

# First Year Gastrointestinal Endoscopy Profile in Singkawang West Borneo 2017 – 2018

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## ABSTRACT

**Background:** Gastrointestinal endoscopic examination which is included in the referral system of the social insurance administration organization has been available at St Vincentius Hospital Singkawang and already been conducted by internist since March 2017 to diagnose upper and lower gastrointestinal diseases. The gastrointestinal endoscopic examination unit serves referrals from Singkawang and its 3 surrounding districts (Sambas, Bengkayang, and Mempawah) that close to the Malaysian border. The purpose of this study is to determine the patients' profile from Singkawang, Sambas, Bengkayang, and Mempawah Districts who underwent gastrointestinal endoscopic examination at St Vincentius Hospital from March 2017 to April 2018.

**Method:** This is a retrospective descriptive study by using secondary data of patient's medical records at St Vincentius Hospital Singkawang in March 2017 - April 2018. Every patient is included as a sample (total sampling). Total numbers are consisted of 308 patients including 230 esophagogastroduodenoscopies and 78 colonoscopies.

**Results:** The results of this study showed that majority of patients were more likely to undergo esophagogastroduodenoscopy (EGD) (75%) than colonoscopy (25%). Males, age group of 51-70 years old and Malay ethnic are the groups of patients who have the most upper and lower gastrointestinal disorders. The prominent finding of esophagogastroduodenoscopy was erosive gastritis (64%), whereas internal hemorrhoids was the most common finding in colonoscopy (67%); if internal hemorrhoids was excluded, colon mass became the most common finding disorder.

**Conclusion:** Patient were mostly male, age group between 51 – 70 years old and Malay. The most common finding in colonoscopy (67%); if internal hemorrhoids was excluded, colon mass shifted forward as the top finding disorder.

**Keywords:** endoscopy, esophagogastroduodenoscopy, colonoscopy, gastritis, hemorrhoids

## ABSTRAK

**Latar belakang:** Pemeriksaan endoskopi gastrointestinal yang masuk dalam sistem layanan rujukan Badan Penyelenggara Jaminan Sosial (BPJS) telah tersedia di Rumah Sakit (RS) Santo (St) Vincentius Singkawang dan dilakukan oleh internis sejak Maret 2017 untuk mendiagnosis penyakit saluran cerna bagian atas maupun bawah. Pemeriksaan endoskopi gastrointestinal ini melayani rujukan dari Kota Singkawang dan 3 kabupaten sekitarnya (Kabupaten Sambas, Bengkayang, dan Mempawah) yang sangat dekat dengan perbatasan Malaysia. Penelitian ini bertujuan untuk mengetahui profil pasien dari Kota Singkawang, Kabupaten Sambas, Bengkayang dan Mempawah yang menjalani tindakan endoskopi gastrointestinal di RS St Vincentius periode Maret 2017- April 2018.

**Metode:** Jenis penelitian ini deskriptif retrospektif dengan menggunakan data sekunder dari catatan medik pasien di RS St Vincentius Singkawang pada bulan Maret 2017- April 2018. Semua pasien pada periode tersebut dimasukkan sebagai sampel penelitian (total sampling). Total pasien sebanyak 308 terdiri dari 230 esofagogastroduodenoskopi dan 78 kolonoskopi.

**Hasil:** Mayoritas pasien lebih banyak menjalani esofagogastroduodenoskopi (EGD) (75%) dibandingkan kolonoskopi (25%). Laki-laki, kelompok usia 51-70 tahun dan suku Melayu adalah kelompok pasien yang paling banyak mengalami gangguan gastrointestinal atas dan bawah. Temuan esofagogastroduodenoskopi yang paling banyak adalah gastritis erosiva (64%), sedangkan hemoroid interna adalah temuan paling sering pada kolonoskopi (64%). Apabila hemoroid interna dieksklusi maka massa kolon menjadi temuan terbanyak.

**Simpulan:** Mayoritas pasien adalah laki-laki, usia sekitar 51-70 tahun dan suku Melayu. Temuan gastrointestinal endoscopy terbanyak adalah gastritis erosiva dan hemoroid interna.

