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### RESEARCH ARTICLE

#### PREVALENCE AND RISK FACTORS OF PROSTATITIS LIKE SYMPTOMS AMONG MALES BETWEEN AGE 15-45 YEARS OLD IN TAIF GOVERNORATE, KSA

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#### Abstract

**Background:** Chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS) is one of the most frequent and mysterious disorder seen in the daily practice of urology, it is a chronic deactivate syndrome composed of pelvipereineal pain of vague etiology, frequently accompanied by voiding plus sexual symptoms. Many studies have found multiple different factors rise risk of prostatitis consist of dietary factors, sexual factors, perineal factors, and sedentary lifestyle. Our aim is to assess the prevalence of prostatitis-like symptoms in males between age 15-45 years old in Taif gouvernante and risk factors related to prostatitis.

**Methodology:** cross-sectional study targeting 409 males aged between 15 to 45 years old living in Taif governorate using a predesigned questionnaire, including demographic characteristics, Arabic Version of the National Institutes of Health Chronic Prostatitis Symptom Index, and risk factors of prostatitis.

**Results:** In this study, we collected data from 409 participants, mostly aged between 21-25 years (64.1 %). In general, the mean score of pain, urinary symptoms, and impact of symptoms on QoL were 3.33 (3.75), 2.1 (2.36) and 3.0 (2.71). We found that marital status and smoking status had significant effect on pain score where divorced, widow and single participants had significant lower pain ( $P=0.008$ ), and smokers had higher pain score. Some lifestyle is related to pain score.

**Conclusion:** we found that participants in Al Taif city reported lower scores of prostatitis related symptoms. Some habits were related with incidence of prostatitis including consuming of alcohol and smoking as well as experience of GIT disorder. The pain score is increased as reported by participants by increasing stress, decrease in physical activity, sitting for long periods, and wear of tight clothes.

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#### Introduction:-

The prostate gland is a part of the male's lower urinary tract. It sits under the bladder and around the urethra, which is the tube that transmits urine and semen out of the body. it contributes to the formation of semen. during ejaculation, semen is pushed into the urethra by the prostate's muscle contraction [1]. As a result of its location, sexual function and urination could be affected. Historically speaking, prostatitis is a complicated inflammatory state with a range of causes that are remain under investigation [2].

		Count	Column N %
Age	15-20	61	14.9%
	21-25	262	64.1%
	26-30	32	7.8%
	31-35	15	3.7%
	36-40	17	4.2%
	41-45	22	5.4%
Nationality	Saudi	401	98.0%
	Non-Saudi	8	2.0%
Marital status	Single	350	85.6%
	Married	57	13.9%
	Divorced	1	0.2%
	Widow	1	0.2%
Educational level	Primary school	1	0.2%
	Intermediate school	2	0.5%
	Secondary school	95	23.2%
	University	311	76.0%
Occupation	Student	263	64.3%
	Worker	106	25.9%
	Not working	37	9.0%
	Retired	3	0.7%
Monthly income	<5000 SR	292	71.4%
	5000-10000 SR	63	15.4%
	10000-15000	27	6.6%

**Table 1:-** Demographic factors of participants (N=409).

Chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS) is one of the most frequent and mysterious disorder seen in the daily practice of urology, it is a chronic deactivate syndrome composed of pelvi-perineal pain of vague etiology, frequently accompanied by voiding plus sexual symptoms [<sup>3,4</sup>]. The prevalence of prostatitis-like symptoms (PLS) has been reported to be 2-14% [<sup>5-7</sup>].

There are 4 main categories of chronic prostatitis according to the National Institutes of Health (NIH) workshop on prostatitis in 1995: I) acute bacterial; II) chronic bacterial; III) the chronic pelvic pain syndrome; and IV) asymptomatic inflammatory prostatitis [<sup>8</sup>]. The cause of CP/CPPS is inconclusive but many mechanisms have been proposed, include infectious, autoimmune, neurological, and psychiatric disorders. About 8.2% of men have prostatitis at any point in their lives [<sup>9</sup>].

Symptoms of CP/CPPS could be a pain in the pelvic, perineum, penis, testicle, or lower abdomen, painful or difficult urination, urinary urgency and frequency; hematospermia, difficulty achieving erection, sexual malfunction, or psychological disease, the morbidity of prostatitis is greater in men who are not above 50-year-old [<sup>10</sup>].

