**Peer educator model to improve urban slum women’s knowledge about RTIs/STIs: A pilot study in India**

**Abstract**

Reproductive morbidity, which has enormous impact on health and quality of life of women, has received relatively less attention. The objective of this research paper is to discuss the process and effectiveness of the attempts to provide health education to urban slum women in reproductive age group with specific reference to RTIs/ STIs using peer education model. A pilot project was initiated in three urban slums of Pune city, in the western state of Maharashtra, India. Ten peer educators were trained through 16 hours extensive training programme. Peer educators showed statistically significant change in knowledge of reproductive health after the training (Z= -2.670, p=0.008). Peer educators organized 4 educational sessions covering 83 women so far. Pre-post test results indicated significant difference in the knowledge of participants, scores changed from 3.9±2.4 to 11.0±2.1 (p=0.000) respectively. Results show that the intervention resulted in positive change in reproductive health knowledge.

**Keywords:** Health education, Women’s health, Health promotion, Urban slum, India

**Introduction**

Reproductive health is an umbrella concept, whichconsists of a range of issues such as abortion, antenatal care, contraception, sexual health including sexually transmitted diseases and variety of reproductive morbidities (Kotwal et al, 2014). Each dimension of the reproductive health is important, however, reproductive morbidity, which has enormous impact on health and quality of life of women,has received relatively less attention.Sexual and reproductive health problems are estimated to be 18% of the total global burden of diseases worldwide and 32% of the burden among women in the reproductive age group ([Bhanderi](http://www.ncbi.nlm.nih.gov/pubmed/?term=Bhanderi%20MN%5Bauth%5D) and [Kannan](http://www.ncbi.nlm.nih.gov/pubmed/?term=Kannan%20S%5Bauth%5D), 2010). Every year an estimated 50 million women are affected by reproductive morbidity and for at least 18 million of them, these morbidities have debilitating effects **(Tehrani** et al. 2011). Culture of silence and taboos surrounding RTIs can severely compromise women’s health and health seeking behaviour (Garg, 2002; Kim, 2012). Gender roles, male dominance, lack of freedom, mobility and decision-making, have an effect on treatment seeking behaviour (Nagarkar and Mhaskar, 2014).

In developing countries, unprecedented population growth of the 20th century and the movement of that population from rural to crowded urban places has resulted in an increased frequency of exposure to many diseases including STIs. These RTI/STIs constitute a huge health and economic burden for developing countries and account for 17 per cent of economic losses because of ill health (Devi and Swarnalatha, 2007). Indian society has deep-rooted patriarchal norms, whichresult in inferior status and health of women in the society (Kamalapur, 2013). When a syndrome is detected, treatment follows immediately after they make contact with health personnel. There is a programme to treat symptoms and other physicalconsequences of RTIs/STIs. However, prevention of RTIs/STIs which is an important public health function is neither implemented nor accounted for in programme.This is a major gap in the existing reproductive and child health programme. This research study is an attempt to bridge the gap by providing intervention to improve knowledge of women with reference to RTIs/STIs using local resources.

**Purpose of the study**

In this paper we discuss the process and effectiveness of the attempt to provide health education to urban slum women in reproductive age group with specific reference to RTS//STIs using peer education model.

**Methodology**

**Study Design and Setting**

Aquasi-experimental study was undertaken to understand the effectiveness of peer imparted education related to RTIs/STIs on the knowledge and practices of women in the reproductive age group. This study included three main steps; development of reproductive health education package with specific reference to RTS/STIs, selection and capacity building of peer educators and lastly delivery of health education by peer educators to women in the community. Each of these steps were planned and implemented carefully to deliver effective health education intervention.