**Kata kunci:** endoskopi, esofagogastroduodenoscopy, kolonoskopi, gastritis, hemorrhoids

## INTRODUCTION

Endoscopy had changed the way of gastroenterology approach the diagnosis, clinical findings and therapy of gastrointestinal disorders.<sup>1,2</sup> Gastrointestinal endoscopy examination covered by social insurance administration organization has been available at St Vincentius Hospital Singkawang and operated by an internist since March 2017 to support diagnosis of upper and lower gastrointestinal tract disorders. This endoscopy unit has received patient referrals from Singkawang and its surrounding districts: Sambas, Bengkayang, and Mempawah which are situated close to border of Malaysia. According to the data from the 2016 census, the population of Singkawang was 211,508, Sambas was 526,327, Bengkayang was 242,788 and Mempawah was 255,132.<sup>3</sup>

Endoscopy unit necessity is increasingly surging up to 26.2 % in Indonesia based on data from Digestive Endoscopy Center at Cipto Mangunkusumo Hospital. The data showed increasing number of patients in 2010 to 2011 from 1825 patients to 2303 patients including for gastrointestinal diagnostic purposes or therapeutic procedures.<sup>4</sup>

The purpose of this study is to determine patient profile of Singkawang, Sambas, Bengkayang, and Mempawah who underwent gastrointestinal endoscopy at St Vincentius Hospital since March 2017- April 2018.

## METHOD

This is a descriptive study by using secondary data from patient's medical records at St. Vincentius Hospital Singkawang from March 2017 to April 2018. The population of this study were all patients who

underwent gastrointestinal endoscopy at St Vincentius Hospital Singkawang. The sample was obtained from patient medical records with gastrointestinal disorders who underwent gastrointestinal endoscopy at St Vincentius Hospital Singkawang from March 2017 to April 2018 (total sampling). Patients were coming from Singkawang, Bengkayang, Sambas and Mempawah.

The variables we studied here consisted of gender, age, ethnic and findings of gastrointestinal endoscopy. The data obtained is then processed and analyzed with Microsoft Excel 2016 software. Finally, the descriptive research data would be presented in the form of text, tables or figures.

## RESULTS

From March 2017 to April 2018, there were 308 patients who underwent gastrointestinal endoscopic: esofagogastroduodenoscopy 230 patients (75%) and colonoscopy 78 patients (25%).

According to sex groups there were 119 male patients (52%) and 111 female patients (48%). The largest age group of esofagogastroduodenoscopy patient was between 51-60 years: 46 patients (20%). The most common ethnic of this study was Malay 82 patients (36%), followed by Chinese 67 patients (29%), Dayaknese 36 patients (16%), and Javanese 33 patients (14%).

The top common findings of EGD consecutively were erosive gastritis (64%), esophagitis (59%) and gastric ulcers (43%). Other findings were 5 cases of gastric and duodenal polyps, 3 cases of helminthiasis, diverticulosis and nasopharyngeal mass. Furthermore, we also did the esophageal ligation in 16 patients.

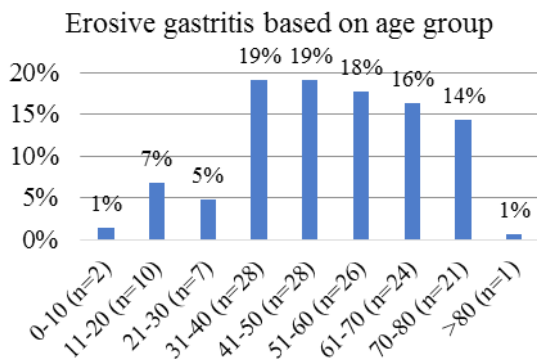
**Table 1. Demographic characteristics of research subjects (n = 230)**

Variable	n (%)
Sex group	
Male	119 (52)
Female	111 (48)
Age group	
0-10	2 (1)
10-20	16 (7)
21-30	11 (5)
31-40	36 (16)
41-50	42 (18)
51-60	46 (20)
61-70	41 (18)
70-80	33 (14)
> 80	3 (1)
Ethnic group	
Malay	82 (36)
Chinese	67 (29)
Dayaknese	36 (16)
Javanese	33 (14)
others	12 (5)

