The effect of health education guidelines on women suffering from reproductive tract infections for seeking health care services

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Abstract

Background: The most important period in the life span of women is the reproductive period, which extends from menarche to menopause. Reproductive tract infections are endemic in developing countries and having a large burden on the society. **Aim:** to determine the effect of health education guidelines on women suffering from reproductive tract infections for seeking health care services. **Materials and Method:** A Quasi experimental research design was used to achieve the aim of the present study. The study was conducted at the gynecological outpatient & family planning clinics of Zagazig University hospital and Al-Ahrar hospital at Zagazig. A purposive sample composed of 200 women and who were fulfilled the inclusion criteria. Structured interview related to reproductive tract infections symptoms. Women knowledge regarding reproductive tract infections Barriers of seeking health care services for women suffering from reproductive tract infections. Health education guidelines for women suffering from reproductive tract infections. **The results**: There is a significant improvement of the women knowledge regarding most of the studied items in relation to RTIs immediately after health education guidelines. **Conclusion**: Health education guidelines regarding reproductive tract infections were effective in increasing women knowledge level after health education guidelines. The major barriers for not seeking health care services for women suffering from reproductive tract infections were the perception of symptoms as normal, shyness of genital examination or explain their symptoms, family responsibilities, the husband neglecting to the health of his wife, lack of awareness about RTIs and privacy. **Recommendations**: Health education to all women attending MCH and family planning services about reproductive tract infections and how can prevent. Furthermore, instruct women about early attending to seek medical care services if any symptoms of reproductive tract infections appear.

Keywords: Reproductive tract infections, barriers, treatment seeking, health education.

Introduction:

Reproductive Tract Infections are caused by bacteria, viruses, chlamydia, mycoplasma and other pathogens that invade the genital tract.(1) They can be in either the upper reproductive tract (Fallopian tube, ovary and uterus), and the lower reproductive tract (vagina, cervix and vulva).(2)RTIs are one of the most prevalent health morbidities among women throughout the world, particularly in developing countries among women of reproductive age.(3)

In a house-to-house survey using cluster sampling, 1344 married women from urban and rural areas of Upper Egypt (Minia, Assiut and Sohag) were interviewed to study the magnitude and determinants of RTIs. Overall prevalence was found to be 52.8% (4) RTIs, as a silent epidemic for women of reproductive age in developing countries, studies in India, Bangladesh and Egypt have shown that 52-92% of women are suffering from RTIs.(5)

Female RTIs usually originate in the lower genital tract, as vaginitis or cervicitis and may produce symptoms such as abnormal vaginal discharge, genital pain, itching and burning feeling with urination.(6) RTIs contributing to gynecological morbidity and maternal mortality globally, including low-middle-income countries. Untreated infections can lead to pelvic inflammatory diseases, ectopic pregnancy, infertility, cervical cancer, fetal loss or infant health complications.(7)

There are many barriers to seeking health care. They include symptoms of RTIs are usually considered to be not dangerous, or simply a normal outcome of marriage and childbearing, and therefore not urgent enough to be paid attention to. Furthermore, women often feel embarrassed to discuss such symptoms for fear of social associated invasion of confidentiality. In addition, lack of economic independence, limitation of physical movement of women in most communities, poor quality of care, inaccessibility of services, non-availability of female physicians at a health care facility and the high expense are considered other obstacles.(8)

In health education and health promotion plans, the first step for intervention is an assessment of health needs. The most successful educational program is based on the distinction between the groups at risk, community situation, planning for health education, changing the high-risk behaviors, and making the changes stable.(9) Since too many factors affect

decision-making about a particular health behavior, the health education expert is responsible for determining individuals' personal characteristics, environment and behavior, and then for necessary planning to promote health situation. [10]

Aim of the study to:

Determine the effect of health education guidelines on women suffering from reproductive tract infections for seeking health care services.

Research Hypothesis:

Women who have exposed to health education instructions their knowledge about reproductive tract infections while increase and they attend to seek medical services early.

Material and Method

Material

Research design: A quasi-experimental research design was used

Setting: The study was conducted at the Gynaecological outpatient & the family planning clinic of Zagazig University Hospital and Al-Ahrar Hospital that are considered from the largest and most important governmental hospitals of Zagazig city.

Sampling: a convenient sample of 200 women with reproductive tract infections who attended clinics of the above previously mentioned settings

Sample size:

Taking the prevalence of RTIs symptoms among women (18–45 years) as 37%, with relative error of 20%, and taking non-response rate of 10%, the total sample size is calculated to be 200.

Criteria of the study sample

Women were selected according to the following criteria:(1) Women who are in the age group 18 to 45 years, (2) Women who attended to the gynecological outpatient &the family planning clinics of the previously mentioned setting, (3) Women with symptoms of RTIs diagnosed by a physician. In addition, women who were free from medical and gynecological complications.

