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Research Article

Positive-Effect (PE) of Biomedicines Song with Exercise (BMSWE) fit for Election-Duty (ED)-2026 on Aged Colorectal Major Surgery Chemotherapy (ACRMSCT) Follow-Up Patient (FUP) with Prolonged Side-Effects (PSE)

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Keywords: Positive-effect; Biomedicines-song-exercise; Fit; Election-duty; Aged-colorectal-major-surgery-chemotherapy-follow-up-cancer-patient-prolonged-side-effects

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Abstract

Introduction: The number of colorectal cancer survivors (CRCS) living with long-term chemotherapy (LTC) follow-up and patient treatment-related complications is rapidly increasing, with about two million new cases of colorectal cancer (CRCC) from 2022, out of two- thirds (2/3) of cancer cases in the world. There are numerous effective remedial approaches for CRCC with its complications after surgery and chemotherapy (CT) or radiation therapy (RT). Even gut microbiota metabolites affect CT in CRC and gastric cancer (GC) patients. Primarily, it uses personalized medicine (PM), common foods (CF), and immune-nutrition gut microbiota (INGM) in patients undergoing CRC surgery.

Objectives: To overcome these situations, the main objectives of the current study are to observe the positive effect (PE) of the biomedicine song with exercise (BMSWE) fit for the election duty 2026 on a 59-year-old (aged) colorectal major surgery chemotherapy follow-up patient with prolonged side effects (SE).

Methods: Biomedicine's mixture, sour, and chantey (BMMSC) are prepared from weeds, vegetables, fruits, and spices. The BMMSC serves a meal twice daily, with a 12h interval, every day, to the follow-up patient, who is associated with regular hearing song, morning walks, and some freehand exercises with an awareness-updated programme.

Result: Biomedicine song and walking exercises (BMSWE) for the aged colorectal cancer patient (CRCP) have a "positive effect (PE)" on improving quality of life and reducing more than 15 "unspecified side effects (USE)". The BMSWE offers many key benefits for managing post-chemotherapy (PCT) and post-surgical recovery (PSR) of severely affected long-term side effects (LTSE), including obesity.

Conclusion: The 'PE' of 'BMSWE' on a 59-year-old patient undergoing CRC major surgery, CT follow-up with prolonged side-effects (SE), reduces the intensity of more than 15 unspecified "Toxic-Effects (TE)", assuming like a healthy person, improving quality of life and reducing treatment-related uneasiness that misleads the doctors of the "Medical Board (MB)", suggesting or demanding physically "Fit for Election Duty 2026 (FFED)". But the 'Question' arises, "Election duty (ED) involves long hours, high stress, and often travel to remote polling stations, which may be challenging for a patient with prolonged side effects, i.e., persistent health issues where the "Treating Doctor (TD) / Surgical Oncologist (SO) cum Medical Director (MD)" advises "Not to Undergo Heavy Work for the Rest of Life". And the 'Election Commission (EC)' and the 'Medical Board (MB)', grant exemptions for "Medical Emergencies (ME)" or "Chronic Debility Complications (CDC)" that typically qualify for exemption three times previously from 2018.

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Abbreviations

PE: Positive Effect; BMSWE: Biomedicines Song with Exercise; ED: Election-Duty; ACRMSCT: Aged Colorectal Major Surgery Chemotherapy; FUCP: Follow-up Cancer Patient; CRCS: Colorectal Cancer Survivors; LTC: Long-Term Chemotherapy; BMMSC: Biomedicine's Mixture, Souring/Seasoning/Sauce, and Chantey; CRCC: Colorectal Cancer Cases; CT: Chemotherapy; RT: Radiation Therapy; GC: Gastric Cancer; PM: Personalized Medicine; CF: Common Foods; INGM: Immune-Nutrition Gut Microbiota; PCT: Post-Chemotherapy; PSR: Post-Surgical Recovery; LTSE: Long-Term Side Effects; TE: Toxic-Effects; PE: Positive Effect; SE: Side Effects; TD: Treating Doctor; EC: Election Commission; MB: Medical Board; MD: Medical Director; FFED: Fit For Election Duty; ME: Medical Emergencies; CDC: Chronic Debility Complications

Introduction

The number of Colorectal Cancer Survivors (CRCS) living with Long-Term Chemotherapy (LTC) follow-up patients and patient treatment-related complications is rapidly increasing. Colorectal cancer is the third most common cancer worldwide, accounting for approximately 10% of all cancer cases, predominantly affects individuals aged 50 and above, and is the second leading cause of cancer-related deaths worldwide [1]. Nearly two million new cases of Colorectal Cancer (CRC) (Figure 1) from 2022, out of two- thirds (2/3) of cancer cases in the world [1]. Carlile and McAdam report, "The Long-Term and Late Effects of the Diagnosis and Treatment of Colorectal Cancer" [2]. Global and regional cancer burden attributable to modifiable risk factors to guide prevention [3]. It is found in "Global Cancer Observatory: Cancer Today" [4]. Major postoperative complications following elective resection for colorectal cancer (Figure 1) decrease long-term survival but not the time to recurrence [5]. Efficacy and safety of oral 5-FU-based adjuvant chemotherapy in geriatric patients with colorectal cancer: Integrated analysis of seven clinical trials conducted at the "Japanese Foundation for Multidisciplinary Treatment of Cancer" [6]. So, the numerous effective remedial approaches for CRCC and their complications after surgery and chemotherapy (CT) or Radiation Therapy (RT) [1-6] or the "Colorectal Cancer: Therapeutic Approaches and Their Complications" [7]. The Coriolus (Trametes) versicolor mushroom may help reduce adverse effects from chemotherapy or radiotherapy in people with colorectal cancer [8]. Even gut microbiota metabolites affect CT in CRC and GC gastric cancer [9]. The impact of enteral immunonutrition on gut microbiota in patients with colorectal and gastric cancer during the preoperative period: Preliminary results of a randomised clinical trial [10]. Primarily, it uses Personalized Medicine (PM), Common Foods (CF), and immune-nutrition gut microbiota (INGM) in patients undergoing CRC surgery [10-17]. Biomedicine and biotechnology impact public health [18]. Progress in bioprinting and its potential also impacted health-related quality of life [19]. Datta (2022) is already seen in "Biomedicines-Meal-Physiology's Focused 'Global-Health Scientific-Technical-Research-Ecology Biodiversity-Wildlife-Conservation Issues'" [20]. He also reports, "Spices Tropical-Traditional-Bio-Medicines (STTBM) protect public health" [21]. Datta and Mukherjee (2022) note, "Only Biomedicines-Meals (BM) Act as the 'Preventive-Immunity Booster-Community-Vaccine (PIBCV)' Against 'Omicron' Enriching Global-Public-Health Forestry Agriculture Environment Biodiversity Wildlife Conservation Medical-Research Science Technology Communication Applications (GPHFAEBWCMRSTCA) [22] ?"

Objectives: To overcome these situations, the main objectives of the current study are to observe the positive effect (PE) of the biomedicine song with exercise (BMSWE) fit for the election duty 2026 on a 59-year-old (aged) colorectal major surgery chemotherapy follow-up cancer patient with prolonged side effects.