There are no enough studies about our subject in gulf area there just one study mainly focused on lower urinary tract symptoms, it was performed in Riyadh, Saudi Arabia, throughout the period August 2012 through March 2013 It was a cross-sectional study done on ambulatory Saudi patients submitted to out-patient main king Saud university hospital clinics. Men over the age of 40 were invited to engage in the study, they evaluated for the serum level of prostate-specific antigen (PSA). Participants were provided a lingually validated Arabic version of the IPSS. Participants had undergone a digital rectal examination (DRE), and prostate size was calculated by ultrasound, multiple prostatic biopsies were performed, the severity of LUTS was measured by IPSS and QOL. All participants number of subjects interviewed was 2180 resulting in groups with mild (1265, 58.3%), moderate (505, 27.3%) and severe symptoms (81, 4.4%). The noted prevalence of individual LUTS indicated that nocturia was the most bothersome LUTS (70%) followed by frequency, incomplete emptying, and intermittency (47.8%, 43.8%, 39.2% respectively), while straining was the least frequent complaint (13.5%) also the study showed correlation between age and total IPSS where severe symptoms were increased with increasing age [<sup>11</sup>].

The etiology for prostatitis is not usually known. Some factors can elevate the risk of a bacterial prostatitis. like, an infection from sexual contact, a catheter, a bladder or urethral infection or a problem in the urinary tract [<sup>12</sup>]. history

of stress, injury, nerve inflammation, and recurrent urinary tract infections can cause Nonbacterial prostatitis [12]. Many studies have found multiple different factors rise risk of prostatitis consist of dietary factors : caffeine intake , alcohol consumption ,spicy food , excessive diet [12-14].

Premature ejaculation (PE) is one of the most common sexual dysfunctions there is strong relation between (PE) and prostatitis, the percentage of prostatic inflammation and chronic bacterial prostatitis in patients with PE was 56.5% and 47.8%, respectively [15].

Due to insignificant number related to our topic, especially in Saudi Arabia and there are many knowledge gaps in prostatitis, beginning with the basic epidemiology of the disease. Hence the aims of this study are assessment of the prevalence of prostatitis-like symptoms in males between age 15-45 years old in Taif gouvernante as well as assessment of the risk factors related to prostatitis like symptoms.

### **Methodology:-**

In this study, we depended on cross-sectional design in order to assess the prevalence of prostatitis-like symptoms in Taif governorate among males aged between 15 to 45 years old.

Sample size of the study was calculated using the formula of  $n = N * X / (X + N - 1)$ , where  $X = Z_{\alpha/2} p(1-p) / MOE^2$ , and  $Z_{\alpha/2}$  is the critical value of the normal distribution at  $\alpha/2$  (e.g., for a confidence level of 95%,  $\alpha$  is 0.05 and the critical value is 1.96), MOE is the margin of error,  $p$  is the sample proportion, and  $N$  is the population size. Aftercalculating the equation, the sample size was 409 participants.

The inclusion criteria include all male who agreed to participate in the study, aged between 15 and 45 years old, and lived in Al Taif region.

All participants younger than 15 and older than 45 years old, females and those who lived outside Al Taif were excluded from the study.

The data was collected using a predesigned questionnaire. The questionnaire consisted of three parts; part one includes questions about demographic characteristics including gender, age, marital status, nationality, occupation, education, income, and smoking habits.

The next part was consisted of theArabic Version of the National Institutes of Health Chronic Prostatitis Symptom Index,which is reliable and valid according topublished study [16]. In addition, part three was designed to assess the risk factors of prostatitis including dietary habits, sexual habits, life style, and Perineal traumatism [17].

