



# Assessment of Educational Needs Among Women of Reproductive Age With Common Genital Tract Infections (Vaginitis): The First Step for Developing a Self-care Educational Package

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## Abstract

**Objectives:** Defining the educational needs of women concerning vaginitis and self-care methods aiming at disease treatment is a necessity. This study aimed to determine the educational needs among women at reproductive age with vaginitis in order to design a training program.

**Materials and Methods:** In a descriptive cross sectional study using purposive sampling, 224 non-pregnant, premenopausal, 15-49 years old, and sexually active females complaining from vaginitis were admitted in the 3 gynecology clinics in Tehran, Iran in 2014. Data on educational needs was collected through a questionnaire containing demographic and disease characteristics and the needs assessment sections, which includes 13 topics of educational needs related to vaginitis based on five score in likert scale.

**Results:** The mean age of patients was  $32 \pm (6.9)$ . The average of vaginal infection episodes in the preceding year was  $2.8 \pm (2.6)$ . The foremost educational need was sexual self-care of vaginitis. Educational needs averages of the disease information and self-care domains showed a significant statistical difference ( $P < .001$ ). A total of 115 individuals (51.4%) highly needed education based on the total score.

**Conclusion:** Education is highly needed regarding self-care of vaginitis. The educational need regarding sexual relationship self care is more critical than other topics. The needs in the domain of self care are more important than the domain of disease information. We suggest preparing self-care educational package based on needs assessment as a useful tool to help treatment and prevention of disease recurrence.

**Keywords:** Educational needs assessment, Genital tract infections, Vaginitis, Self-care, Women

## Introduction

The reproductive tract infection (RTI) or genital tract infection (GTI) is a global health problem which affects men, women, families and communities. These infections threaten the women's health and may have severe consequences such as infertility, ectopic pregnancy, chronic pelvic pain, abortion and an increased risk of HIV transmission. Therefore, proper prevention and treatment of these diseases are of great importance (1-5).

Vaginitis is the most prevalent infection in genital tract and the most common diagnosis among women (10%) in primary care section and gynecology clinics. Almost 90% of the cases are caused by bacterial vaginosis, candidiasis, and trichomoniasis (6-8).

Regarding the increase in 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 reproduction age towards infection prevention, using health services, and self-care methods aiming at reduction of disease transmission and treatment, is a necessity in societies (1,9).

Nowadays, considering the importance of the self-care in health promotion, lifestyle modification, disease prevention, symptoms evaluation, health protection, treatment and rehabilitation as a complement for health specialized care, the methods for establishment of self-care behaviors are emphasized in disease management (10-12).

Self-care consists of all activities related to health protection, prevention, and treatment, which are conducted by individuals themselves (13). The available evidence suggests that self-care support has its own benefits for public health (14), including reduction of visits required in primary and emergency cares (15), which in turn increase

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patients' satisfaction, life quality, and ultimately promote the individuals' health (14).

Since knowledge and awareness play crucial role in individuals' attitude, behavior and practice, and since favorable practice is possible through acquiring knowledge and changes in attitude, education is of outmost importance. Education of performance skills and helping patients to acquire knowledge, in order to make them follow self-care behaviors, accept and participate in proper health behavior, will result in disease recuperation and complications control (10,11).

The first step of any educational plan is the recognition and prioritization of the educational requirements. Actually, needs assessment is the process of information collection and analysis based on which the needs of individuals, groups, organizations, and communities are recognized and used in curriculum planning (16,17).

Therefore, patients' education must be based on their needs and requirements. Educational need is the gap between what an individual knows and what he or she must know. The gap may be due to lack of knowledge, attitude, and skills (18).

Then ignoring the target group's educational needs would hurt the educational plan's effectiveness (19).

In health education and health promotion plans, the first step for intervention is assessment of health needs. The most successful educational program are based on distinction of the groups at risk, community situation, planning for health education, changing the high risk behaviors, and making the changes stable (20).

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 (21).

This study aimed to determine the most important topics of educational needs among women at reproductive age suffering from vaginitis in order to design a training program.

## Materials and Methods

This is a descriptive cross-sectional study conducted using purposive sampling method, in which educational needs of the GTI infected in women at reproduction age were assessed in 3 selected centers in Tehran (Gynecology Clinic of Lolagar hospital, Gynecology boarding clinic of Ibn-e-Sina hospital, and an office of a gynecologist) from January to June 2014.

