*Original Research Article*

# A Cross-Sectional Study to Assess the Spectrum of Physical Ailments among Gastrointestinal Tract Cancer Patients Undergoing Chemotherapy

**Khina Sharma[1], Sumit Kumar[2], Supriya[2], Tanya Gandhi[2], Tejeshwar Kaur[2], Vijaya Kumari[2], Simerpreet Kaur[2], Abhishek Yadav[1], Dr. Awadhesh Kumar Pandey[3]**

[1]MSc Nursing, Nursing Tutor, College of Nursing, Government and Medical College Hospital, Chandigarh
[2]B.Sc. Nursing, College of Nursing, Government Medical College and Hospital, Chandigarh
[3]Head of Department of Radiation Oncology, Government Medical College and Hospital, Chandigarh

Corresponding Author: Khina Sharma

## ABSTRACT

**Background:** Chemotherapy is the treatment of choice for cancer patients, which aims to destroy the cancerous cells. However, along with cancerous cells, normal cells are also affected which can result in specific physical ailments.

**Aim:** The purpose of present study was to investigate the spectrum of physical ailments among gastrointestinal tract cancer patients undergoing chemotherapy and to find association between these physical ailments with demographic variables of patients.

**Methods:** The study included 97 gastrointestinal tract cancer patients undergoing chemotherapy. Data was collected using interview technique consisting of sample characteristics and checklist for physical ailments.

**Results:** In present study, most prevalent chemotherapy induced physical ailments were nausea/vomiting (79.38%) and fatigue (78.35%) followed by weight loss (64.95%), oral ulcers and diarrhea.

**Conclusion:** In the present study, it was found out that, chemotherapeutic agents, in fact, can lead to occurrence of various physical ailments due to their effect on healthy cells. Early identification of these ailments is essential for nurses. Nurses can provide necessary health education to the patient, enabling the patient to self-care and to understand various possible ailments associated with chemotherapy. Complementary therapies provided by the nurse can help to reduce physical ailments arising due to chemotherapy.

*Key words:* Gastrointestinal tract cancer, Physical ailments, Nursing care, Chemotherapy, cancer nursing

## INTRODUCTION

The word 'cancer' has been procure from the Latin word 'crab', most certainly because cancer adheres to any body part or organ it invades in a stubborn fashion, like a crab. Although the term 'cancer' is widely used, but the generic term is 'Neoplasia', meaning new formation. The failures of the immune system to destroy uncontrolled growth of cells permit the growth of cells too large to be controlled by the immune system leading to cancer. [1]Gastrointestinal (GI) cancers collectively describe cancers that occur in digestive tract. GI cancers are accountable for more cancer-related mortality than any other type of cancer.[2] In the year 2018, GI cancers causes an estimated 3.4 million deaths globally, with a further 4.8 million new patients diagnosed in the same year.[2]

Chemotherapy is one of the treatments given to cancer patients, which aims to attack the cancerous cells. As these chemotherapeutic agents once enter the body, travel in the bloodstream through the body, and kills cancer cells at their sites, the

treatment is called as 'systematic treatment'. The drugs may rarely be predestined to have a local effect, but in most cases, these agents aim to destroy the rapidly dividing and growing cancer cells. Retardation of the growth of these cells will eventually result in their destruction including cancer as well as normal cells.[3] The side effects of chemotherapy depend on type of drug, dosage, frequency and its duration of administration. When chemotherapy damages the white blood cells, person becomes susceptible to infections. When the cells of digestive tract are affected, nausea, poor appetite, vomiting, constipation and diarrhea, mouth and lip sores are typical side effects.

A competent nurse should be able to recognize and apprehend the state of the patients suffering from gastrointestinal tract cancer patients who are undergoing chemotherapy. This treatment is a necessity for survival optimum level of health, but it has an effect on both the physiological and psychological facets of human life viz. sleep disturbances, nausea, stress, anxiety, vomiting, gastrointestinal disturbances and pain etc. the researchers have personally witnessed that most of the oncological clients undergo physical ailments like nausea, vomiting, fatigue, anemia, hair loss, weight loss, constipation, diarrhea, oral ulcers and metallic taste.

