Medical Science

pISSN 2321–7359; eISSN 2321–7367

Assessment of knowledge and awareness of Saudi general population in Taif regarding Irritable Bowel Syndrome and its causes, symptoms, and risk factors

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To Cite:
Baiuomy AR, Alsuwat AOF, Alotaibi AO, Althobaiti FSM, Alosaimi KS, Almutawa KN, Algarni FAA, Alharthi AE, Alosaimi MAN, Alharthi KAS. Assessment of knowledge and awareness of Saudi general population in Taif regarding Irritable Bowel Syndrome and its causes, symptoms, and risk factors. Medical Science 2022; 26:ms389e2463. doi: https://doi.org/10.54905/disssi/v26i127/ms389e2463

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Peer-Review History
Received: 03 September 2022
Reviewed & Revised: 05/September/2022 to 20/September/2022
Accepted: 27 September 2022
Published: 29 September 2022

Peer-review Method
External peer-review was done through double-blind method.

URL: https://www.discoveryjournals.org/medicalscience

ABSTRACT

Background: IBS is a serious condition that affects many young adults and is linked to increased psychological stress. Therefore, raising awareness about it is crucial. The objective is to find out how well the general Saudi community in Taif is aware about IBS, including its causes, symptoms, and risk factors. *Methods:* It was decided to use a cross-sectional study design.The study was carried out during a period of two months from October 1st 2021 to December 31st, 2021. A pre-designed online disseminated questionnaire was designed to fulfill the study objective was used for data collection. *Results:* The majority of participants (79.3%) were aware that they had IBS; 30.9% had it in the past or currently; 84.9% said that abdominal pain, cramps, or bloating related defecation were symptoms; 68.9% said that a change in the frequency of urination was a symptom; and 87.2% said that bloating or increased gas was a symptom. The majority (89.3%) stated that stress and psychological issues are the main causes of IBS, although 45.4% believed that bacterial or viral infections were too responsible. Most of the participants (86.0%) consider that IBS increases the probability of developing mood disorders and impairs the standard of life, 84.4% think that IBS has treatment, 89% said that IBS necessitates attending the hospital to obtain diagnosis and treatment. *Conclusion:* The majority of the general populations of Taif, KSA were aware of irritable bowel syndrome, its causes, risk factors and treatment.

Keywords: Public awareness, knowledge, Irritable Bowel Syndrome, Taif, Saudi Arabia.

1. INTRODUCTION

Irritable bowel syndrome (IBS) is a gastrointestinal (GI) condition characterized by disrupted bowel habits in the absence of significant structural and biochemical deformities. The knowledge of IBS has evolved rapidly with scientific advancement, but it was first recognized over 150 years ago. Prevalence rates of IBS vary between 1.1% and 45%, based on population studies from countries worldwide with a pooled global prevalence of 11.2% (Saha, 2014). Many factors are involved in the etiology, which is poorly understood. Acknowledging the pathology of IBS is critical because innovative pharmacotherapy mediators are established to board IBS's known pathophysiologic mechanisms (Lovell & Ford, 2012). The pathology of IBS was linked to changed GIT movement, instinctual sensitivity reaction, post-infectious reactivity, brain-gut interactions, changes in fecal microflora, bacteriological growth, diet hypersensitivity, sugar and starch improper absorption, and intestinal inflammation (Chong et al., 2019).

On the other hand, gases, diarrhoea, constipation, and stomach discomfort are thought to be the signs of these processes. Not all symptoms are gastrointestinal; for instance, weariness is a very typical complaint.Traditionally, medicinaltreatment has attentive on treating these individual complaints symptomatically (Olafsdottir et al., 2010). With an odds ratio of 1.67 over several population-based research, female sex is the best-documented potential risk for IBS, despite reasons varied across sex-different medical services, consulting behaviour, and physiological activities (for example, hormonal regulation of gut functions) (Kim & Kim, 2018). The prevalence of IBS decreases with age (>50 years), nevertheless is comparable in children and teenagers compared to adults, and it does not always pass from childhood to adulthood. On the other hand, household history still established to be driven by both genetics and social learning (Enck et al., 2016).

The life satisfaction is significantly impacted by IBS, and individuals, doctors, and the healthcare system are all heavily burdened by it. In particular, it has an impact on one's social and psychosocial outcomes, which can lead to depressive symptoms. An upsurge in absenteeism rates from job and school has also been noticed. The disorder also affects physical functions, which may be worse than both diabetes and hypertension. Over the last decade, we have made outstandingadvancement in our thoughtful of purposeful bowel illnesses like IBS (Liu et al., 2022).