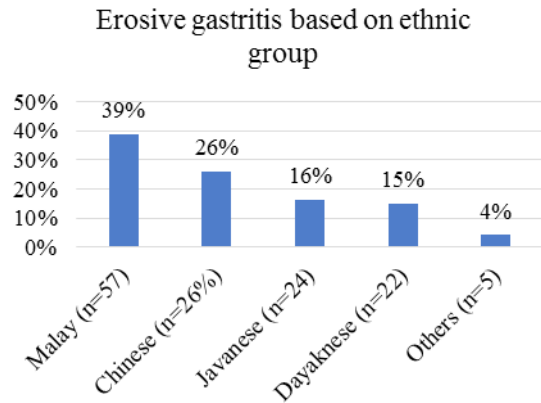
**Table 2. Distribution of esophagogastro-duodenoscopy disorders**

Findings	n (%)
Gastric ulcer	98 (43)
Duodenal ulcer	46 (21)
Esophagitis	133 (59)
Duodenitis	28 (13)
Pyloric abnormalities	33 (15)
Erosive gastritis	147 (64)
Gastric mass	13 (6)
Esophageal abnormalities	19 (8)
Pangastritis	29 (12)
Esophageal varices	16 (7)
Portal hypertensive gastropathy	17 (7)
Biliary reflux	34 (16)
Hiatal hernia	31 (14)
Others	27 (13)

In erosive gastritis, the proportion of females (54%) were larger than males (46%) with the age group most likely suffered from erosive gastritis were equal between: 31-40 (19%) and 41-50 (19%). Erosive gastritis was most common finding in Malay (39%) compared to other ethnics.

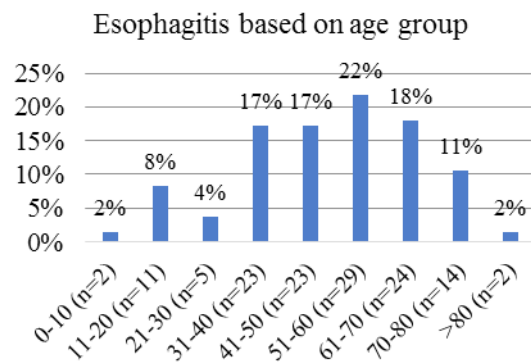


**Figure 1. Erosive gastritis based on age distribution**

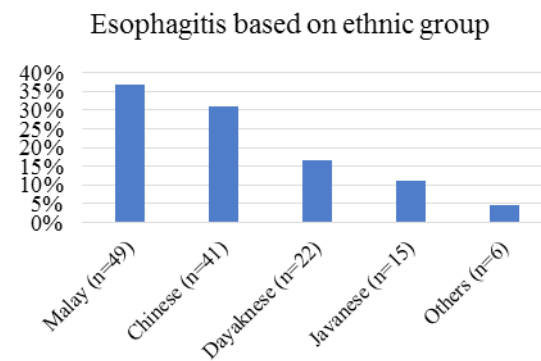


**Figure 2. Erosive gastritis based on ethnic distribution**

Esophagitis results more in male (51%) than in female (49%), its most frequently found in the age group 51-60 (22%) and Malay ethnic (49%). Based on Los Angeles Classification, esophagitis B was 53%, followed by esophagitis A 33%, and esophagitis C 14%



**Figure 3. Esophagitis based on age distribution**



**Figure 4. Esophagitis based on ethnic distribution**

Gastric ulcers were more likely found in male (53%) than female (47%) with age group of 51-60 years old (26%), ethnic group of Malay (37%). The most common location of gastric ulcers was antrum (81%) followed by corpus (9%), fundus (6%), pylorus (3%), and cardia (2%). In our study, Forrest III (65%) was most frequent in Forrest classification followed by Forrest IIC 22%, Forrest IIB 10%, Forrest IIA 2%, Forrest IB 2% and Forrest IA 0%.