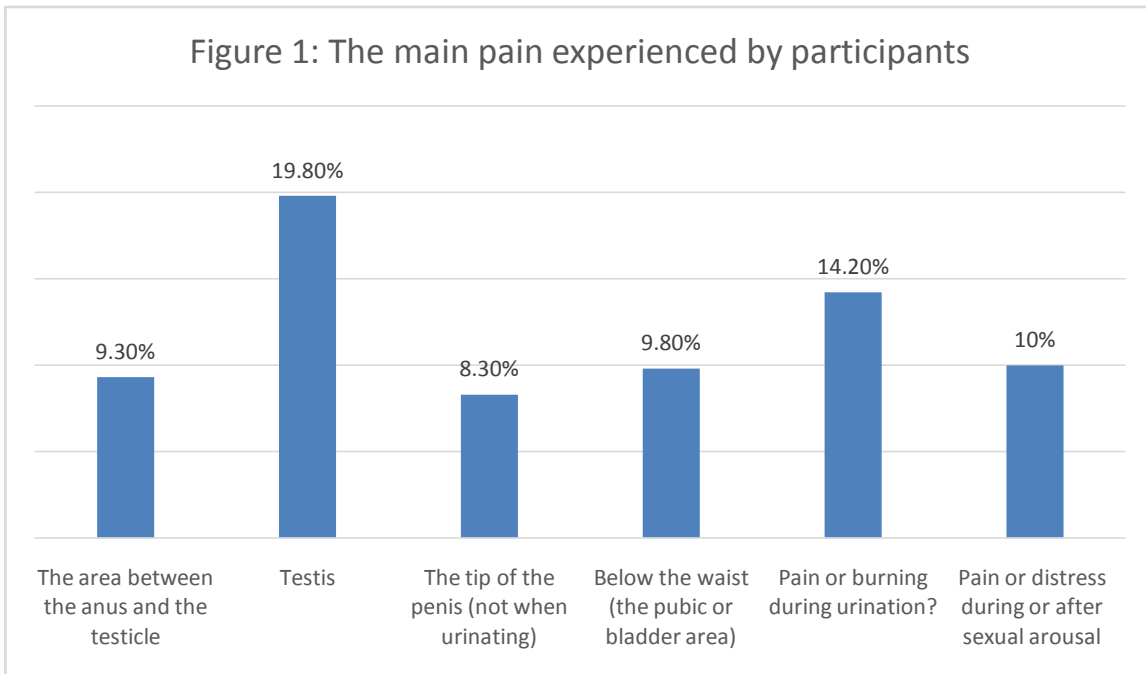
Data was added on the computer using Statistical Package of Social Science Software (SPSS) program, version 20 (IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.) to be statistically analyzed, all statistical tests was considered statistically significant ata  $P < 0.05$ .

### **Results:-**

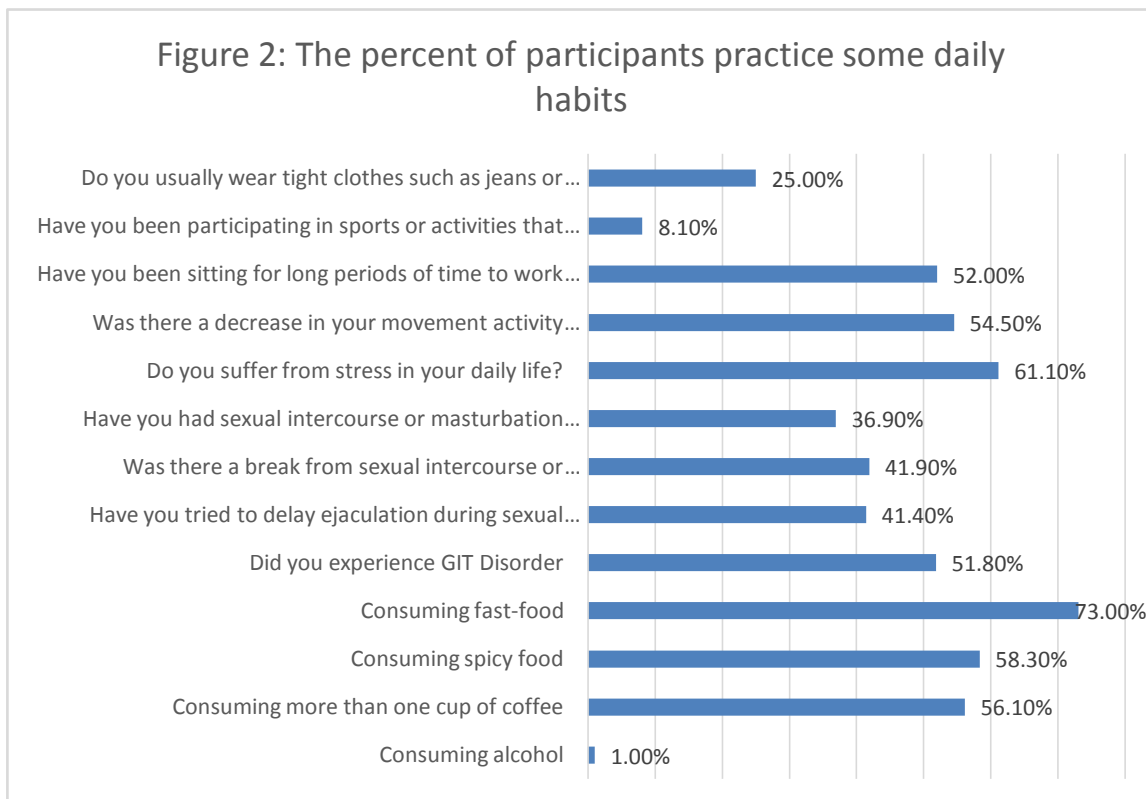
In this study, we collected data from 409 participants, mostly aged between 21-25 years (64.1 %). Almost all of participants were Saudi Arabian and 85.6 % were single. Considering education, most of participants (76 %) had university while 23.2 % had secondary school.