A Cross sectional study on university students to assessawareness about irritable bowel syndrome (IBS) reported that, 74% students have basic information about IBS, 26% students have knowledge about the complications of IBS, 33% ensure awareness of the IBS factors associated, and 7% are aware of the IBS outcome and 53% students have knowledge about the treatment strategies of IBS (Naveed et al., 2014). Another cross-sectional survey in Northern Saudi Arabia to assess knowledge, attitudes, and practices of primary care physicians about IBS, (83.1%) considered IBS as a common health problem in Saudi Arabia, and (55.4%) believed it is underestimated. There was a significant association between physicians' qualifications and using diagnostic tools to facilitate IBS diagnosis. Also, 35.4% of physicians were not sure how to diagnose IBS (Al-Hazmi, 2012).

Study Significance

Irritable bowel syndrome is a critical case associated with increased psychological stress affecting large proportion of young adults especially during COVID-19 pandemic lockdown as the level of stress has increased in Saudi Arabia and worldwide. So, increasing awareness of Irritable bowel syndrome is mainly important to enhance individuals at risk, to be familiar with any changes detected. Awareness of Irritable bowel syndrome, public attentiveness, and advancement in irritable bowel syndrome diagnosis has made a positive impact on recognition of cases. So, we conduct this study aimed to determine irritable bowel syndrome related knowledge, awareness, risk factors and treatment behaviors among Saudi adult population in Taif, KSA.

Study Rationale

Irritable bowel syndrome is a critical case associated with increased psychological stress affecting large proportion of young adults.So, increasing public awareness of Irritable bowel syndrome is mainly important

Study objective

This study aims to assess knowledge and awareness of Saudi general population in Taif regarding IBS and its causes, symptoms, and risk factors.

2. METHODS & PARTICIPANTS

Study design and setting

A cross sectional study design was adopted.

Study area and setting

The study was carried out in Taif, Northern Saudi Arabia.

Study period

The data was collected during a period of two months from October 1st 2021 to January 31st, 2022.

Study population

All adult Saudi individuals of both genders live in Taif, KSA were eligible for inclusion in the study, provided they fulfill the inclusion criteria as follow:

Sampling

A convenience sample of 392 Saudi individuals, fulfilling the inclusion criteria was included in the study.

Inclusion criteria: Saudi, aged 18- 60 years old, live in Taif and welling to participate.

Exclusion criteria: Non-Saudi aged less than 18 or more than 60, live outside Taif and not willing to participate, were excluded from the study.

Sample Size

The sample size calculated using the following formula:

$N= Z^2 \times P (1-P)/E^2$

Where:

N = sample size

Z^2 = 1.96 (The critical value that divides the central 95% of the Z distribution from the 5% in the tail)

P= Prevalence of knowledge. (Considered as 50%)

E^2 = the margin of error (=width of confidence interval)

Data collection tool

The tool was developed by the researchers with the guidance of the following literature (Naveed et al., 2014; Al-Hazmi, 2021). The tool included 4 sections. The first section was regarding sociodemographic characteristics of participants as age, gender, marital and educational status. The second section was regarding symptoms of IBS, the third section about the causes, and the fourth section about risk factors of the disease. The questionnaire included a brief introduction explaining the idea of the research to participants.

Data collection technique

The researchers have developed an electronic google form for data collection during the period of one month. The questionnaire was distributed online via WhatsApp, Facebook, and Twitter). The participant's information and answers were reviewed one by one by the research team thru the Gmail access re-assuring that they will not repeat filling up

Pilot study

A pilot study was carried out on 10 students to ascertain the feasibility, applicability, and clarity of the tool, and no modification was done. Students in the pilot study were excluded from the study.

Statistical Analysis

The Statistical Package for Social Science (SPSS), version 21.0 was used for that purpose followed by data analysis and tabulation. Descriptive statistics were applied (e.g., frequency, percentage, mean and standard deviation).

Ethical considerations

The study was approved by the Research Ethics Committee of Taif University with letter number (43-179). Secrecy of information was assured that the data will be confidential and the participants have the right to leave the study whenever they need it.