**Setting:**The study was carried out in three urban slumslocated in the suburbs approximately 8-kilometers from the Pune city, Maharashtra. These three slums were selected on the basis of researchers familiarity with the community. According to a recent survey by Municipal Corporation, total population of the study area was 7247 individuals and 1369 were the number of women in the age group of 18-49 years. Main occupation of the men in this area was class four level services in the nearby industry or work on daily wages on the construction sites. Women were homemakers or work on daily wages or as domestic helpers. The slum had electricity supply, primary school, and child development centre supported by the district authority. Public toilet facilities and water outlets were provided by the Municipal Corporation. There were two private health care providers just outside the boundary of the slum area. Public health facilities were nearly 8-10 kilometers away. Slum dwellers preferred use of private vehicles, as public transport facilities were very poor.

**Sample:**

The study is designed to detect medium effect size corresponding to astandardized mean difference of Cohen’s d = 0.02. Hypothesis isdirectional in favour of the intervention. Using G\* Power software wherean allocation ratio of 1 has been set, reveals that it requires that a minimum of 312 participants (156 in intervention group and 156 in controlgroup) will be enrolled in the study (power = 0.80, α = 0.05, one tailed).

This is the ideal sample size for complete study however current paper deals with 83 participants who underwent intervention.

**Data collection tools**

A pre tested 20 items questionnaire was administered which evaluates awareness about menstruation and menstrual hygiene,risk factors, symptoms and prevention of RTIs/STIs, symptoms and causes of other reproductive morbidities. The participants were required to identify answers correctly. After each health education session an immediate post assessment was carried. Another round of follow up post test is planned after 3 months gap. Ethical approval was taken from the institutional ethics committee. Written consent was taken from the participants before initiation of an intervention.Referral linkages were established as a part of the study to provide support to those participants who reported symptoms.

**Data Analysis**

Data was analyzed using Statistical Package for the Social Sciences software (SPSS 17). To assess the knowledge, correct responses in the pre test and post test were assigned scores. All correct responses were given equal weightage. The minimum score was zero and maximum was 20. The scores were also computed separately for each session. Wilcoxon test was used for peer educators knowledge assessment. Paired t test was used to test the statistical significance of difference in pre and post test of participants. The p value of <0.05was considered to be significant.

**Results**

**Development of health education package**

A rigorous review of exiting education modules was undertakenin the initial phase of the study. Considering the local culture, language, important health issues and issues pertaining to reproductive health morbidities and sexually transmitted infections a detailed education module was prepared in a local language. Contents of the module were presented to a group of consultants consisted ofgynecologist, health educationist, master trainer in reproductive and health programme. A final module was prepared after incorporating suggestions provided by this team. The content included comprehensive knowledge of reproductive morbidities which consistsmenstruation and menstrual hygiene, RTIs/STIs symptoms, risk factors, myths and beliefs surrounding, preventive and promotive health practices, other reproductive morbidities, importance of communication..Variety of material such as flipcharts, power point slides, vignettes, models (for example menstrual cycle, safe and unsafe days explained using round cardboard where days were marked with different coloured pencils) were prepared and used as learning aids. A detailed handbook with a set of models wasgiven to each peer educator.

**Selection and capacity building of peer educators**

We decided to take peer educators for this task because participatory, empowerment, a model of education iseffective.Many advocates of peer education claim that this horizontal process of peers (equals) talking among themselves is key to the impact of peer education on behavioral change. Peer education may also effect change at the group or societal level, by modifying norms and stimulating collective action that leads to changes in programmes and policies (Flanagan and Mahler, 1996). Selection of peer educators was done on the basis of their familiarity with the community, education minimum 10th grade, fluent in local language, interest and enthusiasm in being trained as peer educator. Totally sixteen women approached us but only ten women were selected for capacity building training. The mean age of peer educators was 35.7±10.9 and all had completed high school education and could read and write in local vernacular language.

They were trained for total 16 hours in extensive training programme. Individual and group assignment, role plays, games were used to get feedback on the training and to check whether they understood the subject matter or not and finally for evaluation. Besides a pre and post test was conducted for knowledge assessment of peer educators. Results provided in Table 1.We emphasized on communication skills along with technical details. Mock practice sessions were conducted after training. This process provided confidence and self esteem to the peer educators.Two refresher sessions (2 hours duration each) were conducted after the training but just before their public performance.

