

Gastro-oesophageal reflux disorders among Nepalese residing in Southeast Asia

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SUMMARY

Introduction: Gastro-oesophageal reflux disorders (GORD) are common in Western countries and has been reported to be increasing in the East. This study assessed the prevalence of GORD among the Nepalese residing in the Brunei Darussalam.

Methods: Nepalese residing in two areas were invited to participate in this cross sectional questionnaire study. GORD was considered to be present if there was any heartburn, regurgitation or both experienced at least monthly that were associated with impairment of quality of life measures. Overall, 304 out of 320 (female 68.4%) with completed questionnaire were available for analysis.

Results: Overall 45.1% had reported symptoms of gastroesophageal reflux: heartburn and regurgitation (21.4%), heartburn alone (9.2%) and regurgitations alone (14.5%). However, only 7.2% had GORD. GORD was significantly more common among women ($p=0.005$), being shorter in height ($p=0.013$), those with co morbid conditions ($p=0.023$) and previously had endoscopy ($p=0.006$). There were no difference in age, duration of residence, body mass index (kg/m²), alcohol intake, tobacco and supplements use (all $p>0.05$). GORD was also significantly associated with the presence of psychosomatic symptoms such as backache, depression, fatigue, headache and insomnia (all $p<0.05$). Subjects with GORD also experienced significantly more other upper gastrointestinal complaints such as nausea, vomiting, early satiety, post-prandial fullness, and abdominal bloating (all $p<0.05$).

Conclusions: The prevalence of GORD among Nepalese residing in Brunei Darussalam was 7.2%. Certain subjects' profiles were associated with GORD and patients with GORD were likely to experience more psychosomatic and other gastrointestinal symptoms.

INTRODUCTION

Gastro-oesophageal reflux is a disorder where reflux of acidic gastric contents into the oesophagus result in symptoms that include heartburn and/or regurgitation. Gastro-oesophageal reflux disease (GORD) is present when symptoms negatively impact the quality of life (QoL)¹. GORD is a spectrum of disorders that cover oesophageal and extra-oesophageal manifestations as highlighted in the Montreal Classification².

GORD is more common in the West than the East with rates ranging from 10 to 30% in the West,¹⁻⁵ compared to 2.5 to 6.7% in the Eastern Asian region⁶⁻⁸. The prevalence rates have been reported to be increasing⁶⁻¹¹. Rates reported from the Indian Subcontinent, specifically India, Bangladesh and Pakistan range from 7.6% to 24%¹²⁻¹⁵. To date, there is no data available on the prevalence of GORD among the Nepalese population. This study assessed the prevalence of GORD among Nepalese population residing in the Southeast Asia region (Brunei Darussalam) and also to assess the other gastrointestinal symptoms.

MATERIALS AND METHODS

Setting

The population of Brunei Darussalam is approximately 400,000 (2010) with Malay being the majority ethnic group (68%), followed by the Chinese (9%) and the Indigenous groups (5%). The Expatriate group accounts for approximately 17% of the whole population. Nepalese accounts for only a small proportion of the Expatriate group. These Nepalese consist of mainly of personal in the Gurka Army Reserve unit accompanied by their family. Almost all the Nepalese in Brunei Darussalam reside in the three Gurka Army Reserve unit camps, two located within the capital and the other in the another district.

Subjects

Subjects residing in two camps (Brunei-Muara) were invited to participate in this cross-sectional questionnaire study over a six months period. The purpose of the study was explained and verbal consents were obtained prior to the face to face interview. The interviews were conducted by two resident Nepalese doctors looking after the welfare of the Nepalese residing in these two camps.

Questionnaire

Subjects were questioned using a predefined validated questionnaire on the types of gastrointestinal symptoms experienced. The original validated questionnaire enquired on a spectrum of gastrointestinal symptoms¹². For our study, we only concentrated on the GORD symptoms. The doctors were given sample of the questionnaire along with the study protocol two weeks before scheduled discussions. Discussion on the study and how to conduct the interview were carried out to ensure consistency. For the study, the interviews were carried out in the Nepalese language based on the English

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Table I: Demographic of subjects

Mean age (yrs and SD)	40.2 ± 6.1
Gender	
Male	96 (31.6)
Female	208 (68.4)
Occupations	
Housewife	195 (64.1)
Soldiers	5 (1.6)
Teachers	21 (6.9)
Others	84 (27.2)
Body mass index (BMI kg/m ²)	26.8 ± 2.73
Overweight (BMI >25 kg/m ²)	227 (74.7)
Duration of residence (months)	59.3 ± 57.2
Co morbid conditions	66 (21.7)
Tobacco use (smoke/chew)	31 (10.2)
Alcohol	126 (41.4)

Figure presented in parentheses are percentages (%)