3. RESULTS

Table 1 shows the sociodemographic characteristics of participants. 58.2% were males, the majority (44.6%) aged 20-30 years and about quarter (22.4%) aged 41-50 years. Regarding social status 51.3% were married and 45.2% were single. The majority, 77.0 % were highly educated (college and above) and 17.9% have secondary education. Table 2 shows the knowledge of participants of IBS, history of disease and knowledge of symptoms. 79.3% aware of irritable bowel syndrome, 30.9% occurrence of irritable bowel syndrome (current or recurrent) (Figure 1), 84.9% documented that abdominal pain, cramps, or bloating related to defecation is a symptom of irritable bowel syndrome, 70.7% documented change in the shape of defecation, 68.9% documented the change in the number of defecations is a symptom, 87.2% documented bloating or increased gas is a symptom of irritable bowel syndrome.

Table 1 Sociodemographic characteristics of participants (n=*392*)

Parameter		No.	%
Gender	Male	228	58.2
	Female	164	41.8
Age	Less than 20	9	2.3
	20 - 30 years old	175	44.6
	31 - 40 Years old	70	17.9
	41 – 50 years old	88	22.4
	51 - 60years old	31	7.9
	More than 60	19	4.8
Social status	Single	177	45.2
	Married	201	51.3
	Divorced	11	2.8
	Widow	3	.8
Education level	Uneducated	1	.3
	Primary	1	.3
	Middle	18	4.6
	Secondary	70	17.9
	College and above	302	77.0

Table 2 Knowledge of participants of IBS, history of disease and knowledge of symptoms (n=*392*)

	Yes	**No**
Aware of irritable bowel syndrome	311	81
	79.3	20.7

History or current occurrence of irritable bowel syndrome	121	271
	30.9	69.1
Relatives or friends suffering from irritable bowel syndrome	279	113
	71.2	28.8
Abdominal pain, cramps, or bloating related to defecation is a symptom of irritable bowel syndrome	333	59
	84.9	15.1
Change in the shape of defecation is a symptom of irritable bowel syndrome	277	115
	70.7	29.3
Change in the number of defecationsis a symptom of irritable bowel syndrome	270	122
	68.9	31.1
Bloating or increased gas isa symptom of irritable bowel syndrome?	342	50
	87.2	12.8
Diarrhoea at night is a symptom of irritable bowel syndrome	167	225
	42.6	57.4
Rectal bleeding is a symptom of irritable bowel syndrome	139	253
	35.5	64.5
Vomiting of unknown cause is a symptom of irritable bowel syndrome	155	237
	39.5	60.5
Swallowing difficulty is a symptom of irritable bowel syndrome?	93	299
	23.7	76.3

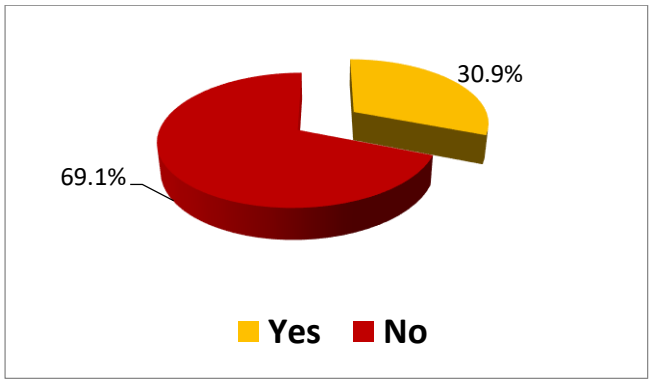

Figure 1 IBS among the participants (current or recurrent)

Table 3 illustrates the knowledge of participants of causes and risk factors of IBS. The majority (71.7%) reported that nervous system diseases cause irritable bowel syndrome, 89.3% documented that stress and psychological problems cause irritable bowel

syndrome, 91.1 documented that stress only cause irritable bowel syndrome (Figure 2). 88.5% documented that anxiety or depression are risk factor for irritable bowel syndrome but 45.4% think that microbial or viral infections is a cause of irritable bowel syndrome, 77.8% think that muscle cramps in the intestines is a cause of irritable bowel syndrome, and 71.7% think that cramps in the intestines is a cause of irritable bowel syndrome (Figure 3).