Peer educators knowledge assessment was done by pre and post test. A Wilcoxon signed- ranked test showed that 16 hours of rigorous training programme did elicit a statistically significant change in knowledge of peer educators. The baseline knowledge score was 6.67± 2.29 which was improved to 12.22± 4.0 in post test. Refresher session was conducted with the gap of one month. Statistically significant change in knowledge (Z= -2.724, p= 0.006) was seen with change in mean knowledge rating from 12.22± 4.0 to 14.3±2.9. Table 1 shows change in mean knowledge for each session covered in the training and its significance.

**Implementation of intervention**

During the training period they organized women’s meetings and decided convenient day and time for community education sessions. This was very important step because women were hesitant to talk about RTIs/STIs in public meetings. This helped in establishing initial rapport and made community receptive to the sessions. Peer educator organized monthly one health education session in the community each session lasting for about 45 minutes. Peer educators conducted total 16 sessions. Women in reproductive age group, irrespective of their ethnic group, education, occupation, were included in the sessions. This 45 minutes long session was tailored carefully; lecture by peer educator for 30 minutes followed by interactive session. Visual aids, flipcharts, posters were used. The topic included menstruation, menstrual cycle, menstrual hygiene, RTIs/STIs symptoms, risk factors, myths and beliefs, prevention of RTIs/STIs, promotive health practices, symptoms and risk factors and prevention of other reproductive morbidities (uterine prolapse, cervical cancer, abortion) and finally contraception.

A major ethical issue of providing treatment to the women who would report after the education session was handled by establishing strong referral link. Researchers and peer educators contacted the hospital authorities which was managed by a neighboring industry under its corporate social responsibility (CSR) initiative and assured free treatment for all those report during the programme.

**Effectiveness of peer imparted education**

As the study is ongoing, we present the result of 83 women who have completed minimum 4 sessions organized and delivered by peer educators.Participantsage ranged from 18-49 years, with a mean age of 34.9±8.20 years. Majority of the participants had completed middle or high school education whereas 9.6percent of the participants were illiterate. Eighty three percent of participants were homemakers and 13.3% of participants were engaged in unskilled labour work.

**Knowledge assessment of participants**

Knowledge assessment of participants wasalso undertaken by conducting pre and post test and mean was compared by paired T test.Mean knowledge change was 3.9±2.4 to 11.0±2.1 for pre and post test respectively. Each of the health education session which includes menstruation and menstrual hygiene (p=0.000), reproductive tract infections (p=000), sexually transmitted infections (p=0.000)and other reproductive morbidities (p=0.000) shows significant knowledge change. Table 2 shows change in mean knowledge for each session covered in the health education session and its significance.

**Discussion**

This paper is an important document because reproductive morbidities is one of the less discussed issue at the level of policy as well as at the level of community. This is perhaps because policy or programme has clinical approach and technical solution for these morbidities (NIFHW, 2014). On the other side women do not discuss about this subject. They face cultural and social barriers to discuss about genitals and any morbidity involving genital area openly including with health care provider especially if he is of male gender (Prasad J et al, 2005).

In India prevalence of reproductive tract infections varies from 11 to 72 per cent. Moreover 27 to 56 percent of women in urban slum continue to suffer because of lack of knowledge about treatment facilities, material deprivation and poor hygienic conditions (Nagarkar and Mhaskar, 2014). Our study showed positive effect of health education on women’s knowledge of reproductive health. Significant improvement was seen with relation to knowledge about menstruation and menstrual hygiene, reproductive tract infections, sexually transmitted infections and other reproductive morbidities which includes uterine prolap, cancer cervix, etc. Researchers came across several intervention studies conducted in adolescent group though, indicating effectiveness of an educational intervention in increasing knowledge in the range of 30 to 60 percent after an intervention (Menna, 2015; Rangappa, 2012; Malleshappa, 2011; Parwej, 2005). Although a large body of research on the intervention activities and innovative approaches to improve reproductive health exist, target group was either school going or adolescent.