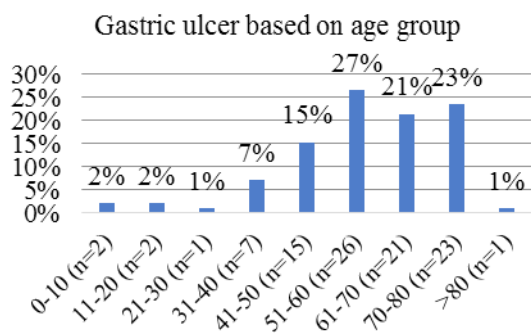


Figure 5. Gastric ulcer based on age distribution

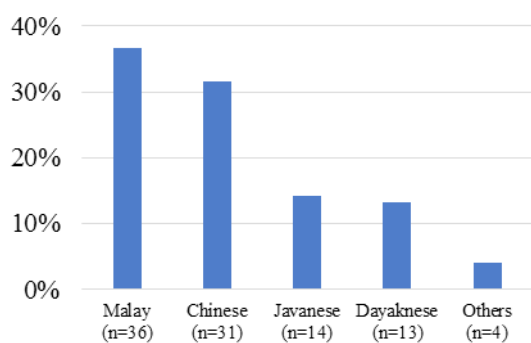


Figure 6. Gastric ulcer based on ethnic distribution

There were 68 patients (30%) who had mucosal biopsy samples from a total of 230 EGD patients. Biopsy results showed there were 25 cases of *Helicobacter pylori* in 16 male patients (64%) and 9 female patients (36%), with age group involved were 31-40 years old 2 patients (8%), 41-50 years old 2 patients (8%), 51-60 years old 7 patients (28%), 61-70 years old 6 patients (24%), 71-80 years old 7 patient (28%) and age > 80 years old 1 patient (4%). Malay Ethnic group was the ethnic group with the most finding of positive *Helicobacter pylori*: 10 patients (40%), followed by Chinese (28%), Dayaknese and Javanese 3 patients (12%) and other ethnicity involved such as Bataknese and Maduranese as many as 2 patients (8%). The rest findings on EGD biopsy results were 4 cases of adenocarcinoma and 39 cases of inflammation in gaster and duodenum.

Table 3. Biopsy findings in patients who underwent esophagogastroduodenoscopy

Findings	n (%)
Inflammation of gaster & duodenum	39 (57)
<i>Helicobacter pylori</i>	25 (37)
Gastric cancer	4 (6)

The patient gender who underwent colonoscopy was higher in male than female, with 49 patients (63%) and 29 women (37%). The age group that most often underwent colonoscopy was between 61-70 years 21 patients (27%). The most common ethnic who underwent colonoscopy was Malay 34 patients (44%), followed by Chinese 20 patients (26%), and Dayaknese 9 patients (12%).

Table 4. Characteristics of colonoscopy demographics of research subjects (n = 78)

Variable	n (%)
Sex group	
Male	49 (63)
Female	29 (37)
Age group	
0-10	0 (0)
11-20	2 (3)
21-30	2 (3)
31-40	10 (13)
41-50	11 (14)
51-60	19 (24)
61-70	21 (27)
70-80	11 (14)
> 80	2 (3)
Ethnic group	
Bugis	2 (3)
Dayaknese	9 (12)
Chinese	18 (25)
Javanese	7 (10)
German	1 (1)
Maduranese	2 (3)
Malay	32 (44)
Malay-Javanese	1 (1)
Sundanese	1 (1)

The most common finding in colonoscopy was internal hemorrhoids 47 patients (64%), followed by colon mass 23 patients (30%), inflammatory bowel diseases (IBD) 20 patients (26%) and colon polyps were 20 patients (25%). Other findings of colonoscopy were 2 cases of normal cases, 2 cases of redundant colon, lymphadenopathy, appendicitis, perianal abscess and stricture of the intestinal lumen. The colonoscopy unit in St. Vincentius Hospital was repaired in November 2017-March 2018 so there were not colonoscopy procedures during those times.