Tools of data collection:

Three tools were designed by the researcher after reviewing the related literature for data collection, which consists of the following parts:

Tool I: Structured interview questionnaires schedule: It consisted of two parts as the following:

Part (I): Socio-demographic data of the studied women. It included: age, marital status, level of education, residence area, employment status and socioeconomic status. Socioeconomic is classified into high, middle, and low.[12]

Part (II): Data about the current symptoms related to RTIs as reported by the studied women. Assessment current complaints of women concerning RTIs (women have mentioned more than one symptom), such as lower back pain, lower abdominal pain, itching over the vulva area, frequency or painful of urination. Additionally, abnormal vaginal discharges whether odor besides color of vaginal discharges.

Tool II: Women assessment questionnaire sheet: this part consisted of two parts as the following:

Part (I): Women's knowledge regarding RTIs. This part included questions in relation to its definition, causes, risk factors, signs and symptoms, complications, and their adverse effect on pregnancy. Moreover, prevention and management measures.

The scoring system of women knowledge:

A scoring system for knowledge was determined through: (2) scores were given for complete correct answer, (1) score for an incompletely correct answer, and (0) score for don't know or incorrect answer. A total knowledge score that ranges from zero to 16 points was adopted. Total scores level of knowledge less than 8 (<50%) were classified as poor knowledge, women who had total scores level for knowledge range from 8 - 11 (50 - <70%) were described as fair knowledge and women who had complete correct answers range from 12 to 16 (70-100%) were described as having good knowledge.

Part (II): Barriers of seeking health care services for RTIs.

a) **Reasons for not seeking health care services regarding RTIs.** These can be classified as: perceived as a normal and do not need treatment, didn't know the dangers of RTIs, counseling about RTIs and sources of information. Additionally, severity of pain, discharges and itching.

b) **Factors affecting seeking health care services regarding RTIs.** These factors can be categorized as: (a) Social and cultural factors (feeling of shame, husband neglecting of his wife's health, limited decision making by women, lack of control over resources), (b) Environmental factors (lack of accessibility, shortage of time, lack of awareness), (c) Economic factors (poor socioeconomic conditions and treatment are expensive, family responsibilities), and (d) Health care facility factors (distance to health care facility,

duration of waiting for the services, lack of privacy).

Tool III: Health education guidelines for women suffering from reproductive tract infections. It consisted of the following:

These guidelines were prepared by the researcher based on a review of the recent relevant literature using articles and scientific magazines to be acquainted and guided in the process of the tool designing. These guidelines covered theoretical parts such as definition, causes, risk factors, signs and symptoms, adverse effect on mothers and the baby and complications. In addition, management and preventive measures regarding RTIs and hygienic care of the genital tract.

Method of data collection

- The researcher obtained a letter from the Dean of Faculty of Nursing to the hospital administrators containing the title and aim of the study of the previously mentioned settings. The aim of the study was explained to all of the women. Confidentiality and privacy regarding women's rights were maintained through the stage of the study.
- The tools have been revised by three academic nursing experts in the field of obstetrics and Gynecology to test the content validity of these tools for validation and ensure that these items adequately represent.
- A pilot study was carried out on 10% (20 women) of the total sample. The pilot study was carried out 3 days /week among women with RTIs attending in the clinics at of the previously mentioned settings. These tools were modified according to the recommendations of specialist before starting the data collection in order to evaluate the applicability and clarity of tools. The pilot study sample was excluded from the main study sample.

Field of work:

- The study was carried out in a period of nine (9) months from the beginning of July 2013 to the end of March 2014, two days per a week from 9 a.m. to 12 p.m.
- The researcher introduced herself and explained the aim of the study to all participants at the beginning of each visit.
- The researcher interviewed each woman individually in the clinics at of the previously mentioned settings to assess women current RTIs symptoms, their knowledge regarding RTIs and barriers to seeking health care services for RTIs in order to

determine the gaps and needs of women through an interview, took about 10-15 minutes for each woman.

- Based on the results gathered from assessment staging, guidelines were designed to meet the women lack knowledge.
- Nursing guidelines were ranged from half to one hour. The content of the guidelines included definition or meaning of RTIs, causes, signs /symptoms, risk factors, complications, and prevention and care measures (health care services) regarding RTIs as well as their point of view regarding the barriers to seeking health care services.
- Different methods of guidelines were used such as presentation, group discussion, demonstration and re-demonstration. The video also was included.
- The outcome of the guidelines was assessed immediately (through sessions) after the guidance sessions to evaluate the effect of guidelines on women.
- Reproductive tract infection has been identified according to symptomatic diagnosis of RTIs based on a syndromic approach has also been recommended by the World Health Organization (WHO) and Center for Disease Control and Prevention (CDC) as an effective and inexpensive approach for diagnosis of RTIs in low resource settings (13, 14) and confirm the diagnosis of RTIs by physicians' examinations.

Limitation of the study

There was no cooperation from some health care providers team and some women refused to complete the interview during a data gathering stage.

Statistical Analysis:

Data was entered and analyzed by using the Statistical Package for Social Science (SPSS), version 18. Categorical variables were displayed as numbers and percentages. The findings were summarized by using tables and histogram. The chi-square test was used for evaluating the magnitude of associations between seeking health care of the women and their social-demographic characteristics. A *P*-value less than 0.05 was considered significant.