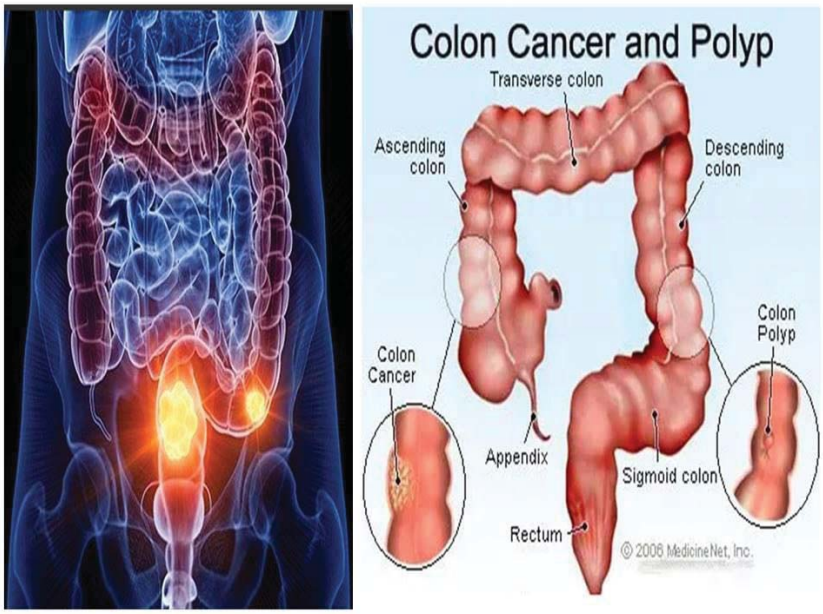

Figure 1: Position of colon cancer and polyp of a colorectal cancer (CRC).

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Materials and methods

Studies evaluating chemotherapy for major colorectal surgery investigate either neoadjuvant (preoperative) or adjuvant (postoperative) systemic regimens to improve survival and reduce recurrence. Patient selection strictly balances oncological stage with the patient's physiological fitness, aiming to administer treatment within 6 to 8 weeks post-operation. Colorectal oncology research uses a range of designs, from retrospective database cohorts to prospective, multicenter randomized controlled trials (RCTs). Evaluate chemotherapy following surgical resection. Studies typically stratify patients by tumor stage, gene status (MMR/MSI), and fitness scores before randomizing between different drug combinations (e.g., FOLFOX) or durations (3 vs. 6 months) [23a-23c].

Study Design (SD)

SD shows an overview of how the study met its main goals. It shows that FUCRCP is suitable for election duty after the SI MHBME approach in AO. The 59-year-old 9-year FUCRCP is the sample. Is the sample socially reputable? The first occurrence (FO) of CRC was on November 8, 2016, accompanied by symptoms. Where was the patient admitted? What types of treatments were given? What were the findings from the treatments? Is there necessary information about personal and family history (PPAFH)? What are the relevant regional and reputable options? What key factors should be evaluated? What essential questions should be asked of the surgeon? What tests exist for colon cancer (CC)? Is a consultation with oncologists required? Is it crucial to choose a colorectal cancer treatment team (CCRCTT) and a hospital? Is admission for final treatment and surgery necessary? After admission, there is an operation note, various reports, an opinion, a discharge summary after surgery (DSAS), a final diagnosis (FD), a treatment summary (TS), discharge advice (AD), a discharge summary after chemotherapy (DSACT), a final diagnosis (FD), a treatment summary (TS), advice on discharge (AD), and an estimate of the current position of the 9-Year FUCRCP. There are current global trends (CGT), the current clinical position and guidelines (CCPG), emerging technologies (ET), challenges of survivorship, side effects of the colorectal cancer follow-up patient (SE CRCFUP), long-term physical effects (LTPE), long-term survival and recurrence rates (LTSRR), and diagnostic tests for colon cancer follow-up patients. The Diagnostic and Surveillance Tests Chart (Years 6-10) outlines pathways to well-being (PWWB), opinions, a survivorship follow-up care plan (SFUCP), psychological well-being from social media platforms (PWBFSMP), managing follow-up care (MFUC), selecting biomedicine food (BMF), preparing biomedicine (PBM), walking with self-improvised mental-health-biomedicine-exercise (SI MHBME), physiotherapy (PT), BM awareness well-being (BMAW), tracing in advanced oncology (TAO), medical conditions and clinical trial protocols (MCCP), legally or administratively eligible criteria for mandatory civil Election Duty (ED), eligibility for FUCRCP to election duty (EED), key exemption rules and considerations (KERC), data analysis (DA), the procedure for applying for medical exemption in West Bengal, how mental strength reduces side effects, how to build psychological resilience, helpful resources (HR), essential questions to ask the MB, and follow-up on medical board (FUMB). All these factors are important for fully achieving the main objectives [1-7,11,13-15,17,23].

Inclusion and Exclusion Criteria (IEC)

Patient selection for clinical trials and treatment pathways follows standardized eligibility protocols [23-23e]:

Inclusion Criteria (IC)

Pathological Staging: Histologically confirmed Stage II or Stage III colorectal cancer.

Performance Status: An ECOG (Eastern Cooperative Oncology Group) score of 0 to 1.

Organ Function: Adequate bone marrow, renal, and hepatic function to tolerate toxicities.

Exclusion Criteria (EC)

Advanced/Metastatic Disease: Distant, unresectable metastases (unless the study specifically targets Stage IV).

Frailty/Advanced Age: Patients over 75 years old, or those unable to withstand intensive toxicities.

Comorbidities: Uncontrolled heart disease, renal dysfunction, or active infections.

Prior Malignancies: A history of previous cancers that could confound trial endpoints.

Chemotherapy Patient Selection Process (CTPSP)

Selecting patients for perioperative chemotherapy involves a multidisciplinary evaluation to maximize survival benefits while minimizing severe adverse events. The process includes [23c]:

Staging: Clinical and radiological staging is done to assess if the tumor is localized (Stage I-III) or advanced.

Histological and Genetic Profiling: Tumors are tested for microsatellite instability (MSI) or mismatch repair (MMR) deficiencies. High-risk Stage II and all Stage III patients are the primary candidates for adjuvant therapies.

Risk Stratification: For Stage II patients, chemotherapy is only recommended if high-risk clinicopathological features are present (e.g., T4 tumor, bowel obstruction/perforation, or <12 lymph nodes evaluated).

Treatment Timing: Adjuvant chemotherapy is typically initiated within 8 to 12 weeks following definitive surgery to prevent a drop in survival.

For a detailed review of colorectal cancer protocols and staging guidelines, consult the American Society of Clinical Oncology (ASCO) Guidelines or the National Institutes of Health (NIH) Surgical Management Resource [1-7,11,13-15,17,23-23g].

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Definition of the intervention "biomedicines song with exercise (BMSE)"

A biomedicine and exercise intervention is a structured, evidence-based health protocol. It seamlessly integrates pharmacological therapies with tailored physical activity to treat chronic illnesses. Often supported by digital health tracking, it optimizes biological responses when standard physical training alone is insufficient [23h-23l].