Table 5. Distribution of colonoscopy findings

Findings	n (%)
External hemorrhoid	9 (10)
Internal hemorrhoid	52 (64)
Inflammatory bowel disease	20 (26)
Anal skin tag	6 (8)
Colon mass	23 (30)
Diverticulosis	9 (12)
Colon polyps	20 (25)
Others	13 (16)

Colon mass is the second most common finding in St. Vincentius Hospital. Colon mass was mostly found in male which consisted of 16 patients (70%) compared with females with only 7 patients (30%). The most common age group with colon mass was 61-70: 8 patients (35%). The most common ethnic group with colon mass was Malay: 14 (61%). The most common predilection of colon mass was rectum (54%), followed by sigmoid 14%, ascending 14%, descending 7%, transversum 7%, and caecum 4%.

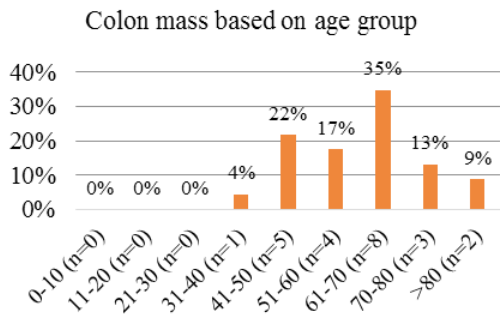


Figure 7. Colon mass based on age group

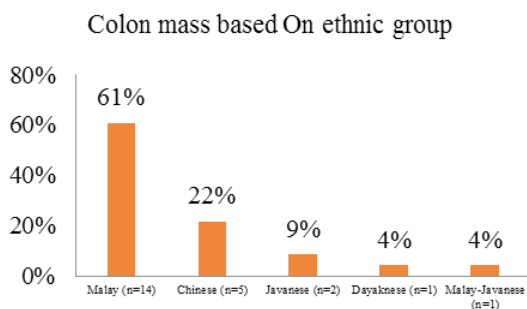


Figure 8. Colon mass based on ethnic group

There were 19 cases of IBD at St. Vincentius Hospital with male was the most common sex involved 13 male patients (65%) vs. 6 female patients (35%). The most common age group with IBD was 51-60 year old: 9 (45%) of 19 patients. The ethnic most suffered from IBD was Malay: 9 (45%). The most common findings of IBD was pancolitis (60%) followed by proctitis 25%, ileitis 10%, and caecum 5%.

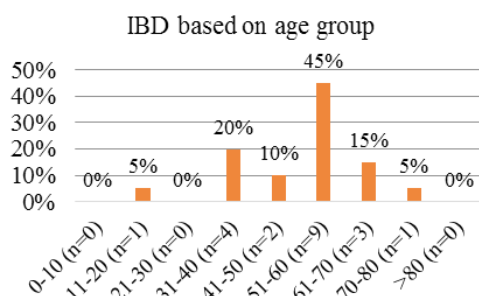


Figure 9. Inflammatory bowel disease (IBD) based on age group

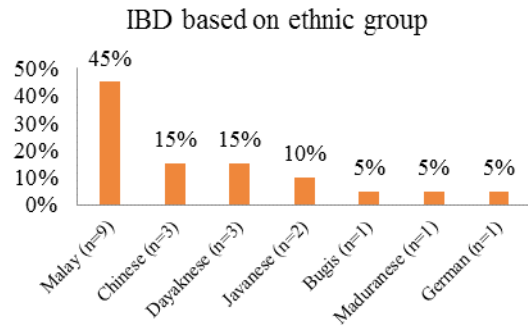


Figure 10. Inflammatory bowel disease (IBD) based on ethnic group

Colon polyps mostly found in female: 11 patients from 18 patients (60%). The most common age group suffered from colon polyps were age 51-60 years old and 61-70 years old, both of the group were equal in number: 6 patients (33%). The ethnic most commonly experienced colon polyps was Malay: 7 patients (39%). From all cases of colon polyps, the most common location of colon polyps was rectum 25%, followed by transverse colon with 21%, transversum 18%, ascending 14%, descending 11%, and caecum 4%.