Results:

Table (1): Shows that the highest percentage (67.0%) of women were in the age group 30 - < 40 years, with a mean age of 31.7 ± 5.7. As for marital status, the majority (80%) of the women were married. Concerning the educational level,

35.0% of them were illiterate, and more than three-fifths (62.0%) reside in rural areas. Concerning employment status, the majority (87%) of women were not working. As for socioeconomic status, nearly half (45.0%) were of low socioeconomic status.

Figure (1): Displays current symptoms of RTIs as reported by women. This figure discloses that lower back pain (26.4%) and lower abdominal pain not related to menses (25.0%) these were the most complaints related to RTIs, followed by the symptom of itching/irritation over the vulva area (21.6%). Furthermore, it is found that the highest percentage (68.8%) of the women stated odourless vaginal discharges whereas, the prevalence of white cheese like vaginal discharges was identified as a symptom of RTIs by (51.8%).

Table (2): Clarifies that there is a significant improvement of the women knowledge regarding most of the studied items in relation to RTIs immediately after health education guidelines at $p<0.001$.

Figure (2): Displays total score level of knowledge of women regarding reproductive tract infections. It clears that, 54% of women had poor knowledge toward RTIs before health education guidelines. Only, 19% of them had good knowledge toward RTIs.

Figure (3): Clarifies that, 53% of the women have inadequate of knowledge regarding RTIs.

Table (3): Illustrates a statistical significance difference between the women the adequate level of knowledge and both age and family income at $p = 0.00$.

Table (4): Indicates that, about three-quarters (74%) of the participants perceived as symptoms normal and did not need treatment. Furthermore, the higher percentages (65% & 67.5%) of women did not know the possible dangers of RTIs and did not get information about RTIs, respectively. On the other hand, more than three-quarters (77.5%) of women had none to mild pain, while 60% & 74% of them had none to mild vaginal discharge and itching, respectively.

Figure (4): Illustrates the percentage distribution of the studied women according to their sources of getting information about RTIs. Most (36.9%) of women mentioned the main source of knowledge about RTIs were mothers and mothers in law, followed by friends or relatives (33.8%). A small percentage their information from mass media and health care providers regarding RTIs (18.5% & 10.8%, respectively).

Table (5): Displays the percentage distribution of the studied women according to their factors affecting seeking of health care services for RTIs. ***As for social and cultural factors***, shyness of genital examination (86%), neglecting the husband for his wife's health (74%) these were the most factors affecting seeking health care mentioned by women, followed by more than two-thirds (69.0%) of these resulting from limited decision-making. Concerning environmental factors, it is found that the majority (71% & 66%) of these were due to lack of accessibility of treatment and lack of awareness about RTIs, respectively. The table also shows that, less than two third (64.0%) due to lack of time.

As for economic factors, it reveals that, the highest percentage (84% & 60%) of women reported it was due to family responsibilities and services are expensive respectively, whereas more than fifty percent (58%) was due to self-therapy as regards to economic factors.

Regarding health care facility factors, the most common (71%) found to be the health care providers are not friendly. Meanwhile, the table also shows that, more than half (54% & 57%) of women that were due to long distance to health care facility and long waiting for the services (> one hour), respectively. In addition, 64% of them did not seek health care for RTIs because lack of privacy.

Table (6): Shows the relationship between seeking of health care for RTIs symptoms by participants and their socio-demographic characteristics. The proportion of participants who did not seek health care for RTIs was higher, among participants within the age group, 30-40 years (75.7%), than the other age groups. As for education level, the percentage of participants who didn't seek health care for RTIs was the highest among secondary school (41.4%) than the university and higher levels (14.3 %) (X^2 = 27.4 and P = 0.000).

Concerning the marital status and residence of the participants, the unmarried women and those residing in rural areas were less likely to seek health care of RTIs (67.1% & 56.4%, respectively) than the married ones and those residing in urban areas (32.9% & 43.6%, respectively). Marital status and residence area had statistically significant associations with seeking health care of RTIs (X^2=9.7, & 6.2 at P = 0.001, 0.05 respectively). The analysis of the relationship between seeking of health care by participants, and employment status revealed a considerable difference. Nearly half (51.4%) of non-working participants were not-seeking health care services for RTIs symptoms, whereas the percentage of students not-seeking health care services was 35.0%.

Table (1): Percentage distribution of the studied women according to their socio-demographic characteristics (n = 200).