In the intervention process, our main emphasis was giving knowledge about changing hygienic practices during menstruation, symptoms and importance of treatment seeking at right time. In India, current programmatic component focuses on the management of the RTIs and STIs. Asymptomatic nature of RTI, stigma, lack of awareness regarding morbidities, cost of care, absence of female doctor, and long waiting times pose serious threat to utilization of existing health care facility (Prasad J, 2005).Along with these, low level of awareness and knowledge about reproductive morbidities results in less utilization of available services and high burden of untreated illnesses.Because of severe consequences and other associated morbidities, early detection and treatment plays an important role.Studies suggest integrated approach for creating knowledge and awareness to control spread of sexually transmitted infections and reproductive health morbidities (Rejoice PR, 2014; Bhanderi and Kannan, 2010).

Peer-led education was found to be one of the effective methods of bringing in desired change (Tolli, 2012; Parwej, 2005). Peer education programs are based on the rationale that peers have a strong influence on group’s behavior. As members of the target group, peer educators are assumed to have a level of trust and comfort with their peers that allows for more open discussions of sensitive topics (Campbell and MacPhail, 2002). Similar observation was made in the current research, during the community sessions, women were comfortable discussing such issues with peer educators. Women expressed their concerns, they also discussed barriers to behavior change, change in husband’s knowledge and behavior was also expressed as a need.Similarly, peer educators are thought to have good access to hidden populations that may have limited interaction with health programs. Interventions using peers can also be more cost-effective than interventions that rely on highly trained professional staff (Medley et. al.2009 )We argue that peer education is an effective tool in promoting health related knowledge and behaviors. However it requires proper preparation, training, supervision, and evaluation (Abdi and Simbar, 2013).On this background current study highlights importance of awareness generation at grass root level with sustainable approach.

**Limitation of the study**

The study has certain limitation in terms of sample size. However, vigilant generalization may be drawn as the participants represent women in urban slum sharing same demographic, socio-economic characteristics.

**Conclusion and Recommendation**

The present study showed that the education intervention conducted over a period of 6 months has a positive impact on knowledge .Health education based on ‘peer educator’ model led to a remarkable improvement in the awareness and knowledge about reproductive health in urban women. The intervention given is easily replicable nationwide considering acceptance of peers from own community. Because of its significant result, we conclude that this intervention has potential for further adaptation and development. Scale up of existing reproductive and child health programme, considering peer education approach on certain subjects is recommended through current study.