Standardized intervention framework

To maintain scientific rigor, this intervention is evaluated across four core components:

- **Biomedicine (Pharmacokinetics):** The precise application of biomarkers, pharmaceuticals, or exercise mimetics aimed at managing systemic diseases or metabolic deficiencies.
- **Exercise Prescription (FITT-VP):** A structured, personalized physical program defining Frequency, Intensity, Time, Type, Volume, and Progression.
- **Physiological Monitoring:** Real-time tracking of biological markers and functional metrics (e.g., heart rate variability, maximum oxygen consumption, systemic inflammation) to prevent overexertion.
- **Integrative Outcomes:** Standardized measurement of clinical endpoints like disease reversal, cardiovascular adaptability, and overall health-related quality of life [23h-23l].

To further understand the mechanisms and standards underpinning this integration, additional exploration into the field of "Translational Exercise Biomedicine" is recommended [23h-23l]. Expanding the scope, the following describes evolving applications involving "biomedicine music (BMM)": When the term "song" (or rhythm) is used in this context, it indicates a scientifically recognized intervention known as music-based movement therapy (MBMT) [23h-23p].

- **Neuro-modulation:** Synchronizing structured movement to specific auditory rhythms modulates neuronal electrical activity and stimulates the secretion of neurotrophic factors (like BDNF and IGF-1).
- **Ergogenic and Affective Benefits:** Listening to rhythm during physical exertion alters affective valence (the perception of "feeling good") and dampens central fatigue by coordinating large-scale brain networks.
- **Clinical Efficacy:** This pairing has shown significant promise in randomized controlled trials for managing depression, neurological rehabilitation, and improving adherence to physical activity in sedentary patients.

For a closer look at how synchronized music and cognitive-motor cues support neurological and musculoskeletal rehabilitation [23p]. A comprehensive and standardized definition for an intervention combining biomedicines, music, and exercise for colorectal cancer surgery and chemotherapy patients falls under Multimodal Rehabilitation and Integrative Oncology [23h-23p]. Standard clinical guidelines (like those from the European Society for Medical Oncology) and cancer rehabilitation literature define this intervention as follows:

Intervention Definition: A structured, multimodal perioperative plan that integrates supervised physical exercise, nutritional optimization, psychological support (often utilizing music therapy to reduce anxiety), and targeted pharmacology [23h-23p].

Standardized Core Components (SCCs)

Physical Exercise: Prescribed, supervised aerobic and resistance training. Current National Institutes of Health (.gov) guidelines recommend 150 to 300 minutes per week of moderate activity. This boosts physical reserve, reduces postoperative complications, and has been proven to improve disease-free survival after chemotherapy.

Music Therapy: Used during both pre-surgery preparation and during exercise or chemotherapy sessions to alleviate stress, regulate breathing, and distract from treatment-related fatigue and depression. Biomedicines/Pharmacology: Personalized use of medications to manage side effects, prevent chemotherapy-induced peripheral neuropathy, or improve body composition (e.g., whey protein, vitamin D)[23h-23p].

Evidence and Efficacy (EE)

- **Surgical Outcomes:** Multimodal programs initiated 4 to 6 weeks before colorectal surgery improve cardiorespiratory fitness and reduce the risk of postoperative complications.
- **Chemotherapy Support:** Studies show that exercise during adjuvant chemotherapy significantly mitigates cancer-related fatigue and depression.
- **Long-term Survival:** Research such as the CO.21 CHALLENGE study confirmed that 3-year structured exercise after chemotherapy significantly improves overall survival and reduces colon cancer recurrence rates.

For a deep dive into how exercise effectively modulates inflammation and immune responses during chemotherapy, one can explore the National Institutes of Health (.gov) review or the Research Gate meta-analysis [23h-23p].

Sample

Dr. Subhas Chandra Datta, a male pre-retired 59-year-old Indian President Awardee colorectal cancer patient (CRP) (Figure 2), five feet seven inches height (5'7"), average normal body weight 65-68kg, four months prior to onset of diseases, underwent major surgery (46kg) for colonic cancer (CC) and chemotherapy (CT) with unspecified prolonged side effects (USPSE), is the present clinical sample (CS). For long-term colorectal cancer survivors (LTCRCS), even nine years after surgery and chemotherapy, it is common to experience

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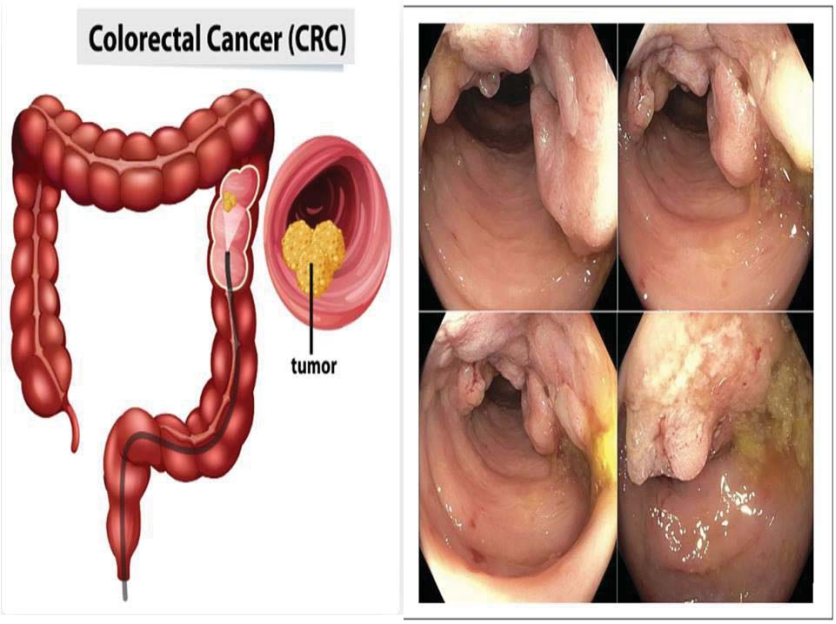

Figure 2: Colorectal tumors and polyp in the descending sigmoid colon.

persistent physical and emotional "late effects" [1-7,11,13-15,17,23-23p].

Biography or social reputation of the sample

Dr Subhas Chandra Datta, M.Sc., PhD, President Awardee, as an Innovative Researcher in various fields from 1993, Assistant Teacher and Headmaster of Kanchannagar at D.N. Das High School (HS) from 1996 to 2007 to date. Dr Datta has expertise in evaluation and a passion for improving health and wellbeing. His research interests include Healthcare, Biomedicine, Physiology, Education, Environment, Plant Protection, Agriculture, Pathology, Allelopathy, and Homoeopathy. His open, contextual evaluation model, grounded in responsive constructivism, creates new pathways to improve healthcare. His 1st-plant-based biomedicines in homoeopathic forms, 'Cina,' achieve the 'World's Top Most Articles' in the 'Public Medical Health of WHO'. His valuable work received a Patent under the Central Silk Board (CSB) in 2005. He is an honorary Member of different prestigious organisations. He achieved the National Award, National Mentor, Ideathon-'Vision 2040' (Rank 50 & Enlisted -Policy Forum of GoI), UK-India STEM Engagement and Learning Project, Siksharatna Award, Albert Nelson Marquis Lifetime Achievement International Award, Vidyasagar National Teachers Award, Biodiversity Conservation Award, International Scientist Award, International Scientist Best Research Award, and Article of Merit Award, etc. He has published more than 146 papers in reputable journals and has served as an editorial board member of repute. It proves that the sample is socially well-reputed (Google Search).