Items	No.	%
Age (years)		
18 -	32	16.0
30 -	134	67.0
40 - <50	34	17.0
Mean ± SD	31.7±5.7	
Marital status		
Married	160	80.0
Unmarried	40	20.0
Educational level		
Illiterate	70	35.0
Primary school	60	30.0
Secondary school	40	20.0
University or higher	30	15.0
Residence area		
Urban	76	38.0
Rural	124	62.0
Occupation		
Working	26	13.0
Not working	174	87.0
Socioeconomic level		
Low	90	45.0
Middle	70	35.0
High	40	20.0

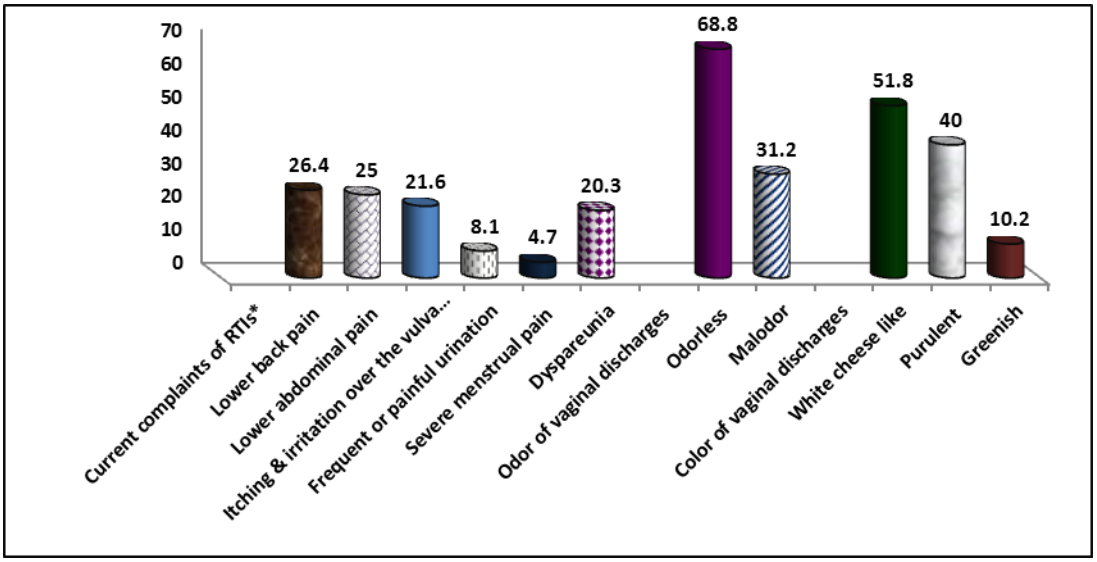


Figure (1): Percentage distribution of the studied women according to their current symptoms related to RTIs (n=200)

*__Note:__ The percentages add up to more than 100% because many respondents reported more than one symptom.

Table (2): Mean scores of women knowledge regarding reproductive tract infections before & immediately after health education guidelines related to RTIs.

Items	Women Knowledge scores (Mean ±SD)		P – Value
	Before	After	
Definition or meaning of RTIs	4.6±1.2	10.23±1.03	<0.001
Causes of RTIs	3.2±1.3	6.03±0.08	<0.001
Signs and symptoms of RTIs	3.7±1.5	4.14 ± 0.005	0.01
Risk factors of RTIs	5.8±1.7	11.4±0.07	<0.001
Complications of RTIs	3.9±1.3	10.1±1.8	<0.001
Adverse Effect on mothers and baby	3.69±1.6	6.25±1.11	<0.001
Hygienic care of the genital tract regarding RTIs	4.6±1.2	8.98±1.06	<0.001
Preventing and managing care measures of RTIs	3.0±1.86	6.45±1.02	<0.001