The study population included all non-pregnant premenopausal, 15-49 year-old females with sexual activity complaining from vaginitis admitted in the determined research centers at the specified period. The sample size included 230 individuals. Inclusion criteria were willingness to participate, informed consent, age between 15-49 years, being sexually active, and being able to read and write.

Six subjects were excluded due to lack of inclusion criteria, having no participation tendency, partial completion

of the questionnaire, and non-vaginitis diagnosis during clinical examinations. Finally, 224 questionnaires were considered.

Data collection was conducted using a research-made questionnaire. The researcher reviewed the domestic and foreign literature on related topics and conducted quasi-structural interviews with over 30 patients and then prepared the questionnaire for assessment of educational needs topics. The first section of the questionnaire consisted of demographic characteristics including age, marital status, education level, occupation, economic status and family income, and health insurance status. The second part has been devoted to disease history including symptoms and patient's complaints, disease records during the preceding year, and the frequency of referrals for treatment. The third part of the questionnaire consisted of 13 topics about assessment of the educational needs. Patients were requested to announce their satisfaction for participating in the project by signing an informed form; then they were asked to complete the questionnaire based on the oral and written explanations of the researcher. The patients with lower level of literacy or with probable difficulties in reading (such as having no glasses) completed their questionnaire with the help of the researcher.

The questions were rated on the basis of five score in Likert scale from "very low" to "very high" so that choices of very low scored 1, low scored 2, moderate scored 3, high scored 4, and very high scored 5. The score rated from zero for no choice, and 13 for very low choices to 65 for very high choices. Hence, the highest possible score would be 65, which revealed the highest level of educational needs, concerning the titles.

The questionnaire's content validity was confirmed based on the opinions of 10 experts and professors in health education and promotion, epidemiology, gynecology, infectious disease, social medicine, vital statistics, midwifery, and nursing fields.

We used internal consistency and test-retest reliability methods to assess the reliability of scale. The internal consistency with the Cronbach's alpha coefficient was examined in

20 women. Test-retest of the questionnaire with a 2-week interval indicated an appropriate stability for the educational needs assessment scale on vaginitis self-care behaviors in the same group ( $\alpha = .96$ , ICC = 0.71 and Pearson correlation = 0.9).

The collected data were analyzed using SPSS 21 software. Kolmogorov-Smirnov test and descriptive statistics (frequency and percentage) were applied along with correlation parametric statistical test, analysis of variance (ANOVA) analysis, and *t* test with 95% CI.

## Results

A total of 133 (59.4%) of subjects were recruited from the Gynecology Clinic of Lolagar hospital (public), 59 (26.3%) subjects were recruited from Gynecology Clinic of Ibn-e-Sina hospital (private), and 32 (14.3%) subjects were recruited from the private office of an obstetrician

and gynecologist. The mean of the educational needs in the centers were  $4.010 \pm (0.937)$ ,  $3.95 \pm (0.888)$  and  $4.115 \pm (0.836)$ , respectively, which shows no significant difference (Table 1).

Table 1 shows that the subjects' mean of age were  $32.0 \pm 6.9$ . Their age ranged from 18 to 49 years and mostly between 25-34 year olds (53.6%). The age of the patients' sexual partners ranged from 19-63, with an average of  $36.0 \pm 7.9$ . According to self-reports, 188 subjects (83.9%) were married and 36 ones were single, divorced, widows and the rest of the subjects had sexual activity and partner (16.1%). Concerning the subjects' education level, 85 people

(37.9%) had high school degree. A total of 125 subjects (56.6%) were housewives and 53% (43.4%) were employed (in public or private sections, self-employed, student, etc.). A total of 121 individuals (54%) assessed their family at sufficient level of socio-economic status and just one individual reported to be (0.45%) higher than sufficient. Additionally, 196 patient (87.5%) were covered by some kind of health insurance including social insurance, health care, military forces insurance, private insurance, and other organizations' insurance.

Participants had infected vaginitis up to 12 times per the preceding year with an average of  $2.8 \pm 2.6$  time, and clin-

**Table 1.** Distribution of Demographic and Disease Characteristics and Their Relations With Mean of Educational Needs (N = 224)