**References**

1. [Abdi](http://www.ncbi.nlm.nih.gov/pubmed/?term=Abdi%20F%5Bauth%5D) F and [Simbar](http://www.ncbi.nlm.nih.gov/pubmed/?term=Simbar%20M%5Bauth%5D) M. (2013). The Peer Education Approach in Adolescents- Narrative Review Article. *Iranian Journal of Public Health*. 42 (11): 1200–1206. Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4499060/>
2. [Bhanderi](http://www.ncbi.nlm.nih.gov/pubmed/?term=Bhanderi%20MN%5Bauth%5D) MN and [Kannan](http://www.ncbi.nlm.nih.gov/pubmed/?term=Kannan%20S%5Bauth%5D) S. (2010). Untreated Reproductive Morbidities among Ever Married Women of Slums of Rajkot City, Gujarat: The Role of Class, Distance, Provider Attitudes, and Perceived Quality of Care. *Journal of Urban Health.* 87(2): 254–263.doi:  [10.1007/s11524-009-9423-y](http://dx.doi.org/10.1007%2Fs11524-009-9423-y).Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/20108049>
3. Campbell C, MacPhail C. (2002). Peer education, gender and the development of critical consciousness: Participatory HIV prevention by South African youth. *Social Science and Medicine.* 55 (2):331–345. Retrieved from http://eprints.lse.ac.uk/385/
4. Devi S and Swarnalatha N. (2007). Prevalence of RTI/STI among Reproductive Age Women (15-49years) in Urban Slums of Tirupati Town, Andhra Pradesh. *Health and Population Perspectives* and Issues. 30 (1): 56-70, 2007. Retrieved from <http://medind.nic.in/hab/t07/i1/habt07i1p56.pdf>
5. Flanagan D and Mahler H. (1996) How to create an effective peer education project. Guidelines for effective AIDS prevention Poject. Retrieved from <http://hivhealthclearinghouse.unesco.org/sites/default/files/resources/HIV%20AIDS%20198.pdf>
6. Garg S, Sharma N, Bhalla P, Sahay R, Saha R, U Raina, Das B, Sharma S, Murthy N (2002). Reproductive morbidity in an Indian urban slum: need for health action. *Sexually Transmitted Infection* 78(1), 68-69. doi:10.1136/sti.78.1.6. Retrieved from <http://sti.bmj.com/content/78/1/68>
7. Kamalapur S and Reddy S. (2013). Women Health in India: An Analysis.  *International Research Journal of Social Sciences.* 2(10), 11-15. Retrieved from <http://www.isca.in/IJSS/Archive/v2/i10/3.ISCA-IRJSS-2013-135.pdf>
8. Kim L, Pham L, Vu L and Schelling E. (2012). Health services for reproductive tract infections among female migrant workers in industrial zones in Ha Noi, Viet Nam: an in depth assessment. *Reproductive health.* 9(4) 1-11.doi:  [10.1186/1742-4755-9-4](http://dx.doi.org/10.1186%2F1742-4755-9-4). Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/22369718>
9. Kotwal N, Khan N and Kaul S. (2014). A Review of the Effectiveness of the Interventions on Adolescents Reproductive Health in developing countries. *International Journal of Scientific and Research Publications*, 4(5). Retrieved from <http://www.ijsrp.org/research-paper-0514/ijsrp-p2910.pdf>
10. Malleshappa, K., Krishna, S., Nandini. (2011). Knowledge and attitude about reproductive health among rural adolescent girls in Kuppammandal: An intervention study. *Biomedical Research*, 22 (3): 305-310. Retrieved from <http://www.alliedacademies.org/articles/knowledge-and-attitude-about-reproductive-health-among-rural-adolescent-girls-in-kuppam-mandal-an-intervention-study.pdf>
11. [Medley](http://www.ncbi.nlm.nih.gov/pubmed/?term=Medley%20A%5Bauth%5D) A, [Kennedy](http://www.ncbi.nlm.nih.gov/pubmed/?term=Kennedy%20C%5Bauth%5D) C, [O’Reilly](http://www.ncbi.nlm.nih.gov/pubmed/?term=O%26%23x02019%3BReilly%20K%5Bauth%5D) K, and  [Sweat](http://www.ncbi.nlm.nih.gov/pubmed/?term=Sweat%20M%5Bauth%5D) M. (2009). Effectiveness of Peer Education Interventions for HIV Prevention in Developing Countries: A Systematic Review and Meta-Analysis. [*AIDS Education Prevention. 21* (3): 181–206.](http://www.ncbi.nlm.nih.gov/entrez/eutils/elink.fcgi?dbfrom=pubmed&retmode=ref&cmd=prlinks&id=19519235)doi:  [10.1521/aeap.2009.21.3.181](http://dx.doi.org/10.1521%2Faeap.2009.21.3.181). Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/19519235>
12. Menna T, Ali A andWorku A. (2015). Effects of peer education intervention on HIV/AIDS related sexual behaviors of secondary school students in Addis Ababa, Ethiopia: a quasi-experimental study. *Reproductive Health*. 12(84). DOI 10.1186/s12978-015-0077-9. Retrieved from <http://www.reproductive-health-journal.com/content/12/1/84>
13. Nagarkar A and Mhaskar P. (2015).A systematic review on the prevalence and utilization of health care services for reproductive tract infections/sexually transmitted infections: Evidence from India. *Indian Journal of Sexually Transmitted Diseases and AIDS.* 36(1): 18–25. doi:  [10.4103/0253-7184.156690](http://dx.doi.org/10.4103%2F0253-7184.156690). Retrieved from <http://www.ijstd.org/article.asp?issn=0253-7184;year=2015;volume=36;issue=1;spage=18;epage=25;aulast=Nagarkar>
14. Parwej S, Kumar R, Walia I and Aggarwal A. (2005). Reproductive Health Education Intervention trial. *Indian Journal of Pediatrics*. 72 (4): 287-291. Retrieved from <http://medind.nic.in/icb/t05/i4/icbt05i4p287.pdf>
15. Prasad J, Abraham S, Kurz K, George V, Lalitha V, John R, Jayapaul M, Shetty N and Joseph A. (2005). Reproductive Tract Infections among Young Married Women in Tamil Nadu, India. *International Family Planning Perspective*. 31(2). Retrieved from <https://www.guttmacher.org/pubs/journals/3107305.html>
16. Rangappa M, Sangappa V Kashinakunti, RG Geethalakshmi, DK Sangam. (2012). An educational intervention study on adolescent reproductive health among pre university girls in Davangere district. *Annals of Tropical Medicine and Public Health.*5(3):185-189. Retrieved from <http://www.atmph.org/article.asp?issn=1755-6783;year=2012;volume=5;issue=3;spage=185;epage=189;aulast=Manjula>
17. Ravi PR and Kulasekaran RA. (2014). Care Seeking Behaviour and Barriers to Accessing Services for Sexual Health Problems among Women in Rural Areas of Tamilnadu State in India. *Journal of Sexually Transmitted Diseases*, 2014, Article ID 292157.1-8. Retrieved from http://www.hindawi.com/journals/jstd/2014/292157/
18. **Tehrani F, Simbar M**and **Abedini M.** (2011). Reproductive morbidity among Iranian women; issues often inappropriately addressed in health seeking behaviours. BMC Public Health, **11**(863). doi:10.1186/1471-2458-11-863. Retrieved from <http://www.biomedcentral.com/1471-2458/11/863>
19. Tolli, M. (2012). Effectiveness of peer education interventions for HIV prevention, adolescent pregnancy prevention and sexual health promotion for young people: a systematic review of European studies. *Health Education Research*, 27(5),904–913. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/22641791
20. <http://nihfw.nic.in/ndc-nihfw/html/Programmes/ReproductiveAndChildHealth.htm> accessed on 26th October 2015