Table 3 Knowledge of participants of Causes and risk factors of IBS (n=*392*)

Causes of IBS	**Yes**	**No**
Cramps in the intestines	280	112
	71.4	28.6
Nervous system diseases	281	111
	71.7	28.3
Microbial or viral infections	178	214
	45.4	54.6
Stress and psychological problems	350	42
	89.3	10.7
Stress cause irritable bowel syndrome	357	35
	91.1	8.9
Eating disorders	298	94
	76.0	24.0
Risk factors		
Young age	144	248
	36.7	63.3
Female gender	161	231
	41.1	58.9
Family history of the disease	230	162
	58.7	41.3
Anxiety or depression	347	45
	88.5	11.5

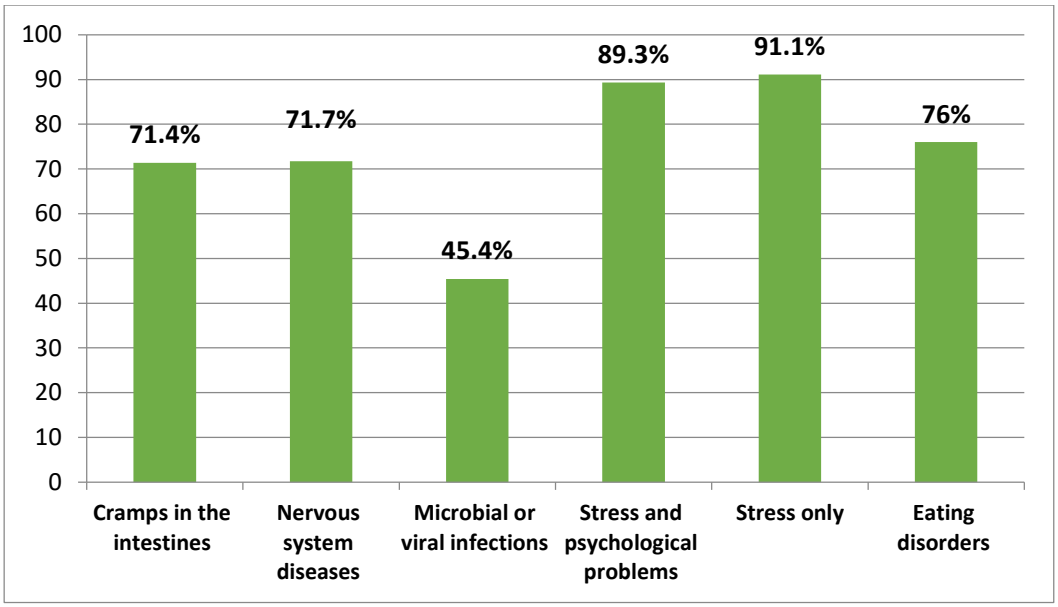

Figure 2 Knowledge of participants about the causes of IBS

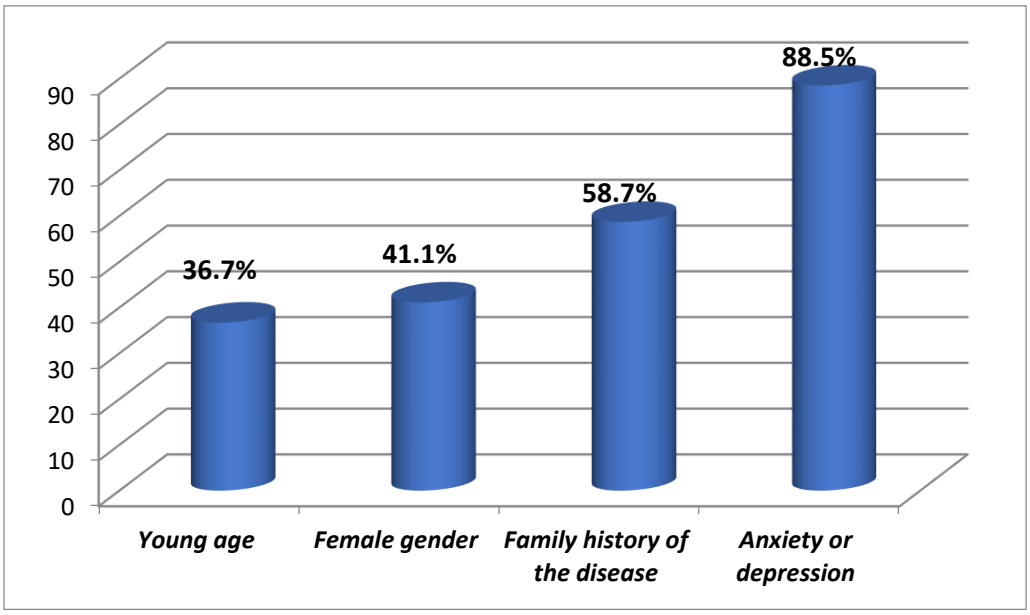

Figure 3 Knowledge of participants about the risk factors of IBS

Table 4 shows the knowledge of participants of complications and treatment of IBS. 86.0% think that IBS increases the likelihood of developing mood disorders and affects the standard of living, 84.4% think that IBS has treatment, 89% reported that IBS requires going to the hospital to request diagnosis and treatment, but, 25% think that IBS is treated with medicines without a doctor's prescription and 62.2% think that IBS increases the risk of colon cancer. Table 5 illustrates the association between participants awareness of IBS with sociodemographic characteristics of participants. There was a significant relation between age group and social status and awareness of IBS ($P<0.05$), but the relation with gender and educational level was insignificant ($P>0.05$).

Table 4 Knowledge of participants of Complications and treatment of IBS (n=*392*)

	Yes	**No**
IBS causes an increased risk of hemorrhoids	248	144
	63.3	36.7
IBS increases the risk of colon cancer	244	148

		62.2	37.8
IBS increases the likelihood of developing mood disorders and affects the standard of living		337	55
		86.0	14.0
IBS has treatment		331	61
		84.4	15.6
IBS requires going to the hospital to request diagnosis and treatment		349	43
		89.0	11.0
IBS is treated with medicines without a doctor's prescription		99	293
		25.3	74.7