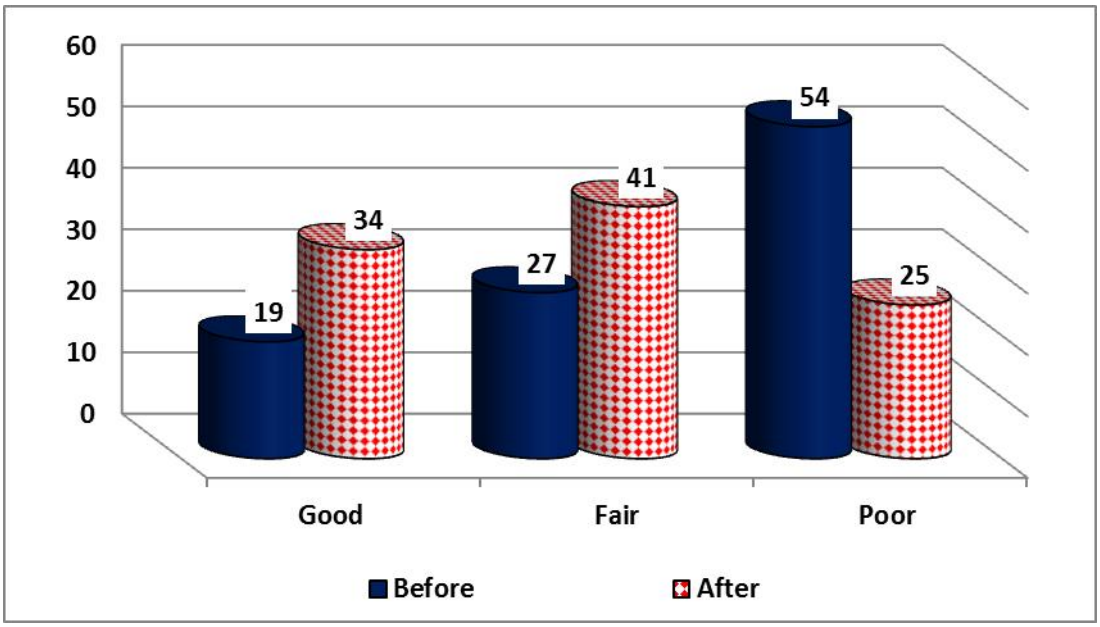
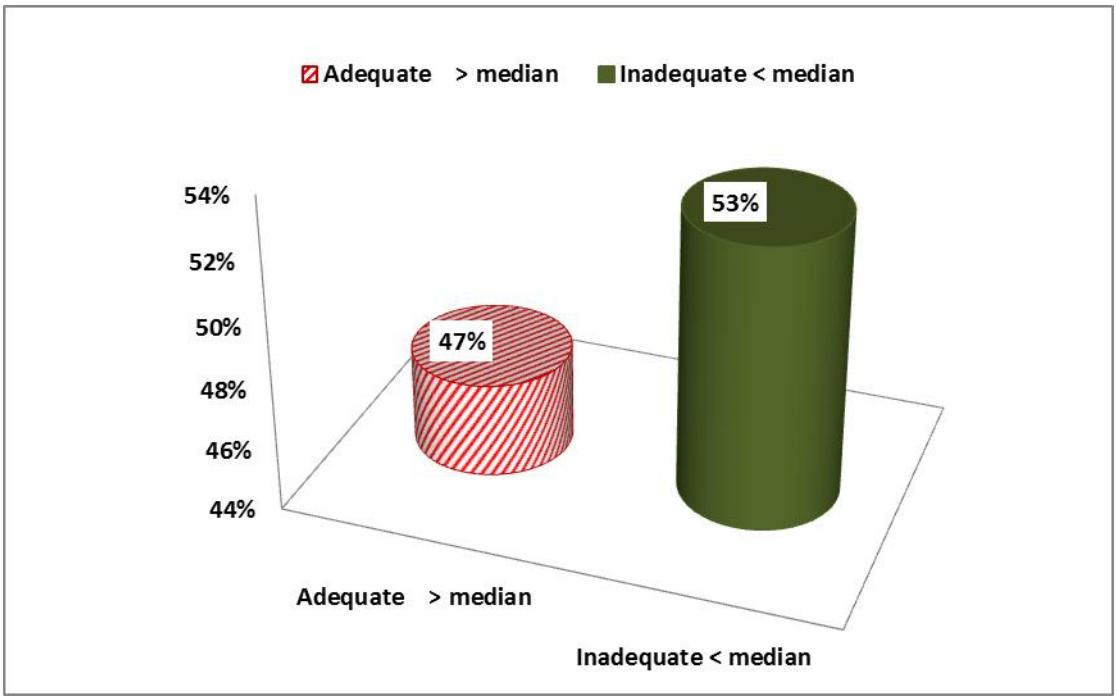


Figure 2: Total score level of knowledge of women regarding reproductive tract infections before & immediately after health education guidelines.



**Note: median = 102

Figure 3: Distribution of the studied women according to adequate level of knowledge.

Table 3: Association between percentage of change and sociodemographic characteristics of the studied women

Items		Adequate (n=94)		Inadequate (n=106)		P
		No	%	No	%	
Age	<20	16	17.02	6	5.6	
	20-	42	44.6	73	68.8	0.003*
	30-	28	29.7	22	20.7	
	>40	8	8.6	5	4.9	
Residence	Rural	55	58.5	60	56.6	0.78
	Urban	39	41.5	46	43.4	
Education level	Primary	40	42.5	61	57.5	0.07
	Secondary	12	12.7	7	6.6	
	Higher	42	44.8	38	35.8	
Occupation	Working	23	24.4	31	29.3	0.44
	Not working	71	75.5	75	70.7	
Income	Not enough	8	8.6	38	35.8	0.00**
	Enough	83	88.2	68	64.2	
	Enough and more	3	3.2	0	0.0	

Table 4: Percentage distribution of women according to their reasons for not seeking health care services for RTIs (n=200)**.**

Items	No.	%
Perceived as normal & not need treatment		
Yes	148	74.0
No	52	26.0
Know the dangers of RTIs		
Yes	70	35.0
No	130	65.0
Counselling on RTIs	65	32. 5
Yes	135	67.5
No		
Severity of pain		
None to mild	45	77.5
Moderate to severe	155	22.5
Severity of discharges		
None to mild	80	60.0
Moderate to severe	120	40.0
Severity of itching		
None to mild	52	74.0
Moderate to severe	148	26.0