Various studies have shown similar effects. For instance, Newell S, et al. conducted a cross-sectional study in 1999 on "physical and psycho-social experiences of patients attending an outpatient medical oncology department" in Wallsend, Australia on 201 patients. The results recalled that: Fatigue, nausea, appetite loss and vomiting were the most commonly experienced and most debilitating physical symptoms. Approximately 25% of participants had borderline or clinical levels of anxiety and depression.[4]

According to a study conducted in 1997 by de Boer-Dennert M et al. stated that nausea, hair loss and vomiting are the three most distressing side-effects of chemotherapy. 80% of all the patients actually experienced nausea and 57% experienced vomiting.[5]

Chemotherapy is a tedious and bothersome treatment for the client at the receiving end and as a nurse; one should be empathetically able to understand the state of the patient, as this treatment affects both, the physiological as well as the psychological facet of human life.

## MATERIALS AND METHODS

Quantitative research approach was selected as the study was designed to assess the spectrum of chemotherapy related physical ailments among gastrointestinal tract cancer patients. Cross-sectional design was utilized to achieve the objectives. The study was conducted in Day Care and Oncology Ward of Radiation Oncology Department, Government Medical College and Hospital, sector -32, Chandigarh. Target population was gastrointestinal tract cancer patients undergoing chemotherapy in GMCH-32, Chandigarh. Consecutive sampling technique was used to select the available samples from the target population. Sample size was calculated and 97 patients were taken. Gastrointestinal tract Cancer patients undergoing chemotherapy, gastrointestinal tract cancer patients who are willing to participate and gastrointestinal tract cancer patients who can understand Hindi/English/Punjabi were included in the study.

Permission of conducting research study was taken from Ethical and research committee of Government Medical College and Hospital, Sector-32, Chandigarh. Permissions were taken from the head of department of radiation oncology and respective ward in-charges. Written informed consent from the patient was taken. Confidentiality and anonymity of subjects was maintained.
Tool was constructed and verified to collect data from the samples. It had 4 parts namely Part A- Questionnaire related to socio-demographic profile of patient.

Part B- Questionnaire related to Clinical profile of the patients

Part C- Questionnaire related to Personal profile of patients

Part D-Checklist for physical ailments

The Performa to assess the prevalence of chemotherapy related physical ailments among gastrointestinal tract cancer patients was prepared in Hindi, Punjabi and English. Consent was taken from each patient and their present relatives and interview method was engaged in collecting the data from the patients.

Data analysis was done in an agreement with the objectives of the study. The data analysis was done by using the descriptive and inferential statistics such as calculating frequency, mean, percentage, standard deviation and finding the association between variables.

