)
Illiterate	35 (28.2)	3 (10.7)	8 (13.6)	24 (64.9)
≤5 years	62 (50.0)	16 (57.2)	37 (62.7)	9 (24.3)
≥6 years	27 (21.8)	9 (32.1)	14 (23.7)	4 (10.8)
Children	(n=124)	(n=28)	(n=59)	(n=37)
No children	7 (5.7)	3 (10.7)	4 (6.8)	0 (0.0)
1 child	48 (38.7)	14 (50.0)	31 (52.6)	3 (8.1)
2 children	48 (38.7)	8 (28.6)	13 (22.0)	27 (73.0)
≥3 children	21 (16.9)	3 (10.7)	11 (18.6)	7 (18.9)

Table 2 Personal knowledge of RTIs, menstrual status, and experience of vaginal discharge during last year among study population

Study variable	All-women (%)	Up to 30 (%)	31–40 years (%)	Over 41 years (%)	χ^2	p
Knowledge of names of RTIs	(n=124)	(n=28)	(n=59)	(n=37)		
Know some names	29 (23.4)	8 (28.6)	14 (23.7)	7 (18.9)	0.84	0.658
None	95 (76.6)	20 (71.4)	45 (76.3)	30 (81.1)		
Understand how RTIs occur	(n=124)	(n=28)	(n=59)	(n=37)		
Some understanding	24 (19.4)	6 (21.4)	10 (16.9)	8 (21.6)	0.42	0.812
None	100 (80.6)	22 (78.6)	49 (83.1)	29 (78.4)		
Menstruation	n=120	n=28	n=58	n=34		
Regularly	20 (16.7)	5 (17.9)	8 (13.8)	7 (20.6)	0.75	0.687
Irregularly	100 (83.3)	23 (82.1)	50 (86.2)	27 (79.4)		
Malodorous vaginal discharge	n=118	n=28	n=59	n=31		
No	35 (29.7)	10 (35.7)	14 (23.7)	11 (35.5)	1.99	0.370
Yes	83 (70.3)	18 (64.3)	45 (76.3)	20 (64.5)		

The mean family income was \$362.27 US (S.D, 283.14), and the median income was \$381 US per year. The mean number of years of education was 5 (S.D., 3.1), and the median was 3.50. The distributions of family income, educational level and family structure in three age groups are shown in Table 1.

Knowledge of RTIs, and STIs and Acquired Immune Deficiency Syndrome (AIDS)

Most subjects interviewed did not know any of the names or causes of RTIs. Only 29 (23.4%) and 24 (19.4%) of the subjects had partial knowledge of the names and causes of RTI-related diseases respectively. Concerning knowledge of RTIs, there were no significant differences between the three age groups ($p>0.05$). We found that the subjects in all three cohorts had inadequate knowledge of RTIs and that over 70% of the subjects had no information about RTIs (Table 2).

We found in the preliminary survey that the subjects did not understand that STIs should be considered RTIs. Because STDs and AIDS are important diseases now, we added several questions about STDs to our questionnaire. The results showed that 86 (69.4%) of the subjects knew the names of some STDs, but more than one-half of them 69 (55.65%) believed that STDs only resulted from sexual activity, and 22 (59.5%) of the married women aged more than 41 had no knowledge of STDs.

The correlation of a correct understanding or a positive

attitude toward dealing with RTIs with age, educational level and family income are shown in Table 3. Only 29 (23.4%) of the married women had a correct understanding of RTIs, and there were no statistically significant ($p>0.05$) differences in age, education level or family income; thus, we concluded that these are not major factors affecting the acquisition of information on RTIs. ‘Positive attitude’ was evaluated on the basis of the answers to the following questions: Are you willing to take part in classes about preventing RTIs? Do you feel that such classes are for preventing RTIs? Are you willing to change your bad lifestyle habits? Are you willing to join a team of volunteers to help spread basic health knowledge to others? Ninety-four (75.8%) of the married women were considered to have a positive attitude. Difference in family income, age or education level was not significant ($p>0.05$). The above analysis showed that most individuals had little knowledge of how to prevent RTIs.

