

PREVALENCE AND FACTORS ASSOCIATED WITH REPRODUCTIVE TRACT INFECTIONS AMONG MARRIED WOMEN OF REPRODUCTIVE AGE IN KASKI

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ABSTRACT

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“RTI among women is invariably high, causing them to be more vulnerable to reproductive morbidities. Since the factors associated with morbidity are modifiable and can be managed with right information technology so there is an urgent need of management of reproductive tract infections”

Objectives: Reproductive Tract Infections (RTIs) are common morbidities among women during reproductive age. These may lead to adverse health consequences including life threatening conditions.

This study aims to identify prevalence and factors associated with RTIs among married women of reproductive age.

Methods: Cross sectional study was conducted in 7 randomly selected Primary Health Care Centres and Health Posts of Kaski district, Nepal. 282 participants attending in aforementioned health facilities were probed for RTI symptoms according to WHO syndromic case management guideline. Data were collected by using pretested semi-structured schedule and analyzed by SPSS (16.0 Version). Chi square, Fisher’s Exact Test, Odds ratio were calculated and P <0.05 was considered significant.

Results: Prevalence of RTI symptoms was estimated to be 78.9 percent. Common reported symptoms were backache (71%), low abdominal pain (67%), watery vaginal discharge (56%), genital itching (51%), burning urination (44%) and curdy discharge per vagina (26%). Most women with RTI were ≥ 30 year’s age, ≤ 19 year’s age at first pregnancy, had monthly income (NRs) <10000 and parity ≥ 2 , had sex during menstruation and did not clean genitalia after sex. Consistently, more than nine out of every ten illiterates, high parity (≥ 4), having irregular menstrual cycle and abnormal bleeding had more RTIs as compared to their counterparts respectively. Illiterates, those who had sexual contacts during menstrual periods and those who do not clean genitalia after sexual act were significantly more at risk (OR=5.35, 8.33 and 3.11) of having RTIs than those who do not had these attributes correspondingly. Illiterates, those who had sexual contacts during menstrual periods and those who do not clean genitalia after sexual act were significantly more at risk (OR=5.35, 8.33 and 3.11) of having RTIs than those who do not had these attributes correspondingly.

Conclusions: Burden of the RTIs among women is unexpectedly high; indicating the women’s vulnerability to reproductive morbidities, limited service accessibility and their reproductive fates. Further, majority were modifiable factors; reflecting the needs of information and empowerment and behavior changes for the effective prevention and management of RTIs.

Key words: RTI; Prevalence; Married Women; Associated Factors; Kaski

INTRODUCTION

Reproductive Tract Infections (RTIs) cover wide range of diseases and conditions. These may be endogenous or externally acquired infections.¹ These constitute common health problems in women during reproductive age.² Global estimates show that over 340 million curable sexually transmitted RTIs occur annually and highest prevalence is reported from South Asia and sub-Saharan Africa.³

RTIs are of overlapping categories; called endogenous, sexually transmitted and iatrogenic, reflecting how they are acquired and spread.⁴ These carry a high economic and social burden in the community. Furthermore, these produce devastating health consequences and constitute an important cause of maternal and peri-natal morbidity and mortality. RTIs produce many reproductive health problems like entopic pregnancy, Pelvic Inflammatory Diseases, Preterm labor, miscarriage, still birth, congenital infection, infertility, genital cancer and risk of HIV infection.⁵

Many community based studies have reported varying the prevalence of RTIs in Indian states (39-84%).⁶ However; such studies are rarely available in Nepal. A clinic based study from tertiary level hospital of Kathmandu reported that candidiasis (78%) presenting with extensive itching; bacterial vaginosis (25%), Trichomonas (17%) and gonorrhoea (3%) were common manifestations.⁵ Moreover, evidences at district level are very limited.⁷ Despite the overwhelming problem, majority of RTI cases remain unnoticed because they internalize reproductive problems as a part of culture of silence⁸.

In this context, present study was conducted to estimate prevalence and to explore factors associated with RTIs among Married women of reproductive age in Kaski district of Nepal.