Table 1: Knowledge assessment of peer educators

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Training domain** | **Pre test (mean score)**  **(n=10)** | **Post test (mean score) (n=10)** | **Z score** | **Asymp.sig. (2- tailed )** |
| Menstruation and menstrual hygiene | 2.3±1.1 | 4.5± 0.7 | -2.533 | 0.008\* |
| Reproductive tract infections &Sexually transmitted infections | 3.6±1.1 | 5.2±2.2 | -1.919 | 0.055\* |
| Other reproductive morbidities (cervical cancer, uterine prolapse, abortion) | 0.5± 0.7 | 2.1±1.6 | -2.388 | 0.017\* |
| Total score for training period | 6.67±2.2 | 12.2±4.0 | -2.670 | 0.008\* |
| Refresher training | 12.2± 4.0 | 14.3±2.9. | -2.724 | 0.006\* |

(\*p<0.05)

Table 2: knowledge assessment of community women

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Training domain** | **Pre test (mean score) (n=83)** | **Post test (mean score) (n=83)** | **t score** | **sig. (2- tailed )** |
| Menstruation and menstrual hygiene | 2.3±1.0 | 4.1±0.8 | -13.903 | 0.000\* |
| Reproductive tract infections | 1.0±1.1 | 4.5±1.0 | -23.035 | 0.000\* |
| Sexually transmitted infections | 1.1±1.2 | 3.9±0.9 | -17.929 | 0.000\* |
| Other reproductive morbidities (Cervical cancer, uterine prolapsed , Abortion) | 0.2±0.7 | 2.4±1.1 | -16.809 | 0.000\* |
| Total Score | 3.9±2.4 | 11.0±2.1 | -25.693 | 0.000\* |

(\*p<0.05)