## RESULTS

**Table 1: Frequency distribution of personal profile of study samples. N-97**

| Variable | Frequency (*f*) | Percentage (%) |
|---|---|---|
| AGE | | |
| <18 years | 04 | 04.12 |
| 18-50 years | 43 | 44.33 |
| Above 50 years | 50 | 51.55 |
| Mean ± S.D. ( Range) =50.2 ± 13.85 (17-80) | | |
| GENDER | | |
| Male | 50 | 51.55 |
| Female | 47 | 48.45 |
| PRESENT LIFESTYLE PATTERN | | |
| Sedentary | 76 | 78.35 |
| Mild worker | 16 | 16.49 |
| Moderate worker | 04 | 14.43 |
| Heavy worker | 01 | 01.03 |
| DIETARY PATTERN | 51 | 52.58 |
| Vegetarian (from last >10years) | 40 | 41.24 |
| Non-vegetarian (from last >10years) | 06 | 06.18 |
| Vegetarian+ Egg | | |
| FREQUENCY OF NON-VEG COMSUMPTION | | |
| Weekly | 29 | 29.90 |
| Monthly | 11 | 11.34 |
| Do not eat | 57 | 58.76 |
| TYPE OF NON-VEGETARIAN FOOD INTAKE | | |
| Chicken | 08 | 08.25 |
| Both red meat and chicken | 07 | 07.22 |
| All of the above combined | 25 | 25.77 |
| Do not eat | 57 | 58.76 |
| HISTORY OF SMOKING | | |
| Yes | 02 | 02.06 |
| No | 64 | 65.98 |
| Quit | 31 | 31.96 |
| HISTORY OF ALCOHOL INTAKE | | |
| Yes | 03 | 03.09 |
| No | 58 | 59.79 |
| Occasionally | 01 | 01.04 |
| Quit | 35 | 36.08 |
| MOBILITY | | |
| Ambulant | 76 | 78.35 |
| Difficulty in ADL | 21 | 21.65 |
| ACTIVITY PATTERN | | |
| Independent | 65 | 67.01 |
| Partially dependant | 28 | 28.87 |
| Fully dependant | 04 | 04.12 |
| BMI (weight in kg/height in metre$^2$) | | |
| <17.5 | 41 | 42.26 |
| 17.50-22.99 | 52 | 53.60 |
| 23.00-27.99 | 02 | 02.07 |
| 28 & above | 02 | 02.07 |
| Mean ± SD ( Range) =18.75 ± 3.349 (11.43-31.2) | | |

Table 1 shows the frequency and percentage of various socio-demographic variables of gastrointestinal tract cancer patients who were undergoing chemotherapy. According to above table it can be concluded that out of 97 samples majority of samples were above 50

---

years of age, 51.5% of them being males. Mean age of study subjects were mean ± S.D. = 50.2 ± 13.85 with range = 17-80years. More than one third of patients were non-vegetarian for more than 10years and about 26% patients used to take red meat as well as chicken. On assessment it was found that about 42% patients were underweight.

**Table 2: Frequency distribution of clinical profile of study samples.          N-97**

| Variable | Frequency (*f*) | Percentage (%) |
|---|---|---|
| TYPE OF GI CANCER | | |
| Ca. Oesophagus | 42 | 43.30 |
| Ca. Stomach | 12 | 12.37 |
| Ca. Liver | 06 | 06.19 |
| Ca. Gall bladder | 06 | 06.19 |
| Ca. Pancreas | 02 | 02.06 |
| Ca. Colon | 18 | 18.56 |
| Ca. Rectum | 06 | 06.18 |
| Ca. Anorectum | 04 | 04.12 |
| Ca. Appendix | 01 | 01.03 |
| STAGE | | |
| Stage I | 15 | 15.46 |
| Stage II | 49 | 50.52 |
| Stage III | 25 | 25.77 |
| Stage IV | 08 | 08.25 |
| GRADE | | |
| Low grade | 07 | 07.22 |
| Intermediate grade | 76 | 78.35 |
| Poorly differentiated | 14 | 14.43 |
| CO-MORBIDITIES | | |
| Diabetes | 04 | 04.12 |
| Hypertension | 07 | 07.22 |
| Others | 07 | 07.21 |
| Absent | 79 | 81.45 |
| TYPE OF TREATMENT | | |
| Chemotherapy only | 34 | 35.05 |
| Chemo-radiotherapy | 27 | 27.84 |
| Surgery& Chemotherapy | 27 | 27.84 |
| Surgery & Chemo-radiotherapy | 09 | 09.27 |
| DURATION OF DIAGNOSIS | | |
| < 6 months | 57 | 58.76 |
| 6m – 1yr | 31 | 31.96 |
| 1 – 2 yr | 07 | 07.22 |
| > 3 year | 02 | 02.06 |
| DURATION OF PRESENT TREATMENT | | |
| < 6 months | 72 | 74.23 |
| 6m – 1yr | 19 | 19.59 |
| 1 – 2 yr | 05 | 05.15 |
| > 3 year | 01 | 01.03 |
| DRUGS USED | | |
| Cisplatin(Yes) | 73 | 75.26 |
| No | 24 | 24.74 |
| 5 furouracil (Yes) | 91 | 93.81 |
| No | 06 | 06.19 |
| Oxaloplatin(Yes) | 34 | 35.05 |
| No | 63 | 64.95 |
| Plaxitine (Yes) | 03 | 03.09 |
| No | 94 | 96.91 |
| Carboplatin(Yes) | 04 | 04.12 |
| No | 93 | 95.88 |
| Others(Yes) | 04 | 04.12 |
| No | 93 | 95.88 |