Moreover, 64.3 % were students and 25.9 % were worker while 71.4 % of them had monthly income of lower than 5000 SR and 6.6 % had monthly income for more than 15000 SR. Considering state of smoking, we found that 33.9 % of the sample indicated that they were smokers at the time of the study (Table 1)

In our study, pain in testis is experienced by 19.8 % while pain during urination were experienced by 14.2 % (Figure 1). In general, the mean score of pain, urinary symptoms and impact of symptoms on QoL were 3.33 (3.75), 2.1 (2.36) and 3.0 (2.71).



We found in this research that the most prevalent dietary habits among the sample is the consumption of foodstuff rich in carbohydrates such as fast food (73%), followed by eating spicy foods and consuming more than one cup of coffee per day, in addition to that 51.8% of them suffered from colon disorders that included diarrhea and constipation. As for sexual habits, 41.9% of individuals explained that there was an interruption of sexual intercourse or masturbation for more than 4 days, and 41.4% tried to delay ejaculation during sexual intercourse. In addition, 61.1% of individuals suffer from stress, 54% from lack of movement, and 52% from having to sit for a long period (Figure 2).



We found that age has no significant effect on mean scores of prostatitis symptoms index however, it seems that younger participant showed high level of pain and lower urinary symptoms and higher impact on their QoL. On the other hand, we found that marital status and smoking status had significant effect on pain score where divorced, widow and single participants had significant lower pain ( $P=0.008$ ), and smokers had higher pain score (Table 3).

**Table 3:-** Demographic factors and mean scores of National Institutes of Health chronic prostatitis symptom index.

		Pain score	Urinary symptoms	QOL
Age	15-20	3.38	1.69	3.07
	21-25	3.55	2.16	3.11
	26-30	2.53	2.37	3.19
	31-35	2.20	1.93	2.40
	36-40	3.71	2.71	2.71
	41-45	2.18	1.68	1.91
	P-value	0.307	0.501	0.407
Marital status	Single	3.48	2.08	3.13
	Married	2.18	2.12	2.21
	Divorced	11.00	4.00	2.00
	Widow	8.00	5.00	2.00
	P-value	0.008*	0.533	0.114
Smoking	Yes	4.02	2.34	2.95
	No	2.94	1.97	2.97
	P-value	0.006*	0.138	0.951

Moreover, we found that consuming alcohol had negative effect on pain where participants who indicated consuming of alcohol reported significantly higher pain ( $P=0.049$ ). Furthermore, experience of GIT disorder is associated with significantly higher score of pain, worsen urinary symptoms ( $p=0.002$ ,  $0.001$ ). Moreover, delaying of ejaculation during sexual intercourse or having sexual intercourses for more than two times daily increase the pain score reported by participants. Stress, decrease in physical activity, sitting for long periods, and wear of tight clothes increase the reported pain, urinary symptoms significantly (Table 4).

**Table 4:-** Daily habits of participants in mean scores of National Institutes of Health chronic prostatitis symptom index.