Understanding and Potentiality (UP)

It is very important to provide detailed information regarding the duration, frequency, and reproducibility of the intervention to facilitate better understanding and potential replication of colorectal cancer surgery follow-up patient (CRFUP). Colorectal cancer (CRC) surgical follow-up aims to detect recurrences and new polyps early. Guidelines from organizations, such as the American Society of Clinical Oncology (ASCO), recommend the following structured intervention over a 5-year period [1-7,11,13-15,17,23-230].

Frequency and schedule of interventions

- **History and Physical Examination (H&P):** Every 3 to 6 months for the first 2 years, then every 6 months for years 3 through 5.
- **Carcinoembryonic Antigen (CEA) Testing:** Blood biomarker tests every 3 to 6 months for 5 years.
- **Radiological Imaging:** Computed Tomography (CT) scans of the chest, abdomen, and pelvis performed annually for 3 years. For rectal cancer specifically, pelvic CTs are also evaluated based on individual risk.
- **Endoscopy (Colonoscopy):** Performed 1 year after primary surgery to ensure no metachronous polyps or synchronous lesions were missed. If the first 1-year follow-up colonoscopy is normal, a second is performed at year 3, and then every 5 years thereafter [1-7,11,13-15,17,23-230].

Duration of Follow-Up (DFU)

The active surveillance period typically lasts 5 years. This duration is based on clinical evidence that up to 90% of all colorectal recurrences occur within the first 2 to 3 years post-operation, and 90-95% happen within 5 years. After 5 years without recurrence, the risk decreases significantly [1-7,11,13-15,17,23-230].

Reproducibility

The intervention is highly reproducible across clinical settings, and it utilizes available medical technologies

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(blood panels, standard CT scanners, and colonoscopies). Standardization involves tracking changes in CEA levels and utilizing standardized imaging protocols. To ensure exact replication in an academic or clinical setting, refer to the American Cancer Society Colorectal Cancer Survivorship Care Guidelines or the full clinical specifications provided by the ASCO Endorsed Cancer Care Ontario Guideline [1-7,11,13-15,17,23-23h].

Statistical Methods Employed (SME)

It is advised to provide a more detailed description and justification of the statistical methods employed, ensuring their appropriateness for the data presented in the case study of a CRC follow-up patient, thereby enhancing the scientific rigor and analytical framework of this study. In clinical case self-studies of Colorectal Cancer (CRC) follow-up patients, statistical methods should combine descriptive summaries with rigorous time-to-event or diagnostic accuracy metrics. The choice of methods depends directly on the specific data being evaluated, such as biomarker trends, survival outcomes, or patient-reported metrics [23q-23u]. Only the treatment teams could specify which clinical variables or endpoints (e.g., CEA levels, survival status, or questionnaire scores) they are analyzing in this case study. They can help tailor or run the specific statistical tests. Depending on the specific objectives of the case study, one can employ the following localized, appropriate statistical methods:

Longitudinal Biomarker Analysis (e.g., CEA Tracking)

If the primary data focuses on tracking Carcinoembryonic Antigen (CEA) levels over multiple follow-up visits [23q-23u]:

- **Method:** Linear Mixed-Effects (LME) Models.
- **Justification:** LME models appropriately account for within-patient correlations (repeated measurements over time) and are robust enough to handle unbalanced data if a patient misses a scheduled follow-up or has irregular testing intervals.
- **Alternative:** If the data is purely binary (e.g., whether the patient developed a recurrence within 5 years), use Logistic Regression to calculate the Odds Ratios (ORs) associated with specific prognostic factors.

Time-to-Event (Survival) Analysis

For evaluating recurrence-free survival or overall survival from the date of surgical resection [23q-23u]:

- **Method:** Kaplan-Meier (KM) Survival Curves and the Cox Proportional Hazards Model.
- **Justification:** KM curves provide a transparent, visual summary of patient survival over the follow-up period. The Cox Proportional Hazards model is the gold standard in oncology case studies for assessing the impact of multiple covariates (e.g., tumor stage, age, adjuvant therapy) on the hazard of cancer recurrence or mortality

Diagnostic Accuracy (Test Sensitivity and Specificity)

If evaluating the effectiveness of a follow-up intervention, such as the utility of a screening tool to detect metachronous tumors [23q-23u]:

- **Method:** Receiver Operating Characteristic (ROC) Curves and calculating the Area under the Curve (AUC) alongside 95% Confidence Intervals.
- **Justification:** This allows for the evaluation of the trade-off between the true positive rate (sensitivity) and false positive rate (1-specificity) for biomarkers or scoring systems, proving the reliability of a diagnostic tool across different thresholds.

Patient-Reported Outcome Measures (PROMs)

When analyzing surveys regarding a patient's quality of life, anxiety, or platform usability [23q-23u]:

- **Method:** Non-parametric tests such as the Wilcoxon signed-rank test (for paired ordinal data at baseline vs. follow-up) or the Mann-Whitney U test (for independent groups).
- **Justification:** Patient-reported questionnaire scores are rarely normally distributed, making parametric alternatives (such as paired t-tests) inappropriate. Non-parametric methods evaluate differences in medians without relying on assumptions of a normal distribution.

Note: Here, only the diagnostic and surveillance tests of post-effects (PE) on patients undergoing chemotherapy for aged colorectal major surgery from years 6 to 10 have been plotted on a linear scale chart in Table 1, enhancing the scientific rigor and analytical framework of this self-clinical follow-up study [23q-23u].

Rationale Sample Size (RSS)

Here, the author himself enhances the scientific rigor and analytical framework of this self-clinical follow-up study, including a clear rationale for the sample size and, where applicable, a power analysis that is plotted on a linear scale chart in Table 1 [23q-23u].

Strengthening Relationship (SR)

Strengthening the analysis of the relationships between variables and outcomes to support this self-clinical follow-up study, more effectively identifying what is plotted on the linear scale chart in Table 1, and enhancing the scientific rigor and analytical framework of [23q-23u].

Challenges of survivorship

With the advances in completed treatment, the challenges of colorectal cancer (Figure 2) survivorship are the inferior quality of physical and mental life for CRC survivors compared with age-matched individuals without cancer after nine years [24]. These long-term effects of CT treatment can persist

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Table 1: Diagnostic and surveillance tests of post-effects (PE) on aged colorectal major surgery chemotherapy patients from the years 6 to 10.