Table 2 reveals that majority of the study samples had diagnosed with esophagus cancer (43.3%) followed by colon cancer (18.56%) whereas patient was suffering from appendix carcinoma. About half of the samples were having 2$^{nd}$ stage of cancer (50.52%) followed by 3$^{rd}$ stage (25.77%). Majority of samples had no history of co-morbidities. Chemotherapy alone was widely used as a treatment modality in 35% of samples. 57 samples were diagnosed with cancer in past 6 months and about 74% samples were undergoing treatment with duration less than 6 months. Only 7 samples had undergone any previous treatments. Both cell cycle specific and cell cycle non-specific drugs were used out of which

fluorouracil (93.81%), Cisplatin (75.26%) and oxaliplatin (35.05%) were the major chemotherapeutic drugs used.



**Figure 1: Chemotherapy induced physical ailments/ side effects in GI tract cancer patients**
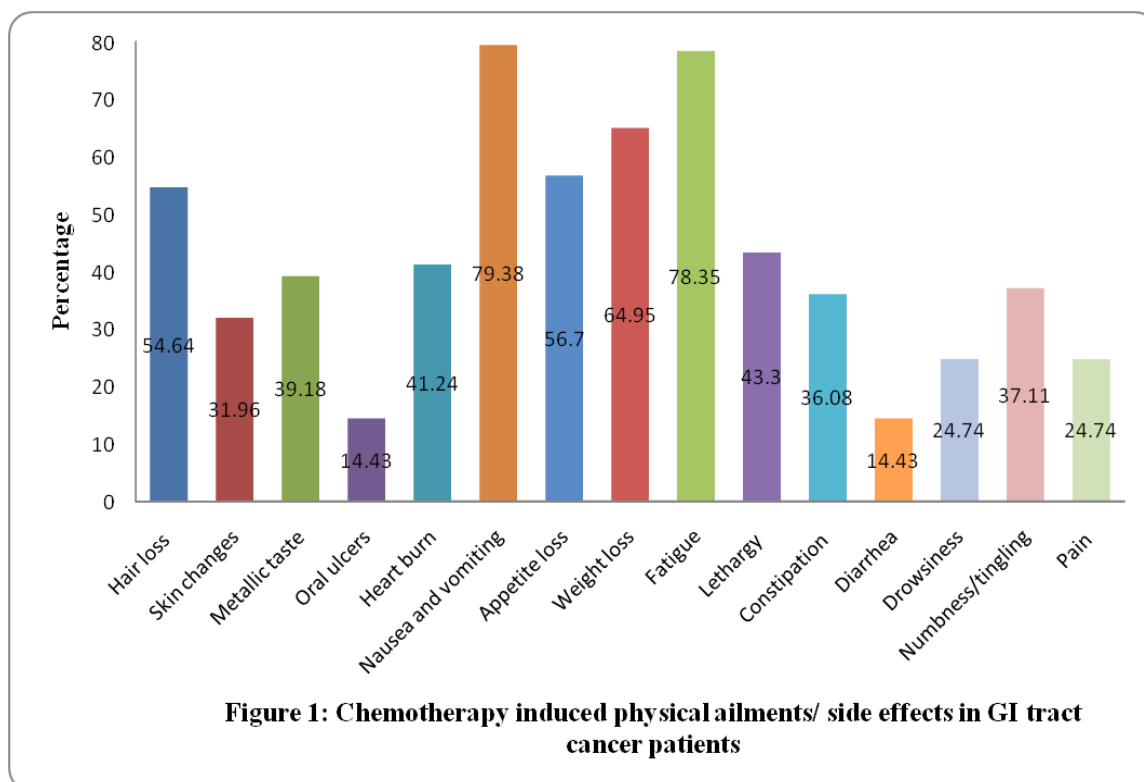
This figure depicts that physical ailment i.e. vomiting / nausea (79.38%) and fatigue (78.35%) were commonly found in GI patients undergoing chemotherapy followed weight loss (64.95%), alopecia (54.64%) and anorexia (56.70). Oral ulcer and diarrhea were found very less in GI tract cancer patients undergoing chemotherapy i.e. 14.43 each.