			Pain score		Urinary symptoms	
			Mean	P-value	Mean	P-value
Food habits	Consuming alcohol	No	3.29	0.049*	2.07	0.066
		Yes	7.00		4.25	
	Consuming more than one cup of coffee	No	3.25	0.697	1.86	0.059
		Yes	3.40		2.30	
	Consuming spicy food	No	3.42	0.666	1.90	0.151
		Yes	3.26		2.24	
	Consuming fast-food	No	2.99	0.239	1.76	0.062
		Yes	3.47		2.24	
	Did you experience GIT Disorder	No	2.81	0.002*	1.71	0.001*
		Yes	3.85		2.48	
Sexual habits	Have you tried to delay ejaculation during sexual intercourse or masturbation?	No	2.84	0.001*	1.87	0.02*
		Yes	4.06		2.43	
	Was there a break from sexual intercourse or masturbation for more than 4 days?	No	3.24	0.551	1.87	0.02*
		Yes	3.46		2.42	
	Have you had sexual intercourse or masturbation more than twice a day?	No	2.74	0.000*	1.87	0.009*
		Yes	4.39		2.50	

Daily habits	Do you suffer from stress in your daily life?	No	2.80	0.018*	1.74	0.01*
		Yes	3.69		2.34	
	Was there a decrease in your movement activity during the day?	No	2.69	0.001*	1.30	0.00*
		Yes	3.90		2.81	
	Have you been sitting for long periods of time to work or drive, for example?	No	2.72	0.001*	1.59	0.001*
		Yes	3.93		2.60	
	Have you been participating in sports or activities that may cause injury to the pelvis (cycling or horseback riding)?	No	3.44	0.041*	2.10	0.812
		Yes	2.03		2.00	
	Do you usually wear tight clothes such as jeans or tight underwear?	No	2.87	0.001*	1.94	0.001*
		Yes	4.77		2.58	

In addition, we found that food habits of consuming alcohol, and experiencing GIT disorder is associated with significantly negatively impact on QoL of participants. Considering sexual habits, we found that only having sexual intercourse or masturbation more than twice a day would significantly have impact on QoL of participants (P=0.001). considering daily habits, we found that decrease in participant's movement activity during the day, having been sitting for long periods of time to work or drive and usually wear tight clothes such as jeans or tight underwear significantly decrease the quality of life in these participants (P=0.001,0.001,0.001) (Table 5).

		QOL		
		Mean	P-value	
Food habits	Consuming alcohol	No	2.97	0.009
		Yes	6.50	
	Consuming more than one cup of coffee	No	2.90	0.511
		Yes	3.08	
	Consuming spicy food	No	3.04	0.769
		Yes	2.97	
	Consuming fast-food	No	3.14	0.497
		Yes	2.94	
	Did you experience GIT Disorder	No	2.59	0.005*
		Yes	3.40	
Sexual habits	Have you tried to delay ejaculation during sexual intercourse or masturbation?	No	2.90	0.373
		Yes	3.15	
	Was there a break from sexual intercourse or masturbation for more than 4 days?	No	3.05	0.63
		Yes	2.92	
	Have you had sexual intercourse or masturbation more than twice a day?	No	2.74	0.01*
		Yes	3.47	
Daily habits	Do you suffer from stress in your daily life?	No	2.68	0.045*
		Yes	3.22	
	Was there a decrease in your movement activity during the day?	No	2.36	0.006*
		Yes	3.57	
	Have you been sitting for long periods of time to work or drive, for example?	No	2.65	0.001*
		Yes	3.34	
	Have you been participating in sports or activities that may cause injury to the pelvis (cycling or horseback riding)?	No	3.05	0.175
		Yes	2.37	
	Do you usually wear tight clothes such as jeans or tight underwear?	No	2.68	0.001*
		Yes	4.01	

**Table 5:-** The impact of daily habits of participants on mean scores of QoL of them.

## Discussion:-

Prostatitis is one of the most common medical condition which is accounting for about 13.5% of all outpatient urologic consultations [12]. However, it has a large diffusion rate, the etiology of this disease remains poorly understood. Infectious causes representing only 5–10% of all cases which is the only recognized factor of prostatitis [18]. As there is a lack of evidence of a proven etiopathogenetic mechanism, even the therapy is problematic and frustrating for both clinicians and patients [19]. Hence, some clinicians expend great efforts in the spasmodic research of hidden pathogens responsible for suspected prostatic infections, executing complex laboratory tests in order to prescribe a long course of costly, dangerous and useless antibiotics [20]. Numerous medications suggested for CP/CPPS revealed substantial limitations [19]. The common abuse of antibiotics, prescribed even in cases of negative cultures, is not justified, considering that they are no better than a placebo in subjects with long-standing symptoms [21]. Therefore, it is important to understand the factors affecting incidence of prostatitis related symptoms.