Test / Procedure	Purpose	Frequency / Notes (By Year 9)	Remarks
Colonoscopy	Detecting new polyps (metachronous lesions) and checking previous anastomoses.	Required every 3 to 5 years. If your last screening around Year 4 was completely normal, a follow-up colonoscopy is typically due at Year 9.	Done with normal result.
Physical Exam & History	Assessing for unexplained weight loss, changes in bowel habits, and pelvic or abdominal symptoms.	Conducted annually by your oncologist or gastroenterologist.	Done with more than 20 abnormal unspecified side effects (USE) .
CEA Blood Test	Measuring Carcinoembryonic Antigen levels to screen for asymptomatic recurrences.	At Year 9, routine CEA testing is often optional or discontinued by many providers if imaging is clear, though it may still be ordered for high-risk patients.	Done with no abnormality.
CT Scans (Chest/Abdomen/Pelvis)	Comprehensive imaging for distant metastases.	Routine CT scans are typically discontinued after 5 years for Stage I-III patients unless new, concerning symptoms emerge.	Done with no abnormality.
PET Scan (Chest/Abdomen/Pelvis)	Comprehensive imaging for distant metastases.	Routine PET scans are typically discontinued after 5 years for Stage I-III patients unless new, concerning symptoms emerge.	Done with no abnormality

and include pain in limbs, rough source hands and feet, letter typing and writing digit, turnover pages, counting money, hold small thing, taking or eating food, uncontrolledly voice, speech discontinuation, tiredness, palpitation, memory loss, chronic fatigue, sleep difficulty, fear of recurrence, anxiety, depression, negative body image, sensory neuropathy, sensitivity, gastrointestinal problems, bowel dysfunction, urinary incontinence, general frailty, high blood pressure, lower heartbeat, hot feeling, uneasiness and sexual dysfunction, etc. [24-26]. Recently, it has been reported in the "Colorectal Cancer Statistics 2026" [25] and "Cancer Incidence Rising after Decades of Decline as Colorectal Cancer Shifts toward Younger Generations," a press report by the "American Cancer Society (ACS)" [26].

Choose Colorectal Cancer Treatment Team (CCRCTT)

It's very important to choose the CCRCTT and hospital (Figure 3) so that you feel comfortable with the cancer care team. After consulting openly with the eight eminent oncologists, like Dr. Manas Roy, Senior Consultant - Gastrointestinal Oncology & Surgical Gastroenterology, Narayana Health, RN Tagore Hospital, Dr Sourav Sau, Associate Prof. & Radiation Oncologist of BMCH, and Dr. Abhijit Chowdhury, MBBS, MD, and DM, renowned hepatologist and gastroenterologist in Kolkata, etc. with the help of the family doctor, Ex-Prof. of Burdwan Medical College & Hospital (BMCH), Purba Bardhaman, Dr. Tusar Kanti Batabayal, MBBS, MD (Cal), Senior Consultant Physician, Special interest in Cardiology and Diabetes (Reg. No.: 36198 (WB), Dr Narendranath Mukherjee,(MBBS, MS, MCh - Pediatric Surgery), general and pediatric surgeon of BMCH, Eminent Innovator Mr. Achintya Kumar Mondal, Secretary, of Oriental Association for Education & Research (OAER) & the Manager of Burdwan Model School, Dr. Chiranton Bose, Bachelor of Medicine, Bachelor of Surgery (MBBS), Medical Ex-Administrator of Saroj Gupta Cancer Centre & Research Institute, HOI & Administrator of CMRI Hospital, Kolkata, Dr. Ankur Banik, MBBS, MD (Medicine), MRCP (UK), DNB (Medicine), Reg. No.- 71101, Dr. Satyen Bhatterjee, Clinical In-Charge, and Souranyshu Bhatterjee, physiotherapist, of the BIM&LSc, Burdwan, and the Eminent Housewife Teacher & Ex-Administrator of Burdwan Model School, Mrs. Rupa Datta, with Dr. Datta's family member, and it is typically chosen a surgeon, medical administrator and medical oncologist who will serve as the lead physician. Eminent Inspiring Innovator Professor in the Dept. of Surgical Oncology, Dr. Arnab Gupta, MBBS (Cal), FRCS (Edin & Eng), FIAGES, [Registration: India-WB 49537 UK- 4562364 (Full), ASI: FL 12576, IASO: G 0036) Medical Director at the Saroj Gupta Cancer Centre and Research Institute (SGCCRI) (Figure 3) in Thakurpukur, Kolkata, and Ex-President of Indian Association of Surgical Oncology, Eminent Consultant Medical Oncologist & In-Charge - Dept. of Palliative Care also at the SGCCRI, Dr Rakesh Roy, MBBS, MD, ECMO, MSc, MBA, Dip. Pall Med (UK), PGDMLE (NLSIU), LLB, Exe Alumni IIMC, and Dr. Chiranton Bose, as Ex-Administrator of SGCCRI [1-8,23-25].

First Occurrence (FO)

In the 8th November 2016 at 8;30 am suddenly, Dr. Datta was admitted in the Burdwan Nursing Home, 27 Ramakrishna Road, Bardhaman town, with severe abdominal pain and swelling, progressively difficult bowel movements or foul air pass, rectal bleeding, and inability to pass stool, and stayed for seven day for different test one after another like digital X-Ray, Ultrasonography (USG), blood carcinoembryonic antigen (CEA), Complete Blood Count (CBC), liver function tests (LFT), urea, creatinine, fasting blood sugar / fasting blood glucose (FBS/FBG), CT -Scan, PET scan (Positron Emission Tomography), and colonoscopy, for the proper treatment under the house physician who also was called specialist doctors and surgeon for proper diagnosis. And ultimately, it was confirmed that the sigmoid colon was blocked with two big tumors with numerous polyps, and a colonoscopy sample was sent for a biopsy test. And the significant weight loss happened regularly from 68 kg to 60 kg within a week. They doubted the malignancy of CR tumors, and it might be due to the induction of chain-smoking nicotine [1-8,23-26].

Previous Personal and Family History (PPAFH)

It was noted that no history of sigmoid colon tumors or polyps had been found before four months ago, during a different routine test that included x-ray, ultrasonography (USG), electrocardiography (ECG), routine blood tests, and other tests. Seven members of the Datta family had died from

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Figure 3: Colorectal treatment hospital, treating doctor with patient and companion, and operation/surgeon team.

cancer. It might have activated the carcinogenic gene due to nicotine and a sedentary lifestyle from the administrative work. Nicotine may possess carcinogenic properties in mice and could be a potential carcinogen in humans [1,27-29].

Admission for final treatment

After receiving the biopsy report and consultation with oncologists, Dr. Datta was admitted for surgery on 25/11/2026 under Dr. Arnab Gupta at the Saroj Gupta Cancer Centre and Research Institute (SGCCRI) (Figure 3), Thakurpukur, Kolkata, for further confirmatory tests of the "biopsy positive colorectal tumors with malignancies", surgery, and treatments [29].

Operation note

Consultant: DR. ARNAB GUPTA,

Diagnosis: ca desc colon,

Plan and Operation Date: 28/11/2016

Surgical Team: DR. ARNAB GUPTA, DR. SANGHA MITRAJENA & DR, SUMAN UDATHA.

Anesthetists Team: DR. AJITESH GHOSAL, DR. PAROMITA SARKAR, DR. CHINUCHOWDHURY, & DR. SUDESHNA MONDAL.

Preoperative findings and staging: bleeding PIR, intermittent abdominal swelling, right side, constipation. On examination, a vague lump was palpable in the left side of the abdomen, no hepatomegaly, and no free fluid. Colonoscopy showed a colonic growth with two sigmoid polyps.

Type of Surgery: laparoscopic staging and a hemicolectomy.

Time of Surgery: From 11:00 am to 2:30 pm.

Type of Anesthetists: LA (Local Anesthesia).

Incision: midline vertical.