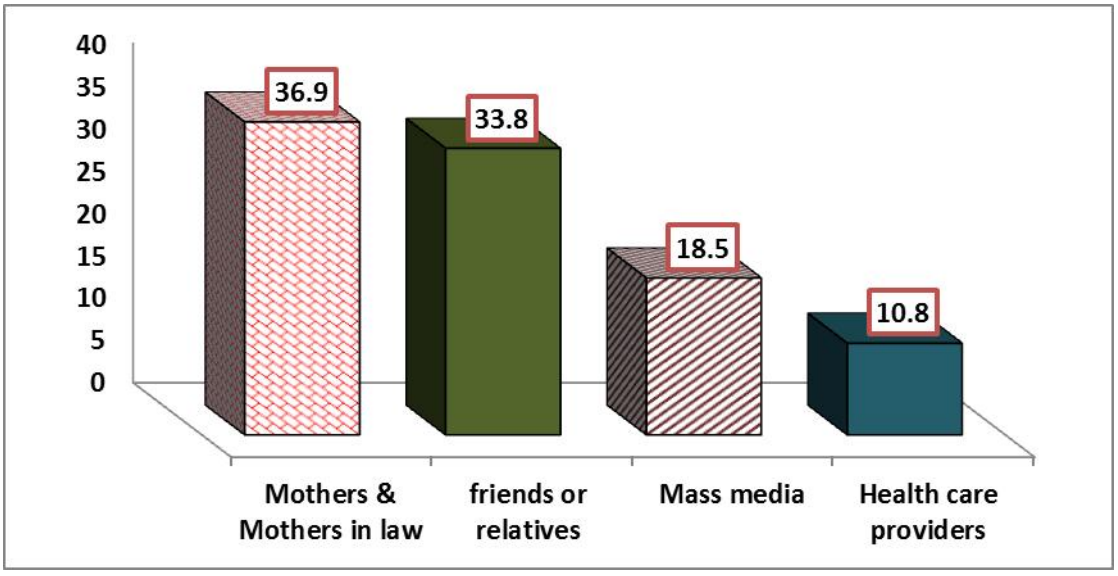


Figure (4): Percentage distribution of the studied women according to their sources of getting information about RTIs.

Table 5: Percentage distribution of women according to their factors affecting seeking of health care services for RTIs (n=200)**.**

Items	No	%
Social and cultural factors		
Shyness of genital examination	172	86.0
Husband neglects his wife's health	148	74.0
Limited decision making by women	138	69.0
Lack of control over resources	124	62.0
Environmental factors		
Lack of accessibility of treatment	132	66.0
Didn't find time	128	64.0
Lack of awareness about RTIs	142	71.0
Economic factors		
Services are costly	120	60.0
Family responsibilities	168	84.0
Self-therapy	116	58.0
Health care facility factors		
Distance to health care facility is long	108	54.0
Providers are not friendly	142	71.0
Long waiting hours for the services (> one hour)	114	57.0
Lack of privacy	128	64.0

Note: The total number of participants' answers are not equal the actual number of cases due to multiple choice questions (affected by clients' answers).

Table (6): Relation between seeking of health care for RTIs by participants and their socio-demographic characteristics (n=200).

Items	Not Seek health care (140)		Seek health care (60)		Total No.	X^2 P-Value
Age						
18-	18	12.9	14	23.3	32	8.3
30-	106	75.7	18	30.0	124	0.015*
40-<50	16	11.4	28	46.7	44	
Education						
Illiterate	28	20.0	8	13.3	29	27.4
Primary education	34	24.3	10	16.7	54	0.0000**
Secondary education	58	41.4	12	20.0	65	
University/higher	20	14.3	30	50.0	40	
Marital status						
Unmarried	94	67.1	20	33.3	40	9.7
Married	46	32.9	40	66.7	160	0.001**
Residence						
Urban	61	43.6	45	75.0	106	6.2
Rural	79	56.4	15	25.0	94	0.05*
Occupation						
Working	19	13.6	33	55.0	26	7.4
Not working	121	86.4	27	45.0	174	0.05

Discussion

Regarding the increase in the prevalence of RTIs and GTIs in various communities, the World Health Organization (WHO) often emphasizes on their prevention and control. The necessity of consultation and education for efficient preventive healthy behaviors is one of the hottest topics in sexual and reproductive health. Education of women at reproductive age towards infection prevention, using health services, and self-care methods aiming at the reduction of disease transmission and treatment, is a necessity in societies [15]

Regarding socio-demographic characteristics of the studied women, the results showed that, the mean age of the study sample was 31.7±5.7 years, where three-fifths of women their age ranged between 30- <40 years. This result is in line with **Abraham et al. (2002)**[13] who reported that the proportion of RTIs symptomatic was the highest, in the age group of 30-34 years. This could be attributed to the composition of the studied groups, biological factors and lack of awareness among women aged 30 to 39 years. Moreover, the higher percentage of women with reproductive tract infection were found among married women. This result agrees with **Rathore et al. (2003)** [16] who found that marital status and RTIs are associated with each other. The interpretation of these findings may be due to married women are leading an active sexual life are having a higher risk of getting RTIs.