In this study, after application of National Institutes of Health Chronic Prostatitis Symptom Index (NIH-CPSI), we found that the mean score of pain, urinary symptoms and impact of symptoms on QoL were 3.33 (3.75), 2.1 (2.36) and 3.0 (2.71). This is lower than reported in the study of Liang C, where the Mean pain score was 7.55 (3.22), mean urinary symptoms score was 2.84 (2.72), mean impact on QoL score was 6.03 (2.88) [22] as well as study of Zhu D who reported that mean score of pain was 10.44 (6.85), urinary symptom was 4.92 (1.88) and impact on QoL was 4.37 (1.74) [23]. Considering pain, we found that the most common pain was in testis and during urination. In a study conducted by Wagenlehner F, the authors found that within the pain domain, the most common localization of pain was the perineum, followed by testicular pain, ejaculatory pain, dysuria, pain in the pubic area, and pain in the tip of the penis [24].

Moreover, we found that age has no significant effect on mean scores of prostatitis symptoms index however, it seems that younger participant showed high level of pain and lower urinary symptoms and higher impact on their QoL. This result is in contrast to the results of Liang C who reported that the peak age of men with symptoms ranged from 31 to 40 years old where percent of symptoms was less than 10.0% in groups younger than 30 years, but it was more than 10.0% in groups older than 30 years [22]. Moreover, Mehik et al found that prostatitis prevalence in a Finnish population increased with age [25]. However, similar results were reported in study of Olmsted county which found no difference in age when comparing men by prostatitis status in those 66 years old or older [26]. This is also found in the study of Arafa M in a study conducted in Al Riyadh region in which the authors found that there was significant but weak relation between age and symptoms of prostate inflammation [27]. While age may not causally influence prostatitis risk, it is related to most factors speculated to be associated with the condition. Moreover, we found that marital status and smoking status had significant effect on pain score where divorced, widow and single participants had significant lower pain ( $P=0.008$ ), and smokers had higher pain score. Smoking is considered a risk factor for developing prostate related symptoms [28,29] which is in consist with our results.

Moreover, we found that consuming alcohol, experience of GIT disorders would increase the degree of pain reported by participants and thus increasing of the impact on QoL. In addition, delaying of ejaculation during sexual intercourse or having sexual intercourses for more than two times daily increase the pain score as reported by participants as well as stress, decrease in physical activity, sitting for long periods, and wear of tight clothes increase the reported pain, urinary symptoms and lower QoL significantly. Many previous studies indicated the significant role of alcohol consumption in developing of prostatitis [29-32] which is similar to our result. The higher pain score in patients with GIT disorder could be explained by results of Itza F who found that chronic constipation is considered a risk factor that is responsible for pelvic muscles spasm increasing symptoms of prostatitis [33]. The same study indicated that sexual habits can lead to pelvic musculature tenderness and are harmful causes of prostatitis. In a study of Alzammam A. which conducted in Al-Qassim region found that there is positive correlation between all symptoms and bother indicating that symptoms could decrease the quality of life in these patients which is in consist with our results [34].

This study, include some limitations including depending on self-reported questionnaire which may cause some personal bias. Moreover, the questionnaire included some point which need to recall some pervious data which may cause some recall bias. Furthermore, depending on online distribution of questionnaire induce some bias toward younger participants therefore, the sample could be not representative of the general population.

In conclusion, we found that participants in Al Taif city reported lower scores of prostatitis related symptoms. Some habits were related with incidence of prostatitis including consuming of alcohol and smoking as well as experience of GIT disorder. The pain score is increased as reported by participants by increasing stress, decrease in physical activity, sitting for long periods, and wear of tight clothes.

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