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Original research article

Effect of a community-based intervention programme on the prevalence of reproductive tract infections in rural Andhra Pradesh

[1]Dr. Sai Sravan Kumar R, [2]Dr. Neelakanti Rajashekar, [3]Dr. A. Rakesh, [4]Dr. Nishitha Ganugapeta

[1]Assistant Professor, Department of Community Medicine, Narayana Medical College, Nellore, Andhra Pradesh, India

[2]Assistant Professor, Department of Community Medicine, VELS Medical College and Hospital, Manjankaranai, Thiruvallur, Tamil Nadu, India

[3]Assistant Professor, Department of Pulmonary Medicine, Mediciti Institute of Medical Sciences, Ghanpur, Medchal, Hyderabad, Telangana, India

Corresponding Author:
Dr. Nishitha Ganugapeta

Abstract

Background and objective: To ascertain the local prevalence of reproductive tract infections. To research the impact of various factors on the prevalence of genital infections. To research the incidence of RTI symptoms during the intervention period. To evaluate the outcomes in light of a preintervention study carried out in 1996-1997.

Method: Every married woman between the ages of 15 and 45 was the subject of a cross-sectional community-based study that was conducted at Department of Community Medicine, Narayana Medical College, Nellore, Andhra Pradesh, India from February 2022 to January 2023 and evaluated by questionnaire, laboratory test, and physical examination to identify reproductive tract infections. To conduct the study, approval was requested. The health assistant went to the 412 women who were included in the study population, described how the examination would work, got their permission, and offered them to participate.

Result: There were 70 abortions total, of which 12 were induced and 58 were spontaneous. Seven of the induced abortions used dilatation and curettage, two used injections, and three used tablets. 98 (22%) of the women had primary infertility. The variables for RTIs had a p value less than 0.2: housewife, intervention arm, tubectomy, sanitary napkins, husband's agricultural work, respondent's education, socioeconomic level, and husband's education. The intervention arm, the usage of sanitary napkins, the presence of a spouse who serves in the military, and the level of education of the respondent were all STIs factors with a p value less than 0.2.

Conclusion: A comprehensive community-based intervention approach reduced reproductive tract infections in this study. Health-aides and female doctors were used. RTIs and STIs decreased post-intervention. Health-aide and doctor arms fell significantly. Education was found to affect RTIs. Symptomatic RTI diagnosis was unreliable. Prioritise female literacy and school health instruction. Health-seeking couples should talk. Clinical examination and limited laboratory tests like wet preparation are needed to diagnose.

Keywords: RTIs, STIs, pregnancy, contraceptives, gynaecological features

Introduction

Infectious diseases of the reproductive system are a major issue for public health in developing nations. According to the World Health Organisation, there were 340 million new cases of treatable STIs in men and women aged 15-49 over the world in 1999. Sexually transmitted infections are frequent, while non-sexually transmitted RTIs are significantly more common. Women from disadvantaged socioeconomic backgrounds are disproportionately affected by the health, social, and economic consequences of these illnesses. Because of the link between STIs and HIV transmission, preventing and treating STIs is of the utmost importance. Despite the severity of the issue, there are numerous barriers to RTI treatment. Health seeking behaviours are hampered by factors such as women's unwillingness to talk about these issues, unequal gender roles, a lack of voice in decision making, and an excessive workload. There are additional challenges, such as low-quality care given by inaccessible and insensitive health services. All

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the factors that limit people's ability to get good medical care should be taken into account in any endeavour to reduce the prevalence of RTIs [1, 2, 3].

Beijing's Women's Conference in 1995 and the International Conference on Population and Development in 1994 ushered in a new era in the field of reproductive health. Instead of focusing solely on meeting national population goals, efforts are now being made to better the health of women in all aspects of sexual and reproductive well-being. Since ICPD 1994, the Indian government has been working to implement policy changes that will lead to the delivery of comprehensive, integrated reproductive health care across the country. Need-based, client-centered, demand-driven, high-quality, integrated services are what the RCH programme is all about, and so RTI management is now a part of it. A lack of proper STI/RTI control persists in India despite the country's dedication to reproductive health care in its entirety. Awareness of RTIs is poor, according to a survey of households done at the district level in Karnataka, Kerala, and Goa by the Population Research Centre at the Institute for Social and Economic Change. Urgent action is required to create and assess community-based strategies to lower RTI rates. Medical College offers an initiative called the Community Health and Development Programme that focuses on the wellbeing of locals, particularly women, and the enhancement of their economic and social standing. It serves the residents, which number over 1,100,000. In 1996–1997, researchers did a baseline investigation on reproductive tract infections among married young women and discovered a very high frequency [4, 5, 6].