Operative findings

1. No free fluid,
2. Liver, peritoneal surfaces, omentum, and pelvis are free of tumor.
3. Large growth in the proximal part of the descending colon, the splenic flexure adhered to the retroperitoneal fascia, and
4. It was identified and preserved.

Procedure

Lap staging done, large growth prox part of the descending colon close to the spleen texture, which is fixed to the retro peritoneum, hence converted to an open procedure, desc colon mobilized in a lateral to medial direction prox up to mid transverse colon and distally up to recto sigmoid junction, inferior mesenteric vessels ligated, colon divided with a 10 cm proximal margin. After applying a bowel clamp and distally at the rectosigmoid junction using a GI linear stapler no 60, end-to-end anastomosis was done using a Gl circular stapler no. 33, leak test done, hemostasis secured, wash given, pelvic drain kept, wound closed in layers, rectus with loop PDS, skin with staplers.

Closure: Drains: pelvic.

Comments: Immediate post op recovery satisfactory, specimen proper-part of greater momentum- doughnuts sent for HPE.

Approximate blood loss: Minimum.

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Special instruments used: Laparoscopic, GI linear, and circular staplers.

Histopathology report (HPR)

Sample Date: 28/11/2016, and **Reporting Date:** 07/12/2016.

The histopathology report was done by Dr. MAITRAYEE SAHA, MD(PATH), Pathologist, and DR. PIYABI SARKAR, MD(PATH), Pathologist, with **Run Date & Time:** 07/12/2016 03:52.

Histopathology of tissue with HE Stain (full specimen)

Specimen:

(1) Colon and mesocolon,

(2) Proximal doughnut,

(3) Distal doughnut, and

(4) Greater omentum.

Procedure: Left hemicolectomy.

Tumor site: Descending colon.

Specimen size: Colon measures 30cm in maximum dimension.

Tumor size: 5 cm x 4 cm x 3 cm.

Tumor facility: Unifocal.

Microscopy

Histologic type: Adenocarcinoma.

Histological grade: Moderately differentiated with mucinous differentiation.

Slide: 11331-32-Section from one margin, l1333-34-Section from other margin,11335

Circumferential resection margin with growth (margin inked), 11336-40-Growth

11341-42-Normal appearing mucosa adjacent to growth,1 1343-Polyp,11344

Base of polyp, 1345- 50-Lymph node,1 1351-52-Proximal doughnut,1 1353-54

Distal doughnut, 1 1355-58A-B-Representative sections of omentum.

Microscopic tumour extension: Tumour extends up to the subserosa.

Mitotic rate: 5/i0 hpf.

Margins: Proximal: Free.

Distal: Free.

Circumferential: Free.

Lymphoid vascular invasion: Not found.

Perineural invasion: Not found.

Pathologic staging (pTNM): pT3NOMx.

Primary tumors (pT): pT3.

Regional lymph node (pN): pNO.

Distal metastasis: pMx.

Lymph nodes examined: 21, Lymph nodes involved: 0.

Additional pathological findings: Adenomatous polyp present.

Opinion

(1)Moderately differentiated adenocarcinoma of the colon with mucinous differentiation.

Stage -pT3NOMx,

(2) All margins are free,

(3) Lymph nodes are free (0/21),

Note: Sections from omental tissue (sections 11355, 11357/16) are pending.

SLIDE NO.: H-11331-11358B/16.

Discharge Summary After Surgery (DSAS)

Admitting Doctor: DR. ARNAB GUPTA,

Department: Surgery,

Date of admission: .23/12/2016, 12:39 pm.

Date of discharge: 27/12/2016.

Summary

i. This 48-year-old gentleman with carcinoma of the descending colon had undergone left hemicolectomy after laparoscopic staging on 28/11/2016.

ii. Now planned for adjuvant CT.

iii. Board decision: 2 weekly FOLFOX 4.

iv. 1st cycle adjuvant CT given on 24/12/2016.

v. Patient tolerated well.

vi. Patient discharged in stable condition.

Final Diagnosis (FD)

- Carcinoma of the left descending colon.
- Moderately differentiated adenocarcinoma of the colon with mucinous differentiation,

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- pT3N oMx.

Investigation: All reports given.

Treatment Summary (TS)

- D1 Inj. Oxaliplatin 140mg IV.
- D1 + D2 inj. Leucovorin 330mg IV.
- Inj. 5 FU 660mg I.V push.
- Inj. 5 FU1000mg I.V fusion with GCSF support.

Advice on Discharge (AD)

- High protein diet (Ensure protein powder 3 scoops twice daily),
- Syr Sucralfate 0.2 tsp three times daily x 2 weeks.
- UHID Tab Pan 40 1 tab twice daily before food x 2 weeks.
- Tab Urimax -D 1 tab once daily to continue.
- Cap BecosulZ 1 cap twice daily x 15 days.
- Tab Bifilac 1 cap thrice daily x 5 days.
- Lomotil 2 tab start & 1tab thrice daily.
- Tab Doral Plus 1 tab twice daily after food x 3 days.
- Admit after 2 weeks for 2nd cycle adjuvant CT on 06/01/2017 with blood R/E, Urea, Creatinine.

Discharge Summary After Chemotherapy (DSACT)

Admitting Doctor: DR. ARNAB GUPTA,

Department: Surgery,

Date of admission: .31/03/2017, 10:40 am.

Date of discharge: 01/04/2017.

Summary

(i) This 48-year-old gentleman with carcinoma of the descending colon had undergone left hemicolectomy after laparoscopic staging on 28/11/2016.

(ii) Now planned for adjuvant CT.

(iii) Board decision: 2 weekly FOLFOX 4. 2 cycles of FOLFOX given. But the patient is having loose stools and oral ulcers. Hence, the plan changed to modified CAPOX.

(iv) 6th cycle adjuvant CT (4th cycle Modified CAPOX given).

(v) Patient tolerated well.

(vi) Patient discharged in stable condition.

Final Diagnosis (FD)

- Carcinoma of the left descending colon.
- Moderately differentiated adenocarcinoma of the colon with mucinous differentiation,
- pT3N oMx.

Investigation: All reports enclosed.

Treatment Summary (TS)

- D1 Inj. Oxaliplatin 150mg IV.
- Tab. Capecitabine 3 tabs in the morning and 2 tabs in the evening.

Advice on Discharge (AD)

- High protein diet (Ensure protein powder, 3 scoops twice daily)
- Syr Sucralfate O 2tsf thrice daily x 2 weeks.
- Cap Becosul Z 1 cap twice daily x 15 days.
- Tab Pan 40 1 tab twice daily before food x 2 weeks.
- Tab Bifilac 2 tab thrice daily x 3 days and then SOS.
- 13 Tab Zofer MD sublingual thrice daily for 3 days, then SOS.
- Tab Lomotil 1 tab thrice daily for 3 days and then 2 tabs SOS.
- Admit after 2 weeks for adjuvant CT on 15.04.2017 with blood R/E, Urea, Creatinine.
- Hafoos cream.
- Candid M paint oral application.
- Tab. Orofer XT 1 tab once daily.
- Take Tab. Neurobion forte 1 tab twice daily.
- Thrombophobe ointment for LJA.
- Tab. Cacit 500mg - 3 tabs morning, 2 tabs evening for 14 days,
- Patient is fit for joining/resuming his normal duties.
- Tab. Neurobion forte 10mg - 1 tab once daily x 2 weeks.