Modifying lifestyle behaviors

This study found that only 5 (4.0%) subjects bathed or cleaned the perineum on a daily basis, whereas 74 (63.7%) subjects washed their underwear only 1–2 times a month or less than once a month. Only 3 (2.4%) cleaned their underwear every week, whereas most of them 100 (80.7%) washed their underwear less than once a week. The lower the age, the better

Table 3 Correction of correct knowledge or positive attitude towards prevention and treatment of RTIs with age, educational level and income among the study population

Study variable	Without correct knowledge n=95 (76.6%)	Correct knowledge n=29 (23.4%)	Without positive attitude n=30 (24.2%)	Positive attitude n=94 (75.8%)
Age				
≤30 years	19 (67.9)	9 (32.1)	3 (10.7)	25 (89.3)
31–40 years	47 (79.7)	12 (20.3)	14 (23.7)	45 (76.3)
>40 years	29 (78.4)	8 (21.6)	13 (35.1)	24 (64.9)
χ^2	1.57		5.20	
p	0.456		0.074	
Educational level				
Illiterate	26 (74.3)	9 (25.7)	5 (14.3)	30 (85.7)
≤5 years (primary school)	51 (82.3)	11 (17.7)	15 (24.2)	47 (75.8)
≥6 years (middle school/high school)	18 (66.7)	9 (33.3)	10 (37.0)	17 (63.0)
χ^2	2.70		4.30	
p	0.259		0.116	
Annual income				
≤US \$199	9 (75.0)	3 (25.0)	4 (33.3)	8 (66.7)
US \$200–299	22 (84.6)	4 (15.4)	10 (38.5)	16 (61.5)
US \$300–399	44 (78.6)	12 (21.4)	7 (12.5)	49 (87.5)
US \$400–499	14 (63.6)	8 (36.4)	6 (27.3)	16 (72.7)
≥US \$500	6 (75.0)	2 (25.0)	3 (37.5)	5 (62.5)
χ^2	3.15		8.49	
p	0.534		0.075	

Table 4 Correction between age and personal hygiene

Study variable	All women (%)	Up to 30 years (%)	31–40 years (%)	Over 41 years (%)
Bathing, or cleaning perineum	n=124	n=28	n=59	n=37
Every day	5 (4.0)	3 (10.7)	2 (3.4)	0 (0.0)
2–3 times/week	12 (9.7)	3 (10.7)	5 (8.5)	4 (10.8)
1 time/week	33 (26.6)	5 (17.9)	20 (33.9)	8 (21.6)
1–2 times/month	50 (40.3)	15 (53.6)	21 (35.6)	14 (37.8)
Less than once a month	24 (19.4)	2 (7.1)	11 (18.6)	11 (29.7)
Cleaning underwear	n=124	n=28	n=59	n=37
Every day	3 (2.4)	3 (10.7)	0 (0.0)	0 (0.0)
1 time/week	21 (16.9)	11 (39.3)	7 (11.9)	3 (8.1)
2–3 times/month	56 (45.2)	10 (35.7)	29 (49.2)	17 (45.9)
Less than once a month	44 (35.5)	4 (14.3)	23 (39.0)	17 (45.9)

the lifestyle/personal hygiene habits were (Table 4). Study showed that only 12 (9.9%) women thought the risk of RTIs was influenced by bathing and by washing their underwear whereas one-half (66; 53.2%) of women in the study did not see any connection. All married women used feminine hygiene products made of paper or cloth during menstruation, but only 24 (20.0%) changed or cleaned them everyday. There was also a lack of basic infrastructures such as bath rooms. The questionnaire indicated that in the four villages only twelve families had a place to bathe at home, and only two of the villages had public baths.

Personal experience of menstruation and vaginal discharge

Less than one-fifth (20; 16.7%) of the subjects menstruated regularly 100 (83.3%) had experienced menstrual irregularities or irregular menstruation during the past year and 83 (70.3%) had experienced abnormal malodorous vaginal dis-

charge with or without perineal itching. More than 64% of the subjects often had irregular menstruation and abnormal malodorous vaginal discharge with or without perineal itching, and among the three cohorts, the rate was highest in women between 31 and 40 years of age (Table 2). These data indicate that over 60% of the subjects probably had a history of LRTIs or URTIs.