MATERIALS AND METHODS

A cross sectional study was conducted in 7(50%) randomly Primary Health Care Centre and Health Posts of Kaski districts during July to December 2010. Sample population was calculated using $n = Z^2 P * (1 - p) / D^2$; with available $p = 24$ percent, standard normal variate ($Z = 1.96$ at 95% Confidence Limit) and 5 percent tolerable error (D). Thus, total of 282 married women of reproductive age were selected from all selected health care facilities. An exit interview was conducted with eligible consenting participants at each health facility. All participants were assessed for the RTI according to syndromic case definition guideline developed by World Health Organization (WHO) using pretested semi structured schedule. Further, they were probed for more information on RTI symptoms. Data were collected by trained enumerators of health science backgrounds and analyzed by (SPSS-16 version). Results were presented in table and figures and Chi square, fisher's Exact test and Odds ratio were calculated.

RESULTS

RTI was defined according to the syndromic case management guideline developed by World Health Organization. For the study purpose, woman complaining at least 2 presenting symptoms were considered as RTI cases.

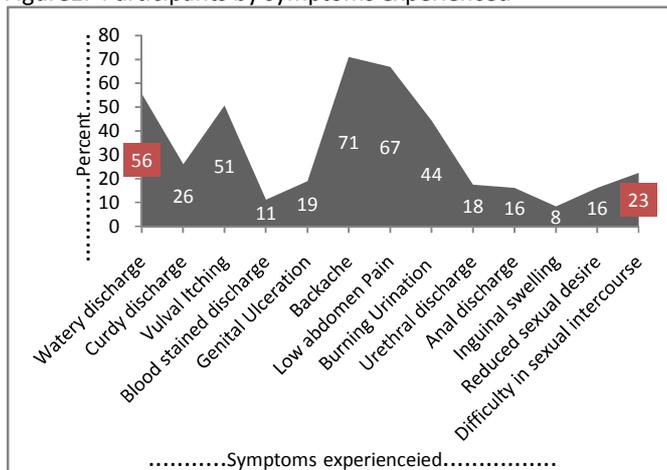
Of total 282 participants, only 142 (50.4%) participants had heard about these symptoms listed in the guideline. Hence, only 142 participants were included for further analysis. Of 142 participants, 78.9 percent reported the conditions suggestive of RTIs according to study criteria.

Table 1. Participants by status of RTI experience

Status		Frequency	Percent
Knowledge of RTIs among participants	Heard	142	50.40
	Not heard	140	49.60
	Total	282	100.00
Prevalence of RTI according to study criteria.	Yes	112	78.90
	No	30	21.10
	Total	142	100.00

Most commonly experienced symptoms were backache (71%) followed by low abdominal pain (67%). More than half (56%) of the participants reported watery discharge and itching around vulva (51%). More than two out of every five (44%) had experienced burning urination followed by almost a quarter had curdy vaginal discharge (figure1).

Figure1. Participants by symptoms experienced



Factors associated with Reproductive Tract Infection

Of 112 (78.90%) RTI cases, more than two fifth were ≥ 30 years whereas slightly lower number (36.61%) cases were in the age < 30 years. Proportionate prevalence was almost equal in both the age groups. Nearly three fifth literate participants had RTIs compared to one fifth illiterates. Surprisingly, more than nine out of every ten illiterates and three fourth literates had RTIs with respect to the same group. Nearly half (49.29%) participants who had

monthly income NRs < 10000 had RTIs which accounts three fourth in their respective group. Similarly, nearly half of the women with RTIs had their first pregnancy at the age of ≤ 19 years; mostly in between the 15-19 years (43.66%) and proportionate prevalence was also highest in the same age group (83.78%). About three fourth of the participants with RTIs had ≥ 2 parity. Cent percent with ≥ 4 parity had RTIs.

Age (< 30 Vs ≥ 30 years), literacy status (illiterate Vs literate), age at first pregnancy (≤ 19 years) and numbers of parity (≥ 2) were significantly associated with RTIs ($P < 0.05$) whereas monthly income (< 10000 Vs ≥ 10000) was not statistically associated with RTIs as shown in table 2.