Table II: Comparison between subjects with and without GORD

Parameters	GORD		p value
	+ve (n=22)	- ve (n=282)	
Subject profiles			
Mean age (yrs and SD)	38.8 ± 5.4	40.3 ± 6.1	0.204
Gender			
Male	1 (1.0)	95 (99.0)	0.005
Female	21 (10.1)	187 (89.9)	
Weight (kg)	63.1 ± 7.2	65.9 ± 7.7	0.059
Height (cm)	152 ± 5.4	157 ± 7.8	0.013
Duration of residence	38.8 ± 39.1	60.8 ± 58.1	0.077
Previous endoscopy			
Yes	12 (54.5)	76 (27.0)	0.006
Clinics follow up			
Yes	6 (27.3)	45 (16.0)	0.171
If unwell			
Consult doctor	19 (86.4)	238 (84.4)	0.742
Self-medicate	3 (13.6)	46 (16.3)	0.806
Risk Profiles			
Mean BMI (BMI kg/m ²)	27.2 ± 3.2	26.8 ± 2.7	0.876
Co morbid conditions			
Yes	9 (40.8)	57 (20.2)	0.023
Tobacco use			
Yes	1 (4.5)	30 (10.6)	0.363
Alcohol use			
Yes	8 (36.4)	118 (41.8)	0.615
Supplements use			
Yes	0 (0)	17 (6.0)	0.236

Figure presented in parentheses are percentages (%)

Table III: Prevalence of psychosomatic symptoms between subjects with and without GORD

Parameters	GORD		p value
	+ve (n=22)	- ve (n=282)	
Headache			
Yes	20 (90.9)	150 (53.2)	0.001
Backache			
Yes	17 (77.3)	125 (44.3)	0.003
Insomnia			
Yes	9 (40.9)	37 (13.1)	<0.001
Fatigue			
Yes	15 (68.2)	83 (29.4)	<0.001
Depression			
Yes	8 (36.4)	31 (11.0)	<0.001

Figure presented in parentheses are percentages (%)

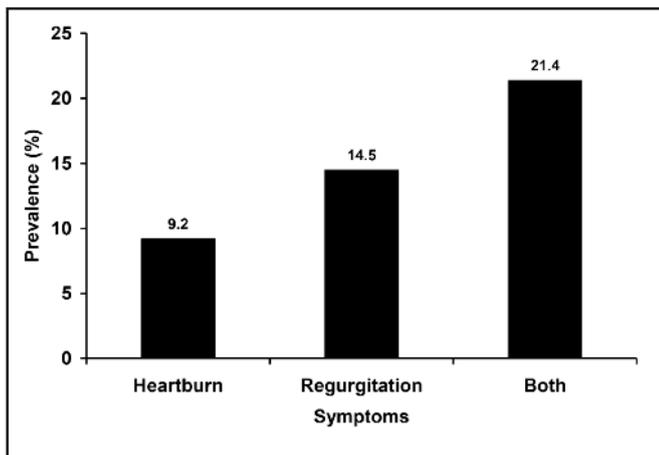


Fig. 1 : Prevalence of gastro-oesophageal symptoms reported.

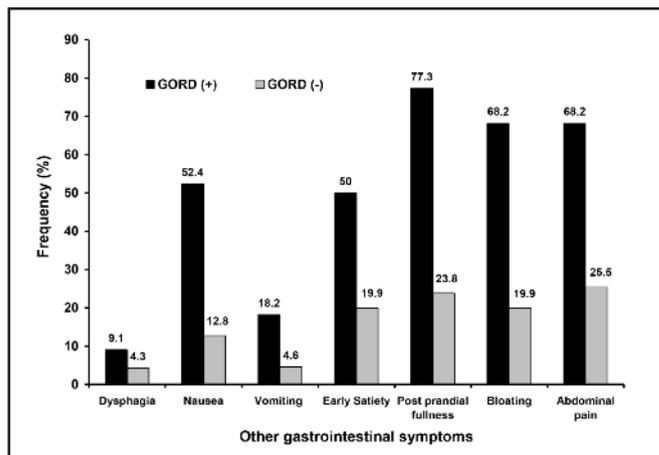


Fig. 2 : Prevalence of other gastrointestinal symptoms experienced at least monthly among subjects with and without GORD (all p values <0.05 except for dysphagia).

questionnaire. Translations into the Nepalese language was done the two resident doctors who were reasonably fluent in the English language. Backward translations were done by a clinic assistant to ensure consistency. This was carried out several times until there was good agreement on the questionnaire. The translated questionnaire was pretested before the actual study.

Symptoms enquiry

The GORD symptoms enquired included the frequency (daily, weekly, forth-nightly and monthly) and severity of these symptoms experienced. Severity of symptoms was based on how symptoms impacted on their quality of life (QoL) measures based on impact on their work or daily activities. This is categorised into: never, sometimes (awareness of symptoms but do not interfere with daily activities and can be ignored), frequent (some interferences but can continue with work or daily activities, however symptoms cannot be ignored) and always (interferes and restrict some daily activities and affect concentration at work).

GORD was considered present if subjects experienced heartburn (burning in the retro sternum), regurgitation (presence of sour fluid at the back of the throat) or both at least once weekly that was associated negatively with QoL measures.

Inquiries were also made into subjects' demographic, other gastrointestinal and psychosomatic symptoms (headache, backache, insomnia, depression, fatigue) and health seeking behaviours (what they will do if they were unwell: see doctor or self medicate).