Demographic and Disease Characteristics	No. (%)	Mean $\pm$ (SD)	Relation With the Mean of Educational Needs Results (P Value)
Age (y)	224 (100)	$32 \pm (6.9)$	.304
Partner's age (husband, fiancé, etc) (y)	215 (100)	$36 \pm (7.9)$	.651
Classification of Patients age (y)	224 (100)		.455
15-24	29 (12.9)	$4.19 \pm (0.859)$	
25-34	120 (53.6)	$4.00 \pm (0.876)$	
35-44	62 (27.7)	$3.89 \pm (1.012)$	
45 $\geq$	13 (5.8)	$4.17 \pm (0.784)$	
Marital status	224 (100)		.371
Married (having husband)	188 (83.9)	$3.98 \pm (0.932)$	
Others(single, widow, divorced etc., with sexual partner)	36 (16.1)	$4.13 \pm (0.774)$	
Education	224 (100)		.161
Under diploma	34 (15.2)	$4.14 \pm (0.933)$	
Diploma	85 (37.9)	$3.84 \pm (0.923)$	
Associate degree	23 (10.3)	$4.26 \pm (0.903)$	
Bachelor degree	59 (26.3)	$3.99 \pm (0.857)$	
Master degree and upper	23 (10.3)	$4.21 \pm (0.900)$	
Occupation	221 (100)		.980
Housewife	125 (56.6)	$4.01 \pm (0.929)$	
Employed	96 (43.4)	$4.01 \pm (0.882)$	
Self-evaluation of economic status and family income	224 (100)		.640
Insufficient	31 (13.8)	$3.89 \pm (0.965)$	
Somewhat sufficient	121 (54)	$4.00 \pm (0.949)$	
Sufficient and more <sup>a</sup>	72 (32.2)	$4.07 \pm (0.817)$	
Having health insurance (public, private, and organizations)	224 (100)		.335
Yes	196 (87.5)	$4.03 \pm (0.895)$	
No	28 (12.5)	$3.85 \pm (1.00)$	
Vaginitis disease status	224 (100)		
Number of vaginitis episodes per the preceding year	194 (86.6)	$2.8 \pm (2.6)$	.932
Number of visits (referrals) for treatment of vaginitis per the preceding year	197 (87.94)	$1.7 \pm (1.4)$	.536
Period of the beginning of vaginitis symptoms at this episode (days)	179 (79.91)	$22.7 \pm (25.4)$	.098
Study fields	224 (100)		.713
Lolagar hospital, gynecologic clinic (public)	133 (59.4)	$4.010 \pm (0.937)$	
Ibn-e-Sina hospital & boarding clinic, gynecologic clinic (private)	59 (26.3)	$3.95 \pm (0.888)$	
Obstetrician and gynecologist office (private)	32 (14.3)	$4.115 \pm (0.836)$	

<sup>a</sup> Only one patient has selected *more than sufficient* option.

ic referral up to 7 times with an average of  $1.7 \pm 1.4$  time during the preceding year. Duration of symptoms and complaints ranged from 1 to 96 days with an average of  $22.7 \pm 24.5$  days.

Based on the statistical tests, no demographic characteristics and disease status determinants had meaningful relation with the average educational needs (Table 1).

Table 2 shows the frequency of topics and domains of patient's educational needs about vaginitis disease and related self-care behaviors. The most important educational needs concerned sexual health self-care to improve vaginitis (mean of  $4.14 \pm 0.005$ ), followed by genital health self-care to improve vaginitis (mean of  $4.10 \pm 0.981$ ). The least critical needs concerned disease, symptoms, complaints and signs of vaginitis (mean of  $3.92 \pm 1.041$ ).

Table 3 compares the average of educational needs in the domains of disease information (educational needs topics 1-7) and self-care (topics of 8-13), which shows a signifi-

cant statistical difference ( $P < .001$ ).

Figure 1 shows levels of educational needs based on the total score of 13 topics. There is no very low need (i.e. score below 13) and the score range is 14-65 with the average of  $52.1 \pm (11.9)$ . Just five individuals (2.2%) had low need, 36 individuals (16.5%) had moderate, 67 individuals had high and 115 individuals (51.4%) had very high needs.

## Discussion

According to the findings of the research, there appear educational needs concerning the GTIs at all research locations regardless of being public or private. Also there are female educational needs in various age, education, income and occupational groups. Marital status has been efficient in this regard, revealing that both married and single females felt the needs. In Iran, women especially the younger age groups have no access to proper information about GTIs as well as self-care and self-management

**Table 2.** Frequency of Topics and Domains of Patient's Educational Needs About Vaginitis Disease and Related Self-care Behaviors (N = 224)