Prevalence of RTI was found to be 57.04 per cent among women with regular menstrual cycle and slightly more than one fifth women having irregular cycle had RTIs. Nonetheless, proportionate prevalence of RTI was very high (93.93%) among those with irregular cycles. About seven out of every ten women with RTIs had normal menstrual bleeding however, very high prevalence (90.24%) was observed among those who had abnormal menstrual bleeding. Prevalence of RTI was > 3 times higher among those who used to have sexual contact during menstruation in contrast to those who do not. Slightly, higher prevalence of RTI was observed among those who did not cleaned genitalia after sex in contrast to those who used to clean.

Nature of menstrual cycle (regular Vs Irregular), bleeding during menstruation (normal Vs abnormal), Sexual Intercourse during menstruation (Yes Vs No) and cleaning genitalia after sex (Yes Vs No) were significant factors associated with RTIs.

Table: 2 Socio-demographic factors for RTIs

variables	variable	Total	Population with RTI	proportionate prevalence	statistical values
Age (in years)	< 30	66(46.47)	52 (36.61)	78.78	χ^2 , P = 0.05, df=1
	≥30	76(53.53)	60(42.25)	78.94	
	Total	142 (100.00)	112(78.86)		
Literacy status	Illiterate	33(23.23)	31(21.83)	93.93	FET, P=0.01
	Literate	109(76.76)	81(57.04)	74.31	
	Total	142 (100)	112(78.86)		
Monthly Income (in NRs)	<10000	91(64.08)	70 (49.29)	76.69	χ^2 P>0.05, df=1
	≥10000	51(35.91)	42 (29.57)	82.35	
	Total	142 (100)	112(78.86)		
Age at first pregnancy	< 14	13(9.15)	8 (5.63)	61.53	χ^2 , P=0.05, df=2
	15-19	74(52.11)	62 (43.66)	83.78	
	≥20	55(38.73)	42(29.59)	76.36	
	Total	142 (100)	112(78.86)		
Numbers of parity	0	11(7.74)	8(5.63)	45.45	χ^2 , P=0.05, df=2, Yate's correction made
	1	23(16.19)	21(14.78)	91.30	
	2	60 (42.25)	40(28.16)	66.66	
	3	26(18.30)	21(14.78)	80.76	
	4	13 (9.15)	13(9.15)	100	
	≥ 5	9 (6.33)	9(6.33)	100	
Total	142 (100)	112(78.86)			

FET = Fisher's Exact Test, df = degree of freedom, Figures in the parenthesis indicate percentage

Table 3 Participant's Menstrual and sexual hygiene and RTI

variable		Total	Population with RTI	proportionate prevalence	statistical value
Nature of Menstrual cycle	Regular	109 (76.76)	81 (57.04)	74.31	FET, P=0.01
	Irregular	33 (23.23)	31(21.83)	93.93	
	Total	142 (100.00)	112 (78.86)		
Bleeding During Menstruation and RTI	Normal	101 (71.12)	75(52.81)	74.25	FET, P=0.01
	Abnormal	41(28.87)	37(26.05)	90.24	
	Total	142 (100)	112(78.86)		
Sexual contact during menstruation	Yes	116 (81.69)	87(61.26)	75.00	χ^2 , P<0.05, df=1
	No	26 (18.30)	25 (17.60)	96.15	
	Total	142 (100)	112(78.86)		
Genitals cleaning after sex	Yes	55(38.73)	49(34.50)	89.09	χ^2 , P< 0.05, df=1
	No	87(61.26)	63(44.36)	72.41	
	Total	142 (100)	112(78.86)		

FET = Fisher's Exact Test, DF = degree of freedom, Figures in the parenthesis indicate percentage

Table 4 Risk estimation for RTIs

Independent variables		Confidence Limits		Odds Ratio	P value
Variable	Category	Lower	Upper		
Age (years)	< 30	0.44	2.22	1	>0.05
	> 30			0.99	
Literacy status	Illiterates	1.20	23.84	5.35	<0.05
	Literates			1	
Income (NRs)	<10000/month	0.29	1.70	1	>0.05
	10000/month			0.71	
Cleaning of genitalia after sex	Yes	1.18	8.20	1	<0.05
	No			3.11	
Use of sanitary pads during menstruation	Yes	0.65	3.43	1	>0.05
	No			1.49	
Sexual contact during menstruation	Yes	1.08	64.24	1	<0.05
	No			8.33	
Pain during sex	Normal			1	<0.05
	Painful	0.88	4.97	2.09	