Statistical Analysis

The data was entered to Word Excel Microsoft programme and analysed using the Statistical Package for Social Science (SPSS, version 10.0, Chicago, IL, USA) for analyses. Comparisons were made using Chi square test where appropriate and a p value of less than 0.05 was taken as significant.

RESULTS

Overall, 304 out of 320 (95% response rate) with completed questionnaire were available for analysis. The demographic of subjects is shown in Table I.

The overall prevalence of gastro-oesophageal reflux symptoms was 45.1%. The breakdown of the individual symptoms is shown in Figure 1. Heartburn was reported to be daily, weekly, fortnightly and monthly in 1.6%, 9.9%, 7.2% and 11.8% respectively while regurgitation was reported in 2.0%, 11.8%, 8.9% and 13.2% respectively. Based on the predefined definition, the prevalence of GORD was 7.2%.

GORD was significantly more common among female, short stature, previously had endoscopy, and had other co-morbidities (Table II). There were no difference in age, gender BMI (kg/m²), clinic follow up, duration of residence, alcohol intake, smoking status and supplement use (all p>0.05) (Table II). Most will consult a doctor if they were unwell and there were not significant differences in the health seeking behaviours between subjects with or without GORD.

GORD was also significantly associated with psychosomatic symptoms (all p<0.05) (Table III).

With the exception of dysphagia, subjects with GORD also experienced significantly more other gastrointestinal complaints (all p<0.05) (Figure 2).

DISCUSSION

Our study showed that gastresophageal reflux symptoms, specifically heartburn and regurgitations were common among Nepalese population residing in Southeast Asia, with over 40% ever experiencing any of these symptoms in the previous one month. However, when strict definition for GORD was used, only 7.2% were categorised as having GORD. Fortunately most were not severe enough to negatively impact on the QoL measures.

As there is currently no study available on the Nepalese population, the closest comparison for our Nepalese population will be studies published from the Indian subcontinent. Several studies on GORD have been from the Indian Subcontinent and interestingly, the reported rates vary. A multi-centres study from India reported a rate 7.6% based on symptoms experienced at least once a week¹³. Another study from a northern Indian hospital reported a rate of 16.2% based on a GORD questionnaire study¹⁴. Studies from Pakistan and Bangladesh reported rates of 24% and 22.1% respectively^{15, 16}. However, unlike the studies from India, these two studies had not taken into account the impact of GORD symptoms on the QoL, and only reported on the prevalence of gastro-oesophageal reflux symptoms.

In our study, female gender, comorbid conditions, history of previous endoscopy and short stature were found to be more likely to experience GORD. However, reports of the risk factors for GORD have been inconsistent between studies. This is probably due to differences in the study methodology. Some studies have reported older age, male gender, race, family history, higher socioeconomic status, increased BMI, use of non-steroidal anti-inflammatory medications, high meat consumptions, low fruit consumptions and smoking to be important risk factors^{1-3, 17-19}. On the other hand, other studies have found female gender²⁰ and younger age¹⁴ to be significant factor whereas others have reported age and smoking not to be risk factors¹⁹. Among the reported associations, we did not find any associations with BMI, alcohol or tobacco use. Use of supplements was also not significant. Many studies have shown that dietary pattern and environment are associated with increase risk for gastroesophageal reflux symptoms and GORD^{13, 18, 20-21}. Unfortunately, we did not inquire into family history or dietary pattern. In our study, shorter duration of residence was approaching significance. This association may be due to adaptation process to a new country. The significance of previous endoscopy was probably just a reflection that the patients already had GORD and had undergone investigation for that indication.

In agreement with published literature, we also found that subjects with GORD were more likely to experience psychosomatic symptoms. In fact, even subjects who did not fulfill the criteria for GORD were also more likely to experience psychosomatic symptoms. GORD is a chronic disorder that frequently relapses, and like many chronic disorders has been shown to be associated with impaired QoL and psychosomatic symptoms¹. Our subjects with GORD also experienced more of the other GI symptoms. They experienced significantly more of all the inquired GI symptoms, with the exception of dysphagia. Although not significant, dysphagia was still more common among subjects with GORD. Coexistence of gastroesophageal reflux symptoms and dyspepsia is reported in the Western and Eastern populations²². A study from the United States showed that subjects with GORD also experienced significantly more dyspepsia, globus sensation, non-cardiac chest pain and dysphagia²³. Overlap with other functional abdominal complaints such as irritable bowel syndrome has been reported in both the West and the East^{13, 23}. Therefore, it is particularly important for clinicians to be aware of these associations and to address these complaints simultaneously.

There are several limitations with our study. First, the sample size may be considered small and this may affect the results. Second, our study was based on a Nepalese population residing in one country. Therefore, our findings may not be generalized to the Nepalese populations as a whole, either those residing in Nepal or other countries. However, our findings can be the basis of comparisons for future studies.

In conclusion, our study showed that gastro-oesophageal reflux symptoms are common among Nepalese residing in Brunei Darussalam. Fortunately only a small proportion have symptoms severe enough to negatively impact the QoL measures. Subjects with GORD were associated with certain profiles and they were also more likely to experience psychosomatic and other gastrointestinal symptoms.

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