**Table 3: Association of patient's age with chemotherapy induced physical ailments.  N-97**

| Physical Ailments | <18 years f(%) | 18 - 50 years f (%) | >50years f(%) | Chi-square (df) p-value |
|---|---|---|---|---|
| Constipation | | | | |
| Yes | 02 (2.06) | 07 (07.22) | 27 (27.84) | 13.65* (2) 0.001 |
| No | 02 (2.06) | 36 (37.11) | 24 (24.74) | |

*Fisher's Exact Test

Table 3 depicts that statistically significant difference was found among age of the patient and constipation (p value 0.001). Out of 97 GI cancer patients majority of the patients who were suffering from constipation belong to age group more than 50 years (n=27, 27.84%). However, there was no statistically significant difference seen among age of the patients and other chemotherapy induced physical ailments.

**Table 4: Association of gender of the study samples with chemotherapy induced physical ailments.        N=97**

| Physical Ailments | Male f(%) | Female f(%) | Chi-square (df) p-value |
|---|---|---|---|
| Hair loss | | | |
| Yes | 20 (20.62) | 33 (34.02) | 8.923 (1) 0.003 |
| No | 30 (30.93) | 14 (14.43) | |
| Lethargy | | | |
| Yes | 16 (16.49) | 26 (26.80) | 5.366 (1) 0.021 |
| No | 34 (35.06) | 21 (21.65) | |

Table 4 showed that statistically significance difference were seen among gender of the patient with hair loss (p=0.003) and lethargy (p=0.021).It was found that hair loss was more in females (n=33, 34.02%) than males (n=20, 20.61%). In present study lethargy was more experienced by female (n=26, 26.80%) than male (n=16, 16.49%). There was no statistically significance difference was seen between gender of the patients and other chemotherapy induced physical ailment.

**Table 5: Association of duration of treatment with chemotherapy induced physical ailments.**  N-97

| Physical ailments | <6months f(%) | 6m – 1yr f(%) | 1 – 2 yrf(%) | > 3 year f(%) | Chi-square (df) p-value |
|---|---|---|---|---|---|
| Hair loss (alopecia) | | | | | |
| a) Yes | 34 (35.05) | 13 (13.40) | 05 (05.15) | 01 (01.03) | 7.751*(3).026 |
| b) No | 38 (39.18) | 06 (6.19) | 00 (00.00) | 00 (00.00) | |
| Fatigue | | | | | |
| a) Yes | 59 (60.83) | 12 (12.37) | 05 (05.15) | 00 (00.00) | 6.819*(3).048 |
| b) No | 13 (13.40) | 07 (07.22) | 00 (00.00) | 01 (01.03) | |

Table 5 revealed that statistically significance difference was seen among duration of treatment with hair loss (p=0.026) and fatigue (p=0.048). In the case of fatigue, out of 97, most of the patients (n=59, 60.82%) had duration less than 6 months whereas, 34 patients whohad duration of treatment less than 6 months experienced alopecia. There was no statistically significance difference was seen between duration of treatment and other chemotherapy induced physical ailments.