Risk estimated using Odds ratio revealed that illiterates were found to have >5 times risk than literates, >3 times risk among those who do not clean genitalia after sex than who clean, 8.33 times risk among those who had kept sexual contact during menstruation as compared to non users and women who reported painful menstruation have > 2 times of risk of acquiring RTIs than those who have normal menstrual periods. Age, income and use of sanitary pads during menstruation were insignificant factors for RTIs as mentioned in the table 4.

DISCUSSIONS

Prevalence of Reproductive Tract Infection

Of total 282 participants, only 142 (50.4%) participants had heard about these symptoms of RTIs and nearly four out of every five had experienced some conditions defining RTIs. Prevalence was reported to be 25 percent to 87 percent in similar community based studies.^{2, 9-16} Study findings are somehow in agreement with the Msuya, chaudahry et al, and Sulochana.^{9, 15, 16}

In our study, most commonly reported symptoms were backache, low abdominal pain, watery vaginal discharge, curdy discharge, painful urination and vulval itching. Similar studies have reported identical symptoms i.e. vaginal discharge, lower abdominal pain; low backache vulval itching and pain during urination etc are most common among women.^{3, 11, 14-17}

Association between various factors and RTI

Of 112 (78.90%) RTI cases, more than two fifth were ≥ 30 years and Odds ratio shows insignificant risk (OR=.99) estimates. Nearly three fifth literate participants had RTIs however, prevalence rate was proportionately very high among illiterates i.e. out of every ten, nine had RTIs (OR = 5.35). Similarly Mbizvo et al identified the association between lower level of education and presence of RTI¹² which are consistent to the current findings.

Numerically, more numbers (49.29%) of participants with RTIs had monthly income NRs <10000 however, income was not a significant factor of RTI (OR=0.71). Several studies revealed that living in medium economic level and low

socioeconomic status were all related to having RTI symptoms^{11,13} and Patel et al observed that poverty and marginalization were associated with STIs and Bacterial Vaginosis.¹⁸

Similarly, nearly half of the women with RTIs had their first pregnancy at the age of ≤ 19 years; mostly in between the 15-19 years (43.66%) and proportionate prevalence was also highest in the same age group. About three fourth of the participants with RTIs had ≥ 2 parity and double fold high more among those with at least two parities. Furthermore, proportionate prevalence was cent percent among those with ≥ 4 parity.

In this study, cleaning of genitalia after sex, sexual contact during menstruation, pain during sex etc were found to be significantly associated with the RTI symptoms. These findings are consistent with others findings i.e. no cleaning genitals daily, not bathing daily during menstruation, not cleaning genitalia after sexual act and history of anal intercourse,¹¹ having sex during menstruation,¹⁹ poor personal hygiene, delivery and induced abortions were risk factors for RTIs.¹⁴

There is strong statistical association between menstrual irregularities, abnormal bleeding during menstruation and RTI ($P < 0.05$). Prevalence of RTI was observed to be 8.33 times more among those who had sexual intercourse during menstruation ($p=0.01$, OR= 8.33) as compared to non users. The occurrence of RTI was more than three times risk among those who did not clean genitalia after sex than who did so ($p < 0.05$).

CONCLUSION

Burden of the RTIs among women is unexpectedly high (78.9%); indicating the women's vulnerability to reproductive morbidities, limited service accessibility and their reproductive fates. curdy and watery discharge) were most commonly experienced symptoms. Illiteracy (>5 times risk),

pregnancy, menstrual irregularity, bleeding during menstruation, sexual intercourse during menstruation (>8 times risk) and no cleaning of genitalia after sexual intercourse (>3 times risk) were significant factors associated with RTI. Majority of these were modifiable factors; reflecting the needs of information and empowerment and behavior changes for the effective prevention and management of RTIs. Moreover; integrated study (symptomatic plus diagnostic) approaches will yield more conclusive findings.

Limitations : Study was confined in peripheral level selected health facilities among participants attending in health facilities and only syndromic

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