22.4IBS is treated with surgery		88	304
		22.4	77.6

Table 5 Association between participants awareness of IBS with Sociodemographic characteristics of participants

		Awareness of IBS			
		Yes (n=311)	No (n=81)	**Total (N=392)**	**P value**
Gender	Male	182	46	228	0.779
		58.5%	56.8%	58.2%	
	Female	129	35	164	
		41.5%	43.2%	41.8%	
Age	Less than 20	4	5	9	0.001
		1.3%	6.2%	2.3%	
	20 - 30 years old	158	17	175	
		50.8%	21.0%	44.6%	
	31 - 40 years old	52	18	70	
		16.7%	22.2%	17.9%	
	41 – 50 years old	60	28	88	
		19.3%	34.6%	22.4%	
	51 - 60 years old	24	7	31	
		7.7%	8.6%	7.9%	
	More than 60	13	6	19	
		4.2%	7.4%	4.8%	
Social status	single	153	24	177	0.002

		49.2%	29.6%	45.2%	
	married	145	56	201	
		46.6%	69.1%	51.3%	
	divorced	11	0	11	
		3.5%	0.0%	2.8%	
	widow	2	1	3	
		0.6%	1.2%	0.8%	
	uneducated	1	0	1	
		0.3%	0.0%	0.3%	
	primary	1	0	1	
		0.3%	0.0%	0.3%	
Education level	middle	13	5	18	0.634
		4.2%	6.2%	4.6%	
	secondary	52	18	70	
		16.7%	22.2%	17.9%	
	College and above	244	58	302	
		78.5%	71.6%	77.0%	

4. DISCUSSION

Irritable bowel syndrome is a critical case associated with increased psychological stress affecting large proportion of young adults (Saha, 2014). A cross sectional study design was adopted to assess knowledge and awareness of Saudi general population in Taif regarding IBS and its causes, symptoms, and risk factors. In the present study, 79.3% aware of IBS, in Algabr et al., (2018) in Riyadh, Saudi Arabia, the majority (81.1%) of the subjects has proper awareness regarding the IBS and its risk factors. A Cross sectional study on university students to assess awareness around IBS reported that, 74% scholars ensure simple info around IBS (Naveed, 2014). However, most Saudi patients with IBD have misunderstandings regarding the nature and causation of the condition, according to a research done to examine their KAP toward IBS (Lacy et al., 2007). Other research (Al-Hazmi, 2014; Lacy et al., 2007; Lee, 2005; Camilleri et al., 2002) found that the majority of the individuals had insufficient understanding of the development of IBS, its symptoms, and the various risk factors.