The findings of the current study also observed that the incidence of reproductive tract infections increases among the illiterate women and those were living in rural areas. These findings are in accordance with the conclusion given by **Sangeetha and Bendigeri (2012)**[17],who found that the prevalence of RTIs symptoms was common among illiterate women and showed a reduced trend with an improvement in the level of education. This result is also supported by by **Ibrahim et al. (2007)** [18] who reported that more than three quarters of women with RTIs were from rural areas. Meanwhile, **Dawn and Biswas (2012),**[19] who stated that reproductive tract infection is slightly more common among rural women (30%) compare to urban (26%) also the prevalence rate is lower for educated women, 31% among illiterate compared to 22% among women who have completed 10th grade or high school level. *This may be related to* women who are not maintaining proper personal and

genital hygiene tend to have a higher risk of reproductive tract infections.

The present study result revealed that the majority of women were not working with low socioeconomic status. This result is consistent with a study done **Sangeetha and Bendigeri (2012)**[17] who showed that the prevalence of RTIs was increasing trend with the decrease in socioeconomic class. This may also be attributed to such factors as traditions and beliefs who are residing in rural areas with a lower socioeconomic level that leads to reducing the level of awareness regarding reproductive health needs and lack of proper personal and environmental hygiene, population susceptibility.

Regarding the symptoms of reproductive tract infections as diagnosed and reported by the women, most of the study sample reported lower back pain and pain in lower abdominal (supra pubic area), while minimum symptoms were frequent/painful of urination, followed by dyspareunia. These findings are in agreement with **Mamta and Kaur (2014)**[20] who found that a relatively high percentage of the participants stated lower back pain, while the least stated symptom was burning urination. On the contrary, the study carried out by **Philip et al. (2013)**[21] who identified that, most common RTIs symptoms among women sufferers were frequent urination, followed by dyspareunia.

According to the findings of the present study pointed that the highest proportion of abnormal vaginal discharges among the study sample were odorless and white cheese like.Study findings are supported by a study done by **Global Prevalence of Cervical Cancer (2010) [22] who** reported that 32.77% had abnormal excessive white vaginal discharge. The study recommends that the population is in need of counseling regarding abnormal vaginal discharges and how therapy and getting health care for it. The present study findings also revealed serious deficiencies in women's knowledge regarding most of the studied items before the health education guidelines. The majority of women lacked knowledge about the meaning of RTIs, risk factors of RTIs, complications of RTIs, they didn't know the hygienic care of the genital tract regarding RTIs and also were unaware of the adverse effect of RTIs on themselves and their baby. These findings may reflect the need to raise awareness regarding RTIs and to expand services for prevention and treatment for women as well as health education to seek health care services is crucial. This is incongruent with **Verma et al. (2015)**[23] who concluded that when

asking about the knowledge of RTIs, 50.2% of respondents in urban, and 41.8% in rural areas were aware about the presence of discharge as an indication of infection.

As regards the total score level of knowledge of women regarding reproductive tract infections before health education guidelines. In the present study noticed that a majority of women before the guidelines gave low score levels or poor scores of knowledge (gave incorrect and incomplete answers). These findings are expected due to the improper knowledge and lack of awareness on the issue of RTIs during their life. These results also notify that women need a clear understanding of problems arisen as well as possible complications. This conclusion clarifies that women require increasing their information about causes, symptoms and consequences of RTIs and how to deal with it, so the nurse should be knowledgeable with good teaching guidelines to provide sound advice about health care measures to prevent and relieve these discomforts and helps to promote the reproductive health and well-being of the woman.

Concerning the total score level of knowledge of women regarding reproductive tract infections immediately after health education guidelines. The findings of the present study indicated that significant improvements were shown in women total scores of knowledge from poor or weak score levels to good levels regarding most of the studied items. The items that demonstrated significant improvements after health education guidelines were related to meaning, causes, signs and symptoms, risk factors of RTIs, complications associated with RTIs, adverse effect on pregnancy and baby. Also, hygienic care of the genital tract regarding RTIs, prevention and management measures to relieve RTIs symptoms. This improvement refers to the effect of the health guidelines and teaching sessions given to the women to change their culture, enhance and upgrade their awareness. This is accordance with the results of another study on woman's practice and knowledge concerning the genital tract health (at the age of reproduction admitted in Shahid Beheshti hospital, Kashan, Iran) **Suki & Hatamian**, **(2004)** [24] who suggested that women be educated in suitable locations including health centers through educational pamphlets, in order to change their performance.

The present study has shown a significant improvement in women knowledge score

about RTIs after the health education guidelines at p = 0.001. Hence, it is interpreted that health education guidelines regarding reproductive tract infections were effective in increasing the knowledge of women. In Iran, **Parsapur**, **(2005)**[25] who confirmed the positive effect of education on improvement of knowledge, attitude and practice in some types of vaginitis. A study in Tehran-Iran has confirmed the positive effects of health education on improvement of knowledge, attitude practice, and duration of fungal vaginitis treatment. Researchers concluded that health education is an efficient method for improving the related variables.