Survivorship Follow-Up Care Plan (SFUCP)

It's very important to go to all the follow-up appointments (FUA). The follow-up exams (FUE), FU-treatment, and FU-test dates were: 06/01/2017, 24/01/2017, 14/02/2017, 21/04/2017, 17/05/2017, 30/06/2017, 03/07/2017, 04/08/2017, 08/12/2017, 12/01/2018, 09/10/2018, 26/04/2019, 08/05/2019, 17/05/2019, 15/11/2019, 20/05/2022, 12/04/2024, 17/01/2025, and 04/07/2025. The frequency of FU visits and tests will depend on the stage of cancer and the chance of it coming back. For the treatment of long-term side effects, patients were cared for by family doctors and specialist doctors. The intensity of side

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effects (SE) lasts after finishing the last 04/07/2025 follow-up treatments also [26-29].

Selection of Biomedicine Food (BMF)

Locally available nutritious BMF was selected to improve health and wellbeing to reduce SE during the FUT from 01/01/2023. Here, the selection of edible BM, weeds, vegetables, fruits, and spices was as follows [30-59] (Figure 4):

- **Weeds:** Amaranth, spinach, and coriander leaf/ seasonal available cost-effective leafy weeds.
- **Vegetables:** Okra, cowpea, tomatoes, brinjal, bottle gourd, potatoes, bitter gourd, lemon, onion, carrots, and beetroot / seasonally available cost-effective vegetables.
- **Fruits:** Cucumber, apple, orange, grapes, papaya, and banana / seasonally available cost-effective fruits.
- **Spices:** ginger, turmeric, and garlic.
- **Pulses:** lentils, chickpeas, dry peas, and various beans.
- **Diary product:** Curd.
- **Non-veg:** Eggs, fish, and chicken.
- **Drinks:** Tea and coffee.

These were selected biomedicines for reducing the intensity of SE [30-59].

Preparation of Biomedicine (PBM)

All BM consumption occurs at 12h interval every day, starting from 05/05/2023 to 05/05/2026, up-to-date with the CRCFUT [30-63].

- **Biomedicine's mixture (BMM):** The BMM is prepared of fresh or cooked weeds (one kinds), vegetables (three kinds), fruits (two kinds), and Spices (three kinds) in a ratio of 1:2:1:1 totaling 150g (one and half cup; viz. 150g = 25g amaranth + 50g cucumber + 25g cowpea + 25g okra+25g).

Dose: The BMM is consumed as BM-meals @150g total twice daily (during taking meals).

- **Pulses mixture biomedicine (PMBM):** The PMBM is prepared from cooked lentils, chickpeas, dry peas, and various beans (any two or three kinds in equal ratio totaling 40g of pulses) in 200-250 ml of water.

Dose: The PMBM is consumed as BM-meals @200-250 ml total twice daily (during a meal).

- **Non-veg biomedicine (NVBM)**: The NVBM is prepared by cooking an egg, or 50g of fish, and 100g of chicken (any one kind).

Dose: The NVBM is consumed as BM with a meal once daily.

- **Sour biomedicine (SBM):** The SBM is prepared by 20g of tamarind per 50-60 ml of hot water.

Dose: The SBM is consumed once per day, @ 50-60ml with a meal.

- **Green chantey biomedicine (GCBM):** The GCBM is prepared by mixing and crushing or grinding coriander leaf (10g), tamarind (10g), ginger (5g), garlic (5g), chili (2- 5 g), and sugar (2- 3 g), dissolving in 20-25 ml of water.

Dose: The GCBM is consumed @ 20-25ml once daily with a meal.

Figure 4: Some biomedicine food (BMF) for CRCFUP.

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- **Diary product biomedicine (DPBM)**: It is prepared from 200ml of milk, forming 100ml of curd BM.

Dose: The curd DPBM is consumed @100ml/day.

- **Lemon water biomedicine (LWBM):** The LWBM is prepared by dissolving 20 drops of lemon juice dissolved in 250 ml of drinking water.

Dose: The LWBM is drunk @ 250ml/day after a meal.

- **Drinks biomedicine (DBM):** Tea (5g -one teaspoon) and coffee (2g, one and a half teaspoon) –DBM is prepared by dissolving with 100-150ml hot water (a cup). Milk (25g) and sugar (10g) may be added.

Dose: Tea and coffee -DBM may be taken @ 100-150ml (a cup) 2-3 times daily.

- **Fruits biomedicine (FBM):** The FBM is prepared from 200g of apples, oranges, papayas, bananas, or grapes.

Dose: The apples, oranges, papayas, bananas, or grapes-FBM is eaten @200g after a meal per day.

- **Biomedicines Song with Exercise (BMSWE):** Though there is no direct effect of BMSWE, it has some indirect PE. So it is very important to choose BMSWE [64-78].

Selection of BMSWE

The BMSWE is selected by experts, singers, physiotherapists, and doctors, in consultation with CRCFUP (patients), for "Music Therapy (MT) and Tailored Music-Listening (TML) and Free Hand Exercises with Walking (FHEWW) including aerobic and resistance training".

Dose: The dose of BMSWE will depend on energy and availability of space or time for the follow-up patient, who is associated with regular morning walks and some freehand exercises with song [64-80].

Biomedicines awareness wellbeing (BMAW)

The BMAW is developed by the public awareness and wellbeing, particularly through the lens of modern biomedicine for the colorectal cancer symptoms include avoiding risk factors, maintaining a healthy lifestyle, and participating in screening programs of early detection disease CRFUP, and it is the new diagnostic and therapeutic approaches like high-diluted-or ultra-high-diluted-Biomedicines, environmental factors, gut microbiota, and visual performing arts reducing stigma and improve mental health literacy, focusing on the use of personalized, and high-precision treatments and increase immunity gets a boost from a surprising place — breakfast, and neuro-immune interactions in gastrointestinal oncology: mechanisms, challenges, and therapeutic potential, and lastly, technological mourning after AI updates: mental health and well-being in the GPT-4o/GPT-5 transition also [81-90].]

Results

Table 1. Diagnostic and surveillance tests of post-effects (PE) on aged colorectal major surgery chemotherapy patients from the years 6 to 10 show more than 20 abnormal, unspecified side effects (USE).

Table 2 shows the pre- and post- effects on aged colorectal major surgery chemotherapy follow-up patients (ACRMSCTFUP).

Unspecified Side Effects (2017 to 2026)

After surgery and chemotherapy, follow up with the patient from 2017 to 2022:

- The average body weight of a 48-year-old, 5.7 feet, CRP was 46kg just before surgery in 2016; 6 months before (May, 2016), the average body weight was 65kg, and the average body weight was within 63 kg to 65 kg in 2015, in a healthy condition (control).

- The lowest body weight of CRCTP was 42kg in 2017. The body weight of the CRFUCP gradually increased from 58kg in 2018 to 86kg in 2022 (overweight or obesity).

- The CRP symptom before surgery was vigorous in bowel dysfunction, Constipation, and Pain; medium in chronic fatigue, mental health/upset, body image, and fear/anxiety/overexertion; low in sleep difficulty.