In light of these findings, Adolescents receive RTI education through school health initiatives, non-traditional educational settings, and marriage education classes for young adults. The rural areas regularly host large-scale efforts to educate the populace. At the hospital and on house calls, the medical staff provides advice on how to lessen potential dangers. Village health-aides (female health workers) have been educated to identify and treat RTIs as part of an effort to bring primary care to the community. Two different methods for identifying and curing RTIs in the community were tested between April 2001 and July 2005. During her once-every-six-week travels to the community, the woman who took the first method used a team of three health-aids that she had trained. With the introduction of HIV into the society, STI control has become more urgent. Unfortunately, the area has not been studied for RTI prevalence recently. As part of the plan to curb the spread of HIV, it was decided that a census of RTI use in the community was necessary. It was also necessary, for the sake of planning, to assess the impact of the community intervention [7, 8, 9].

During the intervention period (2001-2005), field workers tracked the prevalence of symptoms. Since a shift in reported cases could be attributable to shifting reporting practises rather than actual increases or decreases in community-wide infection rates, this data alone cannot be used to draw firm conclusions about the cause of the shift. Prevalence needed to be measured using laboratory tests for this reason. Before the intervention, in 1996, researchers did essentially the same thing. The difference in prevalence in the post-intervention period may be seen by comparing the two studies. If the intervention is proven effective, comparable education and health care initiatives performed on a broader scale could significantly enhance the health of young women [10, 11, 12].

Material and Methods

A cross sectional community-based study was carried out at Department of Community Medicine, Narayana Medical College, Nellore, Andhra Pradesh, India from February 2022 to January 2023 on every married woman between the age group of 15-45 years and evaluated by questionnaire, laboratory test and physical examination for determining reproductive tract infections. Permission was sought to conduct the study. The health- aide visited the 412 women taken in study population, explained the details of the examination, obtained their consent and invited them to participate.

In the study group were married women between the ages of 15 and 25. Due to a higher risk of vaginal candidiasis during this time, women who were pregnant or had just given birth were excluded from the study. Others who were excluded included those who had moved out, either temporarily or permanently, those who lived elsewhere because their spouses were in the military, and those who resided in outlying field huts because it was challenging to get to them. Women who were menstruating on the day of the exam were also disqualified because they could not be examined.

Result

Table 1: Demographic features of women

	Arm A (n = 218)	**Arm B (n = 194)**	**p value**	**Total (n = 412)**
	Number (%)	**Number (%)**		**Number (%)**
Occupation			0.166	
Housewife only	151 (69%)	149 (77%)		300 (73%)
farmer	45 (21%)	23 (12%)		68 (17%)
Non-agricultural laborer	17 (8%)	19 (10%)		36 (9%)

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Salaried/Small business	2 (1%)	1 (.5%)		3 (0.7%)
others	3 (1.3%)	2 (1.03%)		5 (1.2%)
Number of pregnancies			0.026*	
0	24 (11%)	23 (12%)		47 (11.4%)
1	67 (31%)	87 (45%)		154 (37%)
2	91 (41%)	66 (34%)		157 (38%)
3 - 4	36 (17%)	18 (9%)		54 (13%)
Current contraceptive methods			0.002*	
None	119 (55%)	131 (67%)		250 (60.6%)
tubal ligation	86 (39%)	43 (22%)		139 (33.7%)
IUCD	8 (4%)	12 (6%)		20 (4.8%)
Oral pills	1 (0.4%)	2 (1%)		3 (0.7%)
Condom	4 (1.8%)	6 (3%)		10 (2.42%)
Type of sanitary used			0.187	
Cloth				
Disposed	6 (3%)	4 (2%)	0.768	10 (2.4%)
Reused	185 (85%)	161 (82.9%)		346 (84%)
Disposable napkin	27 (12.3%)	29 (15%)		56 (14%)
	Arm A	**Arm B**	**p value**	**Total**
Symptom	**number (%)**	**number (%)**		**number (%)**
vaginal discharge	73 (33.4%)	46 (23.7%)	0.031*	119 (28.8%)
genital itch	8 (3.66%)	14 (7.2%)	0.131	22 (5.3%)
dysuria	6 (2.75%)	6 (3.09%)	0.820	12 (2.9%)
abdominal pain	17 (7.7%)	9 (4.6%)	0.228	26 (6.3%)
any symptom	79 (36.2%)	58 (30%)	0.174	137 (33.2%)

Table 2: Clinical evaluation of RTIs

	Arm A	**Arm B**	**p value**	**total**
Endogenous infection				
Bacterial vaginosis	16 (7.3%)	18 (9.2%)	0.521	34 (8.2%)
Candidiasis	14 (6.4%)	8 (4.1%)	0.331	22 (5.3%)
Sexually transmitted infections				
trichomoniasis	25 (11.4%)	20 (10.3%)	0.801	45 (11%)
cervicitis	10 (4.5%)	5 (2.5%)	0.211	15 (3.6%)
Pelvic inflammatory disease	3 (1.37%)	1 (0.5%)	0.124	4 (0.9%)
Any RTI	65 (30%)	54 (28%)	0.506	119(29%)