Stress and anxiety

The lack of adequate information about the causes or consequences of RTIs can also lead to stress and anxiety. In this study, we found that over one-half of the women 68 (54.8%) had experienced high stress and anxiety within the last year as a result of menstrual irregularities and abnormal malodorous vaginal discharge with or without perineal itching, and that 44 (64.7%) did not know how to treat the problem and were unable to confide in others, including their mothers-in-law and

Table 5 Factors correlated with menstruation and vaginal discharge

Study variable	Menstruation		Vaginal discharge	
	Regular	Irregular	Normal	Abnormal
Knowledge of RTIs	n=20	n=100	n=35	n=83
Correct knowledge	11 (40.7)	16 (59.3)	21 (75.0)	7 (25.0)
No knowledge	9 (9.7)	84 (90.3)	14 (15.6)	76 (84.4)
χ^2	14.54		36.17	
p	0.000		0.000	
Family income	n=20	n=99	n=28	n=83
≤US \$299	3 (8.6)	32 (91.4)	6 (17.1)	29 (82.9)
US \$300–399	7 (13.0)	47 (87.0)	10 (20.0)	40 (80.0)
≥US \$400	10 (33.3)	20 (66.7)	12 (46.2)	14 (53.8)
χ^2	7.99		7.973	
p	0.018		0.019	
Educational level	n=16	n=96	n=34	n=71
Illiterate	2 (6.3)	30 (93.8)	7 (28.0)	18 (72.0)
≤5 years (primary school)	9 (18.0)	41 (82.0)	22 (52.5)	33 (47.5)
≥6 years (middle school/high school)	5 (35.2)	9 (64.3)	5 (25.0)	20 (75.0)
χ^2	6.22		7.87	
p	0.045		0.020	
Bathing or cleaning perineum	n=20	n=94	n=26	n=81
2–7 times/week	13 (26.0)	37 (74.0)	16 (34.0)	31 (66.0)
≤1 time/week	7 (10.9)	57 (89.1)	10 (16.7)	53 (83.3)
χ^2	4.40		4.33	
p	0.036		0.038	
Cleaning underwear	n=20	n=85	n=32	n=83
>1 time/week	10 (50.0)	10 (50.0)	17 (53.1)	15 (46.9)
≤1 time/week	10 (11.8)	75 (88.2)	15 (18.1)	68 (81.9)
χ^2	—		14.13	
p	0.04		0.000	
Stress and anxiety	n=19	n=76	n=30	n=83
Yes	9 (14.1)	55 (85.9)	9 (11.7)	68 (88.3)
No	10 (32.3)	21 (67.7)	21 (67.7)	15 (37.5)
χ^2	4.32		32.97	
p	0.038		0.000	

husbands. The difference in number between the married women who have had stress and anxiety and those who have not was statistically significant ($p < 0.05$, $p < 0.001$, respectively) (Table 5). We also found that the married women younger than 30 should the highest rates (22; 78.6%) of depressive symptoms compared with those in the other age groups.

Health care systems and policies regarding prevention of RTIs

No subjects had any form of health insurance, nor did any other members of their families. A new type of health insurance system called the Cooperative Medical Scheme (CMS) has recently been introduced, and is supported by funds collected from national and local governments and from individuals. However, the types of disease covered are limited, and the courage does not include measures to prevent RTIs. Every village had a woman worker in charge of family planning whose main task was to eliminate unsafe abortion. These workers told us that they hoped to teach women how to prevent

RTIs, but all of them had poor basic knowledge of RTIs.

There were seven clinics in the four villages. Two villages had one clinic each, one had two, and one had three. None of the clinics had the necessary equipment and facilities for diagnosing RTIs, and no village doctors' offices had places set aside for women's health examinations. All the village doctors were male, and there was only one doctor in each clinic, except for one clinic that had two doctors (father and son). Doctors at the village level earn income from fees and the sale of drugs. The doctors reported that they could not diagnose RTIs and most women were uncomfortable discussing RTIs with them. The women did not consult with the rural village doctors because of the influence of traditional cultural norms, and difficulty in discussing topics considered embarrassing. Only after suffering discomfort or pain for a long period did some of these married women visit village doctors to buy medicine or go to hospitals at the township level, where the doctors did not know them. Doctors at township-level hospitals were able to

diagnose some of the women's diseases, and some subjects were found to have had serious illnesses. The township-level health care system is run by town and county governments and is often unable to provide adequate subsidies to maintain health facilities and equipment or provide training to village doctors. In this study, we found that the lack of good medical care was an important reason for the high prevalence of RTIs among married women in this rural district.

Factors associated with menstruation and vaginal discharge

The lower the family income and educational level were, the higher the rates of irregular menstruation ($p<0.05$) and abnormal vaginal discharge ($p<0.05$). Women who bathed or cleaned their perineum fewer times a week, shared higher rates of irregular menstruation ($p<0.05$) and abnormal vaginal discharge ($p<0.05$). Fifty percent of the married women who cleaned their underwear more than once a week had irregular menstruation; by comparison what percent of those cleaning their underwear less than once a week had irregular menstruation ($p<0.05$). The frequency of abnormal vaginal discharge for the married women who cleaned their underwear less than once a week was significantly higher than that for those who cleaned their underwear more than once a week ($p<0.001$) (Table 5).

Menstrual irregularities or irregular menstruation was occasionally experienced by 100 (83.3%) subjects; of those subjects, only 16 (16.0%) had a correct understanding of RTIs, whereas 84 (84.0%) had no knowledge of RTIs. The difference in the rate of regular or irregular menstruation between subjects with or without accurate knowledge of RTIs was statistically significant ($p=0.000$), as was that in the rate of abnormal malodorous vaginal discharge between the same groups ($p=0.000$) (Table 5). In this study, we also found that among those with abnormal malodorous vaginal discharge with or without perineal itching only 12 (9.70%) married women sought diagnosis or treatment.

Table 6 Logistic regression analysis of factors correlated with menstruation

Study variable	B	SE	Wald	p
Knowledge of RTIs	2.075	0.602	19.774	0.000
Cleaning perineum	1.967	0.374	25.975	0.000
Stress and anxiety	1.244	0.216	41.843	0.000
Bathing or cleaning perineum	0.771	0.262	7.521	0.004
Family income	0.571	0.181	7.846	0.032
Educational level	0.021	0.098	0.056	0.728

Table 7 Logistic regression analysis of factors associated with vaginal discharge

Study variable	B	SE	Wald	p
Knowledge of RTIs	1.867	0.194	16.471	0.000
Cleaning perineum	0.854	0.183	21.220	0.000
Stress and anxiety	1.113	0.409	7.435	0.007
Bathing or cleaning perineum	0.685	0.294	5.420	0.025
Family income	0.221	0.081	7.312	0.007
Educational level	0.205	0.121	3.396	0.064

Regression analysis

We carried logistic regression analysis, to identify independent variables significantly associated with the dependent variables, namely, regular or irregular menstruation and normal or abnormal vaginal discharge. We considered the combination of menstruation and vaginal discharge as the dependent variable and the other relevant factors (i.e. family income, educational level, bathing or cleaning the perineum, cleaning underwear and stress and anxiety) as independent variables. The results of logistic regression analysis indicated that no knowledge about RTIs, cleaning the perineum a few times a week, stress and anxiety and bathing or cleaning the perineum a few times a week are the factors that are more likely to increase the risk of RTIs than the other factors under the condition of the common effect of variable factors (Table 6). Moreover, through logistic regression analysis of the incidence of abnormal vaginal discharge, we also found that the same four factors significantly related to abnormal vaginal discharge (Table 7).

Discussion

There were large differences in the level of understanding of RTIs among the married women of the four villages studied. First, only 20 (16.7%) subjects menstruated regularly, and of those only 11 (55.0%) had a proper understanding of RTIs. Many subjects 100 (83.3%) experienced occasional menstrual irregularities or irregular menstruation, and of these, only 16 (16.0%) had correct information about RTIs, whereas the remaining 84 (84.0%) knew nothing about RTIs. Eighty-three (70.3%) of the subjects reported abnormal malodorous vaginal discharge with or without perineal itching, and of these only 7 (8.4%) had correct knowledge of RTIs, whereas the remaining 76 (91.6%) did not have accurate information. Among the women who reported abnormal malodorous vaginal discharge with or without perineal itching, 68 (54.8%) also reported high stress and anxiety, and most subjects did not have good personal hygiene habits regarding to bathing or cleaning the perineum. It was clear that a lack of accurate information contributed to unhealthy behaviors, and that a poor understanding of the causes or consequences of RTIs discouraged married women from actively seeking health care. When we asked about the causes of RTIs, some women told us that they believed eating foods such as potatoes, rice, eggs, or meat (i.e., fish, chicken and beef) caused RTIs, and some women had been forbidden to consume such foods.

Second, married women were reluctant to seek treatment because of cultural inhibitions and the embarrassment felt when consulting with male doctors, particularly for gynecological disorders. Sociocultural barriers and taboos associated with diseases even remotely connected with reproduction and sexuality are major hindrances for women seeking help for RTIs (11). The women initially ignored their symptoms and sought treatment only when their symptoms increased in severity. The view in many societies is that RTIs are "shameful" illnesses that, in many cases, may decrease marriage stability (2) and compromise economic and social securities. We found that married women have poor information about RTIs, and that health resources such as baths were not available or used; at the

same time, the doctors surveyed (all male) expressed an unwillingness to treat such conditions. None of the healthcare providers paid attention to the depressive symptoms accompanying RTIs; hence, women continued to suffer silently. The physical symptoms of RTIs along with the associated psychological stress had a significant adverse affect on the mental health of women. Women were not informed about the causes of RTIs, and this may have added to the stigma surrounding these diseases. We feel that this lack of knowledge added to the mental stress affecting women in their day-to-day activities. The lack of appropriate counseling by healthcare providers on the physical, mental and social burdens of poor health related to vaginal discharge supports our recommendation for training in the area of interpersonal skills to enable healthcare providers to be more empathetic toward their patients. In this study, we also confirmed the need for adequate access to mental-health-related services and programs on how to deal with stress. We should reinforce existing medical education programs so that mental health services achieve parity with physical health care services; in this way, married women will better understand the various factors that lead to a high incidence of RTIs.

In addition, the lack of health service resources at the township and village levels, and the lack of sufficient personal income to pay user fees and other charges also contribute to the exacerbation of this problem among women. This is because the health system has been driven for many years by market forces, and for the last two decades, health sector reforms often took directions detrimental to women's health (5). When rural economic reforms were introduced in 1978, the collective funds used to support CMS all but disappeared. It was replaced by a fee-for-service system in which people pay for medical care out-of-pocket (11). Women, particularly poor women, now have to spend more out-of-pocket for health services. Today, doctors at the village level operate entirely as private practitioners on a fee basis, and township hospital doctors supplement their public salaries through private practice. Local officials gained the power to set health budgets, but had to rely on locally collected taxes to finance services and meet recurrent costs. The problem of dealing with financial constraints in poor areas was, thus, transferred to lower levels of government. The result is that health spending has become a low priority, and the burden of financing health services has shifted to local areas and onto individuals. Meanwhile, particularly in poor areas, the limited health budget available is used mainly to subsidize the salaries of staff at the county and township levels (12). Over a long period, all of these factors may have led villagers to avoid health checkups or delay treatment, gradually diminishing the villagers' awareness of health care issues, including RTIs. In recent years, government bodies and organizations at all levels have been beginning to focus on reproductive health problems as a part of health-promotion programs for women, and pilot programs involving a new type of CMS are now being tested in rural China. This new type of CMS provides partial compensation to women, particularly for those with some severe diseases, but it needs to be evaluated and modified, and individuals must be encouraged to join the new system. We believe that the costs of health resources and medical care have become a major barrier to improving women's health, particularly in poor coun-

tries; however, among married women, the lack of health-related information may be an even more important factor than the costs and availability of health resources. Therefore, our first priority should be to focus on promoting prevention by improving the ability of married women to carry this out. Among the women in this study, the levels of understanding of STDs and AIDS were higher than those for other RTIs, probably because of the effect of numerous government-mandated educational programs that have been carried out in recent years. This leads us to believe that similar educational programs focusing on the prevention of RTIs may well be effective in preventing and controlling RTIs in the future, and in reducing the burden of RTIs among married women.

Conclusions

Overall, we found that three major factors increase the risk of RTIs among married women. First, most married women do not possess basic knowledge of how to prevent RTIs. Second, healthcare providers are unable to give them adequate information, so most married women have not received any health training, supervision, or management for a long period of time. Finally, the absence of medical care insurance schemes covering married women contributes to a high incidence of RTIs among married women.

Therefore, in our pilot project, the first step was to hold training 'classes' to disseminate basic knowledge, including ways to prevent RTIs, in every village, so that married women could have an opportunity to take part in different classes on their own volition. The key problem is finding trainers available for long periods. We plan to develop a new organization with a wide extension program using 39 female college students from Qinghai University Medical School majoring in women and child care as personnel who will live in the target villages for two-month periods. One aim of the program is to guide married women to adopt better personal hygiene habits to prevent RTIs, using the behavior of the students as a model, as well as to encourage married women to seek health care, for example through the new CMS. Another aim is to recruit volunteers from married women to develop methods to reduce the incidence of RTIs in the long term, and we will provide these volunteers with VCD discs and guide books to help train them to educate other married women. We think that this represents an effective strategy for disseminating information among married women. We also plan to suggest that local education departments educate school and university students about RTIs to improve the capacity of young girls to prevent RTIs from an early age. These goals cannot be achieved in a short period of time, but they can be accomplished through a series of progressive and mutually reinforcing educational and training activities.

The next important step is to improve the abilities of village healthcare providers and volunteers to treat RTIs. We have built a training center in a town hospital that can hold 200 people, where we plan to train volunteers to continue health education programs after the medical students go back to college and where village doctors and town hospital doctors can receive long-term training. We recognize that these volun-

teers will not be qualified to diagnose and cure RTIs, but they will be able to supervise and assist married women regarding RTI prevention, encourage married women to see doctors, and also provide timely information to doctors. Given present conditions, in only a short period of time, such volunteers could be of great help to healthcare providers in preventing RTIs.

The last step is to build political support for health promotion and capacity for married women at the individual and organizational levels. We know that health and social services play an important role in the improving the quality of life. There is an urgent need for the government to reform the financing, training, supervision, management, and clinical service capability (e.g., improvement of equipment) of China's rural primary health care system to reinforce public health plans and provide an adequate minimum level of state funding for the above. It is obvious that the increases in the knowledge and skill levels of individual practitioners are key to the success of this capacity-building project. However, the expertise of individual practitioners alone will not lead to effective health promotion practices without strong support from the organization within which they work. The involvement of political leaders and senior managers in this technical assistance project throughout the training program will help ensure that such support is available. Capitalizing on this support, these educational and training activities not only help participants develop practical skills for a local implementation of health promotion

projects, but also emphasize the importance of achieving organizational change and development to establish a more supportive infrastructure.

With the continued growth of managed care and its emphasis on disease prevention and health promotion, we hopefully will see more improvements in the provision of preventive RTI services. Nevertheless, it is expected that poor rural married women will continue to face challenges and barriers (such as social, economic, cultural) in practicing health-promoting behaviors or discontinuing risky ones. We must redouble our efforts to help all women adopt behaviors that promote reproductive tract health and well-being throughout their lives.

Acknowledgements

The authors wish to thank the Ford Foundation and the Foreign Loan Office of the Chinese Ministry of Health for providing funding for the pilot project in Qinghai province. We would also like to thank the women and men from Hongzhong County of Qinghai Province who so willingly participated in this study. Finally, we would like to express special appreciation to all the members of the Department of Preventive and Environmental Medicine, Kumamoto University, Kumamoto, Japan, for their help and advice regarding RTI prevention.

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