In the current study, 30.9% of the studied population had a history or current occurrence of irritable bowel syndrome. It was in accordance with findings of Ibrahim et al., (2013), the prevalence of irritable bowel syndrome among medical students and interns in King Abdulaziz University was 31.8%. Also, the prevalence was 21% among Medical Students at King Saud bin Abdulaziz University for Health Sciences in Riyadh. While in Alaqeel et al., (2017) in Riyadh, the occurrence of IBS stayed 10.6% among the studied subjects, which was lower than our study.

In the present study, the majority (84.9%) documented that abdominal pain, cramps, or bloating related to defecation is aindication of IBS. Also, in Algabr et al., (2018) in Riyadh, Saudi Arabia, all (100%) of the subjects reported that the common symptoms of IBS include diarrhea, constipation, abdominal pain and bloating. Also, Irritable bowel syndrome patients experience changes in bowel movements include gastrointestinal pain, diarrhoea & bowel problems, according to Rej et al., (2018). In addition to a variety of other gastrointestinal ailments such cramps and muscular aches, fibromyalgia syndrome, exhaustion, headache, severe backache, IBS is also accompanied by a wide range of other symptoms, such as rectal irritation with diarrhoea and stomach bloat.

In the current study, the majority (71.7%) reported that IBS is caused by nervous system disorders, stress and psychological issues, 91.1 percent documented that stress alone causes irritable bowel syndrome, and 88.5 percent recorded that anxiety or depression is a risk factor for irritable bowel syndrome. In a review article by Qin et al., (2014) about the impact of psychological stress on irritable bowel syndrome, they discussed the potential role of psychological stress in the pathogenesis of IBS and stated that, Psychological stress has a significant influence on intestinal sensitivity, motility, secretion, and permeability, according to data from clinical and experimental investigations. Stress-induced changes in neuro-endocrine-immune pathways also affect the gut-brain axis and the microbiota-gut-brain axis, resulting in symptom flare-ups or amplification in IBS. As a result, because IBS is a stress-subtle ailment, therapy should focus on stress management and stress-induced reactions (O'Malley et al., 2011). The severity of IBS and its co-morbid mental diseases, particularly sadness and anxiety, are also strongly linked (Singh et al., 2009; Banerjee et al., 2017). A substantial rise in stressor score soon before transition from IBS non-patient to IBS patient was reported in a study of the psychosocial factors of IBS (Kevin et al., 2018). While in Algabr et al., (2018) in Riyadh, 82.5% of the respondents reported that psychological and emotional attribution are common disorders associated with IBS.

In our study, 84.4% of the participants believe IBS has a therapy, 89 percent believe IBS requires a trip to the hospital for diagnosis and treatment, and 25% believe IBS is treated with over-the-counter medications without a doctor's prescription. In a study conducted by Algabr et al., (2018) in Riyadh, subjects and attitudes regarding proper treatment revealed that all participants feel that adequate management of IBS involves food, drugs, and counseling. Only 21.6 percent and 31.3 percent of people felt IBS could be treated with over-the-counter (OTC) and alternative drugs, respectively.

5. CONCLUSION AND RECOMMENDATIONS

The majority of the general population of Taif, KSA were aware of irritable bowel syndrome, its causes, risk factors and treatment. So, we recommend similar studies are needed in all areas of KSA (Kingdom of Saudi Arabia) and health education sittings to increase the public awareness about this critical health problem which affects the quality of life and the wellbeing of the individuals.

Study limitations

There are several limitations in the study. Firstly, the majority (77%) of the respondents were highly educated, which doesn't represent the whole population in Taif city. The study was also restricted on Saudi subjects only. The data collection was by, an electronic Google form for data collection during the period of one month. The questionnaire was distributed online via WhatsApp, Facebook, and Twitter) thus there is some sort of bias regarding the sampling as well as the response rate was not well.

Informed consent

Written & Oral informed consent was obtained from all individual participants included in the study. Additional informed consent was obtained from all individual participants for whom identifying information is included in this manuscript.

Acknowledgement

We thank the participants who were all contributed samples tothe study.

Author Contributions

We certify, as authors, that we have participated sufficiently in the intellectual content, conception and design of this work or the analysis and interpretation of the data (when applicable), as well as the writing of the manuscript, to take public responsibility for it and have agreed to have our name listed as a contributor. All persons who have made substantial contributions to the work reported in the manuscript.

Ethical approval

The study was approved from the research ethics committee of Taif University with approval letter number (43-179).

Funding

This study has not received any external funding.

Conflicts of interest

The authors declare that there are no conflicts of interests.

Data and materials availability

All data associated with this study are present in the paper.

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