- The 25 symptoms of SE increased from 2017, just after CT, to 2022, vigorous to high, except urinary problems and diarrhea or loose motion.

After the application of biomedicine, song walking exercises from 2023 to 2026

- Biomedicine song and walking exercises (BMSWE) for the aged CR-patient have a "positive effect (PE)" on improving quality of life and reducing all 25 "unspecified side effects (USE)" from 2023 to 2026.

- The BMSWE offers many key benefits for managing post-chemotherapy (PCT) and post-surgical recovery (PSR) of severely affected long-term side effects (LTSE), including obesity, on decreasing quality of life and increasing treatment-related toxicity, which is not the physical demands of "Election Duty 2026".

Mental strength and psychological resilience (MSPR)

Only MSPR is very much effective in reducing the physical and emotional side effects of colorectal cancer (CRC) follow-up patients, especially chronic fatigue, anxiety, depression, and gastrointestinal issues, ultimately significantly boosting overall quality of life. The psychological attitude and cognitive impacts on user well-being within human–AI systems also. The activities, such as positive attitudes in every aspect of behavior, public communications/interactions, project-based, various innovative programs, article writing, and nature study, improve MSPR.

Discussion

The average body weight of a 48-year-old, 5.7 feet, CRP was 46 kg just before surgery in 2016; 6 months before (May,

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Table 2: Pre-and Post- Effects on Aged Colorectal Major Surgery Chemotherapy Patient.

Sl. No.	Physical Condition	Healthy (Control) 63-65 kg (Ava.)	Before Surgery	After Surgery and Chemotherapy Follow-Up Patient: 2017 to 2026 After Application of Biomedicine Song Walking Exercises: 2023 to 2026									
			Effects	Unspecified Side Effects (2017 to 2026)									
	Symptom	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
		68kg	46kg	42kg	58kg	65kg	79kg	82kg	86kg	82kg	80kg	73kg	72kg
1.	Bowel Dysfunction	M	V	V	V	V	V	V	H	H	M	M	L
2.	Peripheral Neuropathy	A	A	V	V	V	V	V	V	V	H	H	M
3.	Chronic Fatigue	A	M	V	V	V	V	V	V	V	H	H	M
4.	Sexual Dysfunction	A	A	V	V	V	V	V	V	V	H	M	L
5.	Urinary Problems	A	A	V	V	H	M	M	M	M	L	N	A
6.	Bone and Heart Health	A	A	V	V	H	H	H	H	H	M	M	L
7.	Chemo Brain	A	A	V	V	V	V	V	V	V	H	H	M
8.	Mental Health/Upset	A	M	V	V	V	V	V	V	V	H	M	M
9.	Body Image	A	M	V	V	H	H	H	H	H	M	M	L
10.	Speech Continuation	A	A	V	V	V	V	V	V	V	H	H	M
11.	Sleep Difficulty	M	L	V	V	V	V	V	V	V	H	M	M
12.	Fear/ Anxiety/Overexert.	A	M	V	V	V	V	V	V	V	H	H	M
13.	Memory Loss/Coordinat.	A	A	V	V	V	V	V	V	V	H	H	M
14.	Diarrhea/Loose motion	M	A	V	V	H	M	M	M	M	L	L	N
15.	Constipation	M	V	V	V	V	V	H	H	H	M	M	L
16.	Pain	A	V	V	V	V	V	H	H	H	H	H	M
17.	Hot Feeling	A	A	V	V	V	V	H	H	H	M	M	L
18.	Writing/Typing	A	A	V	V	V	V	V	V	V	H	H	H
19.	Holding/Gripping	A	A	V	V	V	V	V	V	V	H	H	M
20.	Voice Control	A	A	V	V	V	V	V	V	V	H	H	M
21.	Palpitation/Low heartbeat	A	A	V	V	V	V	V	V	H	M	L	L
22.	Turnover Pages	A	A	V	V	V	V	V	V	V	H	H	H
23.	Counting Money	A	A	V	V	V	V	V	V	V	H	H	H
24.	Vomiting/Uneasiness	A	A	V	V	H	M	M	M	M	L	L	N
25.	Pressure/Sensitivity	A	A	V	V	V	V	V	V	V	H	H	H

Abbreviations: V: Vigorous; H: High; M: Medium; L: Low; N: Negligible; A: Absent.

2016), the average body weight was 65kg, and the average body weight was within 63kg to 65 kg in 2015, in a healthy condition (control). It means that CRCP rapidly reduced body weight to a healthy condition (Control), but tumor and polyp growth were vigorous within six months. It may be due to excessive smoking, i.e., nicotine induction rapidly, or due to a family history of cancer-causing gene, or may be a sedentary habit due to administrative official work by sitting, or may be due to food habit or lifestyle [1-7,9-11,13,15-19,23-28,55-56,58-59,62-63,65-67,69-83,89].

The lowest body weight of CRCTP was 42 kg in 2017 due to surgery and a high dose of CT. The body weight of the CRFUCP gradually increased from 58kg in 2018 to 86 kg in 2022 (overweight or obesity). It is supported by the statement of Dr. Harsh Shah, GI and HPB Oncosurgeon, who says, "Body Weight May Affect Survival After Colon and Rectal Cancer," and by Body mass index and colorectal cancer recurrence and mortality: A nationwide cohort study in Denmark [91-94].

Weight Gain Trend (2018–2022) show that, contrary to typical weight loss, a substantial proportion of colorectal cancer patients (up to 50% or more) actually gain weight during and after adjuvant chemotherapy, often increasing from a normal weight to over 58kg and up to 86 kg (classified as overweight or obese, with BMI suggesting that weight gain during and after colorectal cancer treatment is a significant trend, sometimes resulting in a mean weight increase due to; Treatment Side Effects due to CT, steroids, and decreased physical activity can lead to increased body fat, Fluid Retention due to the accumulation of third-space interstitial fluid, and Metabolic Changes combined with dietary changes, can result in increased fat mass [95].

The CRP symptom before surgery was vigorous in bowel dysfunction, constipation, and pain; medium in chronic fatigue, mental health/upset, body image, and fear/ anxiety/overexertion; low in sleep difficulty. It is due to the high symptom burden, particularly in physical and functional areas, before surgery, which is typical for patients with colorectal cancer. The bowel dysfunction (BDF) changes in stool consistency (diarrhea/constipation), fecal incontinence, or a feeling of incomplete emptying. Constipation is a very common pre-surgical symptom often linked to physical obstruction by the tumor and polyps. The severe pain presents as abdominal pain, cramps, or rectal discomfort. Chronic fatigue is associated with hidden, long-term internal bleeding, mental health/upset due to emotional distress regarding the diagnosis and upcoming treatment, which often dissipates after surgery, body image concerns, the pre-operative anxiety related to potential surgical changes (e.g., stoma), and fear/ anxiety/overexertion, which is associated with high levels of emotional distress and physical limitations on daily activity. And low-severity sleep difficulty due to fatigue is present; sleep disturbance is reported as a lower-tier symptom before surgery. Preoperative symptoms often revolve around the physical presence of the tumor (bowel changes, pain) and emotional distress (anxiety). These issues

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often decrease within 3 months post-surgery