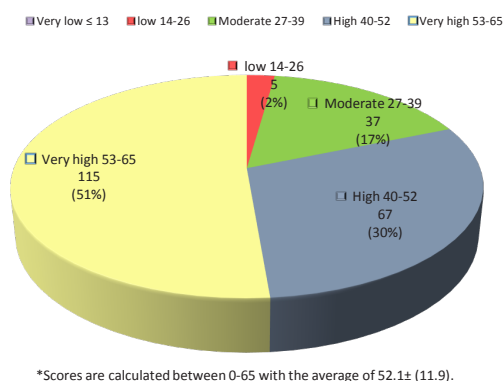
Educational Needs Topics	Level of the Educational Needs					Total No. (%)	Mean <sup>a</sup> ± SD
	Very High (5) No. (%)	High (4) No. (%)	Moderate (3) No. (%)	Low (2) No. (%)	Very Low (1) No. (%)		
1 General information related to female genital tract, healthy vagina and normal and abnormal vaginal discharge	91 (40.63)	56 (25)	58 (25.89)	17 (7.59)	2 (0.89)	224 (100)	3.79 ± 1.026
2 General information related to genital tract infections and vaginitis disease (definition, prevalence, etc)	89 (39.73)	60 (26.79)	54 (24.11)	17 (7.59)	4 (1.79)	224 (100)	3.59 ± 1.051
3 Types, signs and symptoms of genital tract infections (vaginitis)	84 (37.5)	63 (28.13)	58 (25.89)	14 (6.25)	5 (2.23)	224 (100)	3.29 ± 1.041
4 Behaviors and risk factors causing the vaginitis disease	92 (41.26)	59 (26.46)	49 (21.97)	19 (8.52)	4 (1.79)	223 (100)	3.79 ± 1.067
5 Consequences and problems of the vaginitis disease	94 (41.96)	62 (27.68)	40 (17.86)	24 (10.71)	4 (1.79)	224 (100)	3.79 ± 1.092
6 Healthy behaviors and prevention methods of recurrent vaginitis	99 (44.2)	58 (25.89)	47 (20.98)	14 (6.25)	6 (2.68)	224 (100)	4.03 ± 1.071
7 Therapies (pharmacological and non-pharmacological) for the treatment of vaginal infection(vaginitis)	95 (42.41)	62 (27.68)	47 (20.98)	16 (7.14)	4 (1.79)	224 (100)	4.02 ± 1.042
Educational needs on general information domain of vaginitis (topics 1-7)						224 (100)	3.97 ± 0.946
8 Self-care healthy behaviors domains in genital tract infections (vaginitis)	97 (43.3)	64 (28.57)	48 (21.43)	9 (4.02)	6 (2.68)	224 (100)	4.06 ± 1.025
9 Self-care information on life style and personal health for the treatment of vaginitis	94 (41.96)	70 (31.25)	47 (20.98)	9 (4.02)	4 (1.79)	224 (100)	4.08 ± 0.974
10 Self-care information related to genital tract health for the treatment of vaginitis	100 (45.05)	62 (27.93)	45 (20.27)	13 (5.86)	2 (0.9)	222 (100)	4.10 ± 0.981
11 Self-care information related to sexual health for the treatment of vaginitis	110(49.11)	55 (24.55)	42 (18.75)	15 (6.7)	2 (0.89)	224(100)	4.14 ± 0.005
12 Self-care Information about the use of prescribed medication and treatment recommendations for cure of vaginitis	89 (39.73)	64 (28.57)	45 (20.09)	23 (10.27)	3 (1.34)	224 (100)	3.95 ± 1.064
13 The importance of adherence and application and consequences of non-adherence of self-care information and methods in vaginitis	91 (40.63)	62 (27.68)	49 (21.88)	19 (8.48)	3 (1.34)	224 (100)	3.98 ± 1.044
Educational needs on self-care information domain of vaginitis (topics 8-13)						224 (100)	4.04 ± 0.923
Overall educational needs ( topics 1-13)						224 (100)	4.00 ± 0.908

<sup>a</sup> The mean has been calculated based on the 5 score in Likert scale (from 1 for very low to 5 for very high).

**Table 3.** Comparison of Patient's Educational Needs Domains (General Information and Self-care Behaviors Information) on the Vaginitis Disease (N = 224)

Educational Needs Domains About Vaginitis	Mean <sup>a</sup> ± SD	P Value	95% CI	
			LL	UL
Educational needs on general information domain of vaginitis (7 topics)	3.975 ± 0.946	<.001	3.851	4.100
Educational needs on self care information domain of vaginitis (6 topics )	4.049 ± 0.923		3.927	4.171
Overall educational needs (13 topics)	4.009 ± 0.908		3.889	4.129

<sup>a</sup> Mean is based on five score in Likert scale from 1 (very low) to 5 (very high).