Table 3: RTIs final diagnosis in both arms

	Arm A	**Arm B**	**p value**	**total**
Endogenous infections				
Bacterial vaginosis	32 (14.6%)	18 (9.2%	0.053	50 (12.1%)
Candidiasis	2 (0.9%)	2 (1.03%)	0.814	4 (0.9%)
Total	34 (15.6%)	20 (10.3%)	0.054	54 (13%)
STIs				
Trichomoniasis	14 (6.4%)	5 (2.5%)	0.078	19 (4.6%)
Chlamydia**	2	2	0.886	4 (0.97%)
Gonococcus***	0	0		0
Syphilis	1 (0.4%)	0	0.181	1 (0.24%)
Total	17 (7.7%)	7 (3.6%)	0.046*	24 (6%)
Any RTI	50 (23%)	25 (13%)	0.013*	76 (18.4%)

Table 4: Symptoms reported in final diagnosis of RTIs

	Symptomatic patients	**Asymptomatic patients**
	n = 121	**n = 273**
RTI present	56 (46 %)	17 (6.2%)
STI present	9 (7.4%)	11 (4.02%)
Endogenous infection present	52 (42.9 %)	3 (1.09%)
Trichomoniasis present	8 (6.6 %)	8 (2.9%)
Bacterial vaginosis present	51 (42.1 %)	0
Candidiasis present	1 (0.8%)	3 (1.09%)

Table 5: Logistic regression of RTIs

	B	**SE**	**p value**	**OR**	**95% CI min**	**95% C max**
Tubectomy	-0.734	0.305	0.018	0.480	0.266	0.869
Respondents Education	0.673	0.270	0.014	1.957	1.149	3.329

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Arm	-0.655	0.272	0.013	0.515	0.302	0.879

Discussion

This study was conducted to find out how common STIs are right now, and then to assess how well the community intervention worked. This was accomplished by monitoring gynaecological symptoms in the population during the intervention period. From this population, a special group was randomly chosen, and prevalence was calculated using results from laboratory tests. The impact of the intervention may be determined by comparing this to a similar research conducted in the pre-intervention period in 1996. Women's resistance to gynaecological examinations has frequently been a concern in community-based studies of this kind. A good response rate of 93% made it possible to conduct this study since the Community Health Department of CMC has a respectable relationship with the community. Since they are more likely to encounter pregnancy and birth outcomes that could be influenced by RTIs in a social context that emphasises early childbirth, young married women were the study's target demographic. The prevalence of RTIs in this age group must be evaluated because young people between the ages of 15 and 24 account for the majority of new HIV infections worldwide [13, 14, 15].

The majority of young women (70.5%) entered high school and the educational level was high. High school health campaigns that target teenagers are an effective way to reduce RTIs. To ensure they are not overlooked, it is important to target specifically the remaining girls who drop out of high school. Arm B had 13% more men in the military than Arm A did. Long stretches of time apart between partners promote risky behaviour. To teach this weak group, extra care should be given. There weren't many reported induced abortions. It's possible that this isn't a true representation because women might be reluctant to share this information. Few women used sanitary napkins and those who did often reused the cloth during their periods, putting them at risk for genital infections. IUCDs, which are said to raise the risk for RTIs, were not well absorbed by this population. According to the current study, 32% of the sample group suffered from one or more gynaecological morbidities. In comparison to a study conducted in the same location in 1996 (58%), there was a decrease in the prevalence of symptoms. Vaginal discharge was the most prevalent symptom (33.4%). The tracking information revealed a gradual decrease in symptoms reported in both arms. Fewer women (4%) stated that their partners had gynaecological symptoms than the high percentage of women who reported having gynaecological symptoms. This shows that the couples in this area are having communication problems. Improved communication between them might encourage better health seeking. According to the current study, this rural community had an 18% prevalence of RTIs. Compared to previous research done in underdeveloped nations, the prevalence is lower. This could be a result of the community intervention, in some way [16, 17].