Concerning reasons for not seeking health care services for RTIs. The current findings indicated that, the majority of the participants perceived as symptoms normal and did not need treatment. Furthermore, the higher percentages of them did not know the possible dangers of RTIs and did not get information about RTIs. On the other hand, most of the participants were suffering from mild symptoms of RTIs, so they neglected it. This result is in accordance with **Golden and Peterson (2010)**[26] who revealed that women are many more than men to consider RTIs symptoms as natural discomfort and therefore often do not seek therapy. The explanation of this might be due to that women are perceived and believed the symptoms of RTIs as normal changes throughout their lives and something to be tolerated. These findings suggested that the provision of more family planning service and promotion of RTIs knowledge to the floating women of childbearing age is critical. Also, this result is comparable to a study carried out by **Puthuchira and Athimulam (2013)**[6] who found that educated women can be acquired health-related information from mass media. For effective prevention and management of RTIs, accurate information related to RTIs is necessary and should be up to date, widely available in a clear and accessible manner.

This present study revealed that mothers & mothers in law and friends or relatives were the main sources of getting information about RTIs. The findings were in consonance with **Puthuchira and Athimulam (2014)** [27] who observed that the most important source of information regarding RTIs was mothers and friends/relatives in rural areas. Health educators play a leading role in educating the population about prevention RTIs.

The current study revealed the major barriers, as mentioned by women,for not seeking any health care for RTIs. They

were shy of genital examination or explain their symptoms, family responsibilities, husband neglecting to his wife's health, lack of their awareness about RTIs morbidity, and lack of privacy. Other important factors that prevent them from seeking health care were that they didn't find time to go to the hospital, and health care providers are not friendly and limited decision making by women. Similarly, **Rizvi and Luby (2004)**[28] who found that of all cases they studied, women who did not seek care representing 20%, the reason was due to shame, fear, and lack of privacy in biomedical institutions. Similarly, **Dawn and Biswas (2005)**[29] who mentioned that two-thirds of women had not sought any treatment; the reasons cited were absent of a female provider at the nearby health care center, lack of privacy, distance from home, cost and a perception that their symptoms were normal. The low social status of women, especially young women, appears to be a significant influence on their low rates of treatment for these conditions. In another study, conducted by **Puthuchira and Athimulam (2013)**[6] who showed that the perception of RTIs symptoms as normal, a feeling of shyness, lack of female health workers, the distance of health facility, the cost of treatment, and a shortage of availability of treatment were identified as major obstacles for not seeking treatment for RTIs among the study population. Education and outreach are needed to reduce the feeling of shyness and lack of awareness related to RTIs.

The current study indicated statistically significant associations between socio-demographic characteristics and seeking of health care services for RTIs symptom among the study population. A higher proportion of women in the age group 30 - <40 years were found to not seeking health care for RTIs symptoms compared to those in younger or older age groups. This finding differs from that of a study done by **Ravi and Kulasekaran (2014)**,[30] who found that younger women were very more likely to receive treatment for their RTIs than the elderly women. This can be attributed to the reality that younger women do not have decision-making authority regarding seeking health services as compared to older age group women, because of various traditional cultural beliefs and attitudes of the people living in this area.

In this study, seeking of treatment increased among women with secondary educational status. This finding is similar to that reported in a study done by **Puthuchira and Athimulam (2013)**[6]

who revealed that, the less educated women are more likely to be affected by RTIs due to lack of awareness. Educated women are more able of seeking the source of treatment and they can utilize health care facilities more efficiently. In a similar study, conducted by **Ravi and Kulasekaran (2014)**[30] in which overwhelming proportion of women received treatment of RTIs who completed secondary education (85.7%) compared to those who completed primary education (70.0%) and illiterates (66.7%). It assumed that improving education and awareness level among women regarding reproductive health is needed to reduce the incidence of RTIs.

In the present study, the level of health care seeking among unmarried ones was lower than that among married women, which may indicate that reproductive health symptoms evoke greater awkwardness among unmarried women and their families than among their married counterparts. Additionally, rural life represented the key factor in hindering seeking health care among the study population. Programs should increase efforts to serve unmarried women and recognize their needs to reproductive health information and services. Moreover, health care providers in the health sectors need to improve information/ awareness of women who live in rural areas about reproductive health services. These findings are in line with those from previous studies, as in India **Lan (2009)**[31], which suggested that there are significant associations between seeking reproductive health care services and unmarried women, and place of residence. So, increased information is required through mass media, besides, health care facilities are the best option at the basic step of rural women.

In the present study, non-working women hadn't a better health care seeking than working women representing more than half. This finding is comparable to that found in a study done by **Sabarwal and Santhya, (2012)**[32] who found that the greater proportion of the working women sought treatment as compared with the not working women. In order to create better maternal and child health, the health workers need to provide information and treatment for high-risk women.

Conclusion:

Health education guidelines regarding reproductive tract infections were effective in increasing women knowledge level after health education guidelines. The major barriers for not seeking health care services for women suffering from

reproductive tract infections were the perception of symptoms as normal, shyness of genital examination or explain their symptoms, family responsibilities, the husband neglecting to the health of his wife, lack of awareness about RTIs and privacy.

Recommendations:

- Health education to all women in childbearing age about reproductive tract infections and how to prevent it.
- Further study in another setting to detect the prevalence of reproductive tract infections and barriers of seeking health care services to treat it.

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