**Figure 1.** Classification of educational needs levels among reproductive age women with common GTIs (vaginitis) (N = 224)

of vaginitis.

Moreover, the subjects' disease status concerning the duration and frequency of infection and referrals had no contribution to the mean of educational needs.

We did not detect any published report on determining the women's educational needs concerning the vaginitis in Iran, but there are a number of studies on GTIs/RTIs and the related factors as well as the related health education. The result of a study under the title of "Women's KAP in prevention of GTI" conducted in Kerman, Iran on 305 women aged 15-49 years, revealed that the subjects achieved 70% of the total knowledge score, 80% of the total attitude score, and 80% of the total practice score; but their educational needs have not been determined (22).

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) revealed that their knowledge about the subject is at a favorable level. Unfortunately, they had not satisfactory performance. Researchers suggested that women be educated in suitable locations including health centers through educational pamphlets, in order to change their performance (23).

In Iran, studies have 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 (24).

Another study under the title of "Knowledge, behaviors and prevalence of GTI: a descriptive study" has been conducted. The findings of this study revealed that GTI prevalence was very high among the low-income rural women and that they were in urgent need for efficient health education proportionate to their culture (25). The results of another research under the title of "Effect of behavioral-educational intervention on woman's knowledge, risk perception and self-efficacy concerning sexually transmitted infections (STIs)" revealed the importance of providing the health care providers with the STIs information, in guiding patients during clinical cares. Women must understand that STIs are greatly related to complications of reproductive health (26).

A study in Sweden was conducted on knowledge about prevention of STDs among the young women with 16-23 years of age. The researchers emphasized on enhancement of knowledge and changing the behavior (27).

Our findings show that the most critical educational need concerned self-care of behaviors in sexual relationships in order to improve vaginitis. In a study on determining the reproductive and sexual needs of couples (Tehran, Iran, 2010), the healthy sexual relationship was specified as the most crucial educational need for both men and women (28).

The results of our study suggest that the least important needs concerned type of diseases, symptoms, complaints and vaginitis signs, because many patients presented with complaints and symptoms after recurrence of the diseases. Although talking about GTIs is usually associated with a feel of shame or stigma, our findings show that educational needs levels have been high and very high and the highest need and interest in education concerned self-care.

Our study has certain limitations as well. Since our culture denies the single, divorced and widow's sexual affairs, the self-report questionnaire was distributed among the patients to be completed if desired. Obviously, some respondents may have introduced themselves as married.

Although, we tried to use different kinds of public and private clinics with various insurance coverage, the limited number of gynecology clinics and centers in the study led to limited sampling locations and our results cannot be generalized to all centers.

The next limitation was related to the diagnosis of vaginitis conducted based on the patients' complaints and clinical and para-clinical (if necessary) criteria in three centers. In two clinic only one gynecologist and in the

third one at most two specialists with the highest similarity in age, experience, similarity of diagnosis and medicine treatment were responsible for diagnosis of disease with the main researcher.

### Conclusion

The results of the present study showed that the vaginitis infected women in reproductive age need education on GTIs and the related self-cares. Our findings proved that woman's need and interest in education of self-care concerning sexual relationships was more significant than those in other domains. Enhancement of information, motivation, and behavioral skills are necessary to change the related behaviors and to achieve correct self-care behavior.

Regarding our study's results and the self-care program in the Iranian Health Ministry's development plans in the recent years, we suggest the health system and hospitals to prepare self-care and self-management educational package for GTIs or vaginitis, proportionate to the country's culture, It is also suggested that such packages be provided to patients and health care personnel as an important tool to prevent recurrence and to help treatment of the disease. These packages, depending on the patients' desires, may include different educational forms.

Increase in divorce rate in Iran during the recent years as well as extra marital sexual relationships among singles, make it more vital to assess the needs and education of people in the fields of STIs prevention and their complexities.

Due to the acute nature of the vaginitis disease which makes the patients to go to the physician or health care provider as soon as symptoms appear and regarding the fact that many Iranian women are employed and lack enough time, it would be better to assess needs and educate them when they are admitted in clinics and health centers, using the new and modern educational methods. Further studies are suggested on various dimensions of the educational needs of women at the reproductive age with GTIs, specifically on STIs.

### Ethical issues

This paper is extracted from a PhD thesis of the Health Education and Promotion course approved by the Medical Science Faculty of Tarbiat Modares University, Tehran, Iran in 2014 (No. D52/176-2014) and licensed by Medical Ethics Committee of the university (No. D52/6881-2014).

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### Conflict of interests

The authors have no conflicts of interest to disclose.

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