**Table 6:Association of grade of cancer with chemotherapy induced physical ailments.**  N-97

| Physical ailments | Low grade f(%) | Intermediate grade f(%) | Poorly differentiated f(%) | Chi-square (df) p-value |
|---|---|---|---|---|
| Numbness/tingling in hands/feet | | | | |
| a) Yes | 01 (01.03) | 26 (26.80) | 09 (09.28) | 5.825*(2).044 |
| b) No | 06 (06.19) | 50 (51.55) | 05 (05.15) | |

Table 6 represented that statistically significant difference was seen among grade of the cancer with numbness/tingling in hands/feet (p=0.044). There were no statistically significance difference was found among grade of cancer and other chemotherapy induced physical ailments.

## DISCUSSION

The aim of current study was to assess the spectrum of physical ailments among gastrointestinal tract cancer patients undergoing chemotherapy at Government Medical College and Hospital, Chandigarh; and to find association between spectrum of physical ailments and selected background characteristics. A face to face interview was conducted by developing a tool including questionnaire and checklist for data collection after the approval from Ethics Committee.

The findings of the present study revealed that the majority of gastrointestinal tract cancer patients were found of age group with (mean ± SD) 50.2± 13.85, above 50 year followed by age group of 18-50 years i.e. 44.32%. There were 50 male study subjects (51.5%) and 47 females (48.45%). Larger part of subjects had sedentary lifestyle patterns (n= 76). Ellison-Loschmann L et al. carried out a case-control study among stomach cancer patients, which comprised of Males (n=328, 50.8%) and females (n=317, 49.2%). Majority of participants were of age group above 65 years n=240 (37.2%) and 50-65 years n=238 (36.9%) followed by 35-50 years and 35 years.[6]

Present study also found that non – vegetarian dietary pattern is more common in gastrointestinal tract cancer patients (n=38, 39.18%) followed by Vegetarian dietary pattern with n= 29, 29.9%. Large number of patients had BMI ranging 17.50-22.99 (n=52, 53.60%) with mean ± SD 18.75 ± 3.349 (ranging from 11.43- 31.2). Similarly, a study conducted among stomach cancer patients, participants were

asked their weight and height to determine their BMI, categorized into <25 n=185 (28.7%) followed by 25-30 n=215 (33.3%) and >30 n=232 (36.0%).[7] Study subjects of the present study had a history of smoking and alcoholism out of which about 32% had quit and in latter 36% had quit consuming alcohol.

In current study, majority of samples had diagnosed with esophageal cancer (43.30%) followed by colon cancer (18.56%), gastric cancer (12.37%) whereas patient was suffering from appendix carcinoma. However, According to International Agency for Research on Cancer (IARC), stated that colorectal carcinoma is the most common type of cancer of gastrointestinal system. About 1.85 million new patients were diagnosed with colorectal carcinoma globally in 2018. It is third most common type of overall cancer after carcinoma of lung and breast. IARC also stated that gastric cancer and oesophageal cancer were ranked second and forth respectively after colorectal cancer in GI cancer according to their occurrence in 2018. According to WHO in India, according to number of new cases stomach cancer, oesophagus cancer and colon cancer were on 5th, 6th and 13th rank respectively.[2]

There were 35% patients in the present study, undergoing only chemotherapy treatment followed by chemo-radiotherapy; and surgery with chemotherapy having same percentage of 26.8%, more than 50% of patients were receiving present treatment from less than 6 months (n=72, 74.23%). Cell cycle specific and cell cycle non - specific drugs both were used for treatment of study subjects.