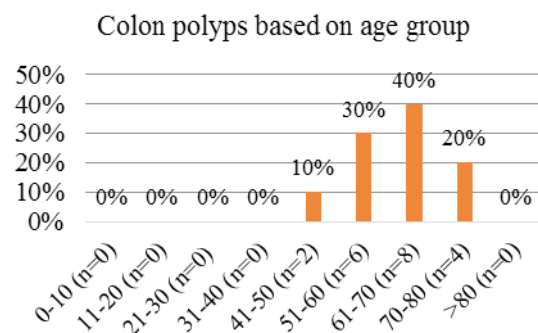


Figure 11. Colon polyps based on age group

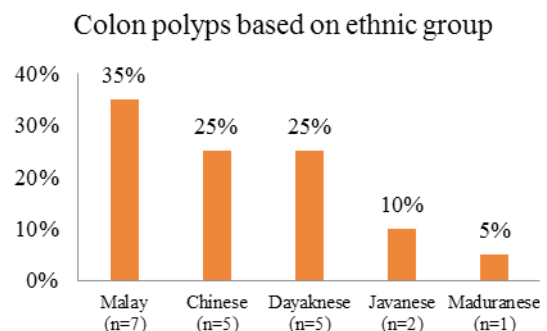


Figure 12. Colon polyps based on ethnic group

Mucosal sample biopsy were obtained in 50 colonoscopy patients (64%). Colonic biopsies showed 11 cases of adenocarcinoma, 6 cases of non-specific polyps and the remaining cases were 33 patients

with colon inflammation. In 11 cases of colon adenocarcinoma, there were 6 female patients (54%) and 5 male patients (46%). The age of patients with adenocarcinoma was between 31-40 years old 1 patient (4%), 41-50 years old 3 patients (27%), 51-60 years old 2 patients (18%), 61-70 years old 4 patients (37%) and 71-80 years old 1 patient (4%). The ethnic group with adenocarcinoma was Malay 7 people (64%), followed by Chinese 2 patients (18%) and Javanese and Dayaknese each 1 patient (9%).

**Table 6. Biopsy findings in colonoscopy patients**

Findings	n (%)
Colon inflammation	33 (66)
Adenocarcinoma	11 (22)
Colon polyps	6 (12)

The completion rate of colonoscopy examination at St. Vincentius Hospital conducted by the internists was 73%. There are 57 patients successfully reached the terminal ileum without any problems either from anatomical colon or equipment. The remaining 21 patients failed to reach the terminal ileum with various factors such as mass obstruction, patient demand and disturbances from the colonoscopy devices. The complication during and after colonoscopy was zero.

## DISCUSSION

There were 75% of total sample who underwent EGD and in this result was in accordance with Kaminang GA et al in Manado 2016 which mentioned that patients were more likely to have EGD.<sup>5</sup> Male became the most gender who had EGD than female. This finding was in agreement with Agustian H study that was done in Cipto Mangunkusumo Hospital Jakarta 2015.<sup>6</sup>

Malay becomes the most frequent ethnic to have EGD in comparison with Chinese contrary to common believe in Singkawang. It may be due Malay ethnicity patient's population in Singkawang, Sambas, Bengkayang and Mempawah who suffered from gastrointestinal complains. The result differs with Cipto Mangunkusumo Hospital Jakarta 2015 which showed that Javanese became the ethnic group who underwent EGD in Jakarta.<sup>6</sup>

Three major findings of EGD were erosive gastritis, esophagitis and gastric ulcer. These findings were similar with study at Cipto Mangunkusumo Hospital, Jakarta in 2015, where gastritis and erosive gastritis was the most major finding of EGD.<sup>6</sup>

Erosive gastritis in this study was most likely found in Malay despite the common assumption that

Singkawang is highly populated with Chinese ethnic. Comparing in China, erosive gastritis cases were mostly found in Chinese population.<sup>7</sup> Ethnic group with esophagitis were mostly found in Malay ethnic. The result somewhat diverts with Syam AF et al at Cipto Mangunkusumo Hospital Jakarta 2015 which showed that Javanese became the ethnic group who suffered esophagitis in Jakarta.<sup>8</sup>

The ethnic most suffered from gastric ulcers was Malay. This finding was different with Syam AF et al in 2015 which mentioned that incidence of gastric ulcers were more common among Papuan, Bugis and Bataknese ethnic than in Javanese, Chinese and Dayaknese.<sup>9</sup> The most common Forrest classification occurred was Forrest III. This was similar with Groenen MJM et al study in Netherland.<sup>10</sup> Forrest III was more common in Singkawang and its surrounding areas because EGD at St. Vincentius Hospital was majorly conducted after treatment of the acute phase of gastric ulcer.

The top common findings of EGD biopsy findings were gastric and duodenal acute and chronic inflammation, followed by *Helicobacter pylori* and malignancy. This finding was similar with Yulida E et al study in Banjarmasin 2009-2011.<sup>11</sup> *Helicobacter pylori* were mostly found in male (64%) compared with female (36%). Uwan WB et al with similar technic (biopsy) in Pontianak 2014-2015 reports different results about *Helicobacter pylori* in Pontianak in Dayaknese and Chinese ethnic groups, where the findings in Pontianak showed that female were fewer than male.<sup>12</sup> The most common age group with *Helicobacter pylori* were 51-80 years old. This finding also different with Uwan WB et al study in Pontianak, where the most common age of *Helicobacter pylori* was < 55 years old.<sup>12</sup> The most common findings of ethnic group who suffered *Helicobacter pylori* were Malay ethnicity. This finding was different with Sasidharan S et al in Peninsula Malaysia in 2011, where the most ethnic findings were Chinese and Indians compared to the Malay ethnic.<sup>13</sup>

Age group mostly underwent colonoscopy was 61-70 years old and the most common ethnic population who underwent colonoscopy was Malay compared to Chinese. The top common findings of colonoscopy were internal hemorrhoids, followed by colon mass, IBD and colon polyps. Our study diverted with the Riss S et al between 2008 -2009, 308 patients (38.93%) from 976 patients who involved in colorectal cancer screening were found to have internal hemorrhoids.<sup>14</sup>

The ethnic group who mostly suffered with colon mass in this study was Malay. Pantow RP et al study

in Manado 2017 showed that Minahasa ethnic as the most ethnic suffered from colorectal adenocarcinoma.<sup>15</sup> These findings were different from our research which may be due to differences in the proportion of ethnic in Manado and Singkawang. Colon mass biopsy from March 2017 to April 2018 found that there were 11 patients with carcinoma (22%). Pantow RP et al also reported colorectal cancer profile in 2017 in Prof. Dr. R. D.Kandou General Hospital and Siloam Hospital, Manado that found 41 cases of colorectal cancer (48.2%).<sup>15</sup>

IBD were mostly found in age group 51-60 years old. This finding had similarity with Pratama N et al study in Jakarta.<sup>16</sup> Malay was common ethnic group with IBD in our study which diverted from Wang YR et al in 2013 in the United States. It showed that there are 316 patients with IBD and more common in Caucasians than Asia.<sup>17</sup> To date, there are still no data about ethnic prevalence of IBD in Indonesia for us to compare. The most common finding of IBD in this study was pancolitis, this was similar with Pratama N et al.<sup>16</sup>

Malay was common ethnic group with colon polyps. The reason why colon polyps were mostly found in Malay ethnic probably due to subject ethnicity dominated with Malay. The most common predilection of colon polyps in this study was in the rectum and sigmoid. This was similar to the theory that the most frequent distribution of colon polyp was in the sigmoid and rectum colon.<sup>18</sup>

The completion rate of colonoscopy in Singkawang was 73% from 78 patients. The completion rate of colonoscopy in our study was still in accepted range of the literature whose colonoscopy completion rate varies from 55-98% .<sup>19</sup>

## CONCLUSION

Upper and lower gastrointestinal disorders in Singkawang, Sambas, Bengkayang and Mempawah according to patient's profile data who underwent endoscopy at St Vincentius Hospital were mostly found in male, age group between 51-70 years old and Malay ethnicity. Gastrointestinal endoscopy findings in esophagogastroduodenoscopy were mostly erosive gastritis and internal hemorrhoids in colonoscopy examination whereas internal hemorrhoid was excluded, colon mass became prominent as prominent disorder found in colonoscopy. The novelty of this study shows that Malay ethnicity becomes the ethnicity most suffered by upper and lower gastrointestinal

disorders according to endoscopy profile compared with other studies outside Singkawang, Sambas, Mempawah and Bengkayang.

## AUTHOR DISCLOSURES

The authors have no financial or commercial conflicts of interest in this work.

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