Vaginosis caused by bacteria was the most typical RTI. Many women who seek medical attention for this disease are convinced that nothing is wrong despite the fact that the clinical indications may not be convincing. Chorioamnitis, postpartum endometritis, and preterm birth are all risks posed by bacterial vaginosis. Even while 112 women had candida in their cultures, only 8 (2.5%) of them had an invasive infection. This is most likely a result of better hygiene. The low gonorrhoea prevalence is consistent with other investigations. The reduced prevalence of syphilis and gonorrhoea is likely a result of penicillin overuse. 78 (56%) of the ladies who said they had symptoms did not have any RTIs. Similar results among South Indian women have been observed by other studies. Genital secretions are thought to have profound ethnomedical relevance. It could be a sign of anxiousness, impotence, or dysfunctional familial dynamics. It is crucial that healthcare professionals are aware of these difficulties and refrain from assuming that these ladies are healthy. The syndromic method to managing diseases of the reproductive tract-based treatment on the existence of reported symptoms. This strategy would result in the major overtreatment of women with putative RTIs because more than half of the women who reported symptoms had no detectable infection. Overtreatment wastes money and helps antibiotic resistance proliferate. Therefore, it is necessary to update this management strategy. 15 (6%) of the 218 patients who failed to report symptoms had RTIs. 28% of asymptomatic women in the prior research from 1996 had RTIs. As a result, people are more aware of their symptoms and eager to report them, which will improve control. More than half (54%) of the 26 patients with STIs did not report symptoms. The development of screening methods that can identify these organisms is necessary since STIs have substantial, long-lasting effects [17, 18].

RTI and STI causes and factors RTIS were observed to be prevented by respondents' higher educational status, arm b of the intervention (a female doctor), and tubectomy. The protective impact of respondent's education on RTIS was also documented in 2001 Goa research. Higher educated women are more informed and capable of seeking medical attention for their ailments. Compared to women in Arm A, those in Arm B fared better. The doctor who has more training will presumably be able to diagnose and treat patients more successfully. STI-influencing factors were not discovered. Due to cultural considerations, some potential risk factors for STIs, such as sexual practises, could not be examined here. STI rates were not noticeably higher among women who were married to males who were in the armed forces or the transportation industry [18, 19].

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Health-seeking activities 68 (49%) of the women who experienced symptoms sought medical attention, while 65 (47%) did not. Since the preceding study in 1996, when 63% of patients did not seek therapy, there has not been much change. 40% of them felt no need to since they thought their symptoms were modest and didn't need to be treated. 14% of respondents said they lacked the time to seek care, most likely because of home obligations that they were unable to postpone. For better accessibility, services should be offered to them at the community level. Women are frequently reluctant to talk about their gynaecological symptoms, and 14% of them avoided getting help because they were embarrassed. Couples need to become more honest and upfront with one another about issues pertaining to their reproductive health. Only 10% of women sought treatment because they were concerned about privacy. The CHAD health assistant was most frequently requested (25%) for medical care. The ladies would accept training the female community health workers to identify and treat RTIs at the community level because she gets along well with the women and is accessible there. Only one person sought the assistance of an unlicensed private practitioner, compared to 61% in the 1996 study. This shows that they are more amenable to the healthcare services provided [19, 20].

The field workers kept an eye on the symptoms from 2001 to 2005, when the intervention was in place. The quantity of symptoms reported in both arms is on the decline. Total symptomatic decreased from 31% to 15% in Arm A and from 48% to 28% in Arm B, respectively. The symptom of vaginal discharge, which decreased from 30% to 14% in Arm A and from 42% to 27% in Arm B, was the one that showed the greatest decline. Cervicitis, pelvic inflammatory disease, and trichomoniasis infections with clinical diagnosis decreased from 43% to 38% in Arm A and 28% to 13% in Arm B, respectively. As a result, the concentrated intervention over a four-year period led to a decline in symptom prevalence as perceived by the women [21, 22].

Therefore, there was a noticeable decrease in infections in both the health assistant and doctor arms. This study demonstrates that using the community health assistant to manage RTIs is successful in lowering the prevalence of RTIs. Consider using the health assistant to manage RTIs under continual monitoring and supervision as she is more affordable and accessible than the female doctor [22, 23].

Conclusion

This study shows how a thorough community-based intervention approach can lower the prevalence of reproductive tract infections. The female doctor and the health assistant were at different stages of healthcare delivery. In the post-intervention phase, it was discovered that RTI and STI prevalence had decreased. Both the physician arm and the health assistant arm suffered greatly from this fall. Education was discovered to be one of the elements analysed to have a substantial impact on RTIs. The diagnosis of RTIs was not often made using a symptomatic approach. Programmes to promote female literacy and health education in schools should be prioritised. For better health seeking, couples should talk more. A clinical examination and a few simple laboratory tests, including wet preparation, should be done in addition to the symptoms that have been reported for diagnosis. To lower the prevalence of RTIs, a community-based intervention is advised. The usage of a health assistant can be taken into consideration if there is a lack of doctors accessible to treat RTIs. For every additional case of syndromic cure, the health assistant arm was found to be less expensive than the female doctor in a previous investigation on the cost-effectiveness of this technique. The health assistant is more approachable to the community and gets along well with the women. It will be efficient, practical, less expensive, and enhance the trained manpower available to deliver health services to use the health-aide in the management of RTIs under continuous monitoring and assistance.

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