This study estimated the frequencies and percentages of physical ailments due to chemotherapy and compared with their demographic subgroups using chi-square test. The present study revealed common physical ailments experienced by gastrointestinal tract cancer patients undergoing chemotherapy, such as nausea and vomiting (79.38%), fatigue (78.35%), weight loss(64.95%), hair loss (54.64%), lethargy (43.3%), heartburn (41.24%) followed by metallic taste (39.18%), numbness (37.11%), constipation (36.08%), skin changes (31.96%), drowsiness (24.74%), pain (24.74%) and least experienced were diarrhea and oral ulcers (14.43%); whereas according to a prospective cohort study conducted in Australia 85% of the participants experienced fatigue followed by diarrhea and constipation both with 74%.[8] There's another study conducted in Northern Greece by Maria Lavdaniti, according to the study, the most ubiquitous physical symptoms were numbness or tingling in hands and feet (54%) accompanied by lack of energy (46%).[9]

The present study found that there was statistically significant difference between the age of study subjects with physical ailments such as constipation i.e. p= 0.001. There was statistically significant difference between sex and physical ailment hair loss (p=0.003) and lethargy (p=0.021). Also between duration of treatment with physical ailments such as hair loss and Fatigue i.e., p=0.026 and p=0.048 respectively and between grade of cancer with physical ailments such as numbness or tingling in hands and feet i.e., p=0.044. No statistically significant difference found between diagnosis, stage of cancer, dietary pattern, and co-morbidities with physical ailments.

## CONCLUSION

The present study was conducted on 97 patients suffering from various gastrointestinal tract cancers and according to the findings and analysis of the collected data; it was found out that, chemotherapeutic agents, in fact, can lead to occurrence of various physical ailments due to their effect on the cancer cells as well as the healthy cells of the human body. The estimation of symptoms experienced by cancer patients is essential for nurse, as this allows them to provide personalized nursing care. Nurse can provide necessary health education to the patient, enabling the

patient to care for self and to understand various possible ailments associated with chemotherapy. Complementary therapies provided by the nurse can help to reduce physical ailments arising in patients. Nurse with her knowledge can help the patient know that these ailments are short termed, i.e. they will start residing after the completion of the therapy, which can help lower the anxiety levels of patient as well.

## REFERENCES

1. Hinckle JL, Cheever KH.Handbook for Textbook of Medical-Surgical Nursing,14th edition, Wolters Kluwer(India) Pvt.Ltd., New Delhi:136
2. International Agency for Research on Cancer(IARC). Fact sheet, World Health Organization. [updated 2019 May; cited 2020 Jan 27] Available on: https://gco.iarc.fr/today/home
3. Devita VT, Lawrence TS, Rosenberg SA. Principles and practices of oncology, 10th edition. Lippincott:2139,2749,79.
4. Newell S, Sanson-Fisher RW, Girgis A, Ackland S. Physical and psycho-social experiences of patients attending an outpatient medical oncology department. European Journal of Cancer care. September 2006;8(2):73-82.
5. De Boer-Dennert M; et al. Patient perceptions of the side-effects of chemotherapy: the influence of 5HT3 antagonists.Br J Cancer. 1997;76(8):1055-61.Ellison- Loschmann L,
6. Losschmann L E, Sporle A, Corbin M, Cheng S, Harawira P, Gray M et al. Risk of stomach cancer in Aotearoa/New Zealand. PLoS One. 2017; 12(7): e0181581.
7. Lee JH, Park B, Joo J, Kook MC, Kim YI, Lee JY et al. Body mass index and mortality in patients with gastric cancer: a large cohort study. Gastric cancer. 2018 Nov;21(6):913-924
8. Pearce A, Haas M, Viney R, Pearson SA, Haywood P, Brown C et al. Incidence and severity of self-reported chemotherapy side effects in routine care: A prospective cohort study. PLoS One. 2017; 12(10): e0184360.
9. Lavdaniti M. Assessment of Symptoms in Cancer Patients Undergoing Chemotherapy in Northern Greece. Mater Sociomed. 2015 Aug;27(4):255-8

How to cite this article: Sharma K, Kumar S, Supriya et.al. A cross-sectional study to assess the spectrum of physical ailments among gastrointestinal tract cancer patients undergoing chemotherapy. International Journal of Science & Healthcare Research. 2020; 5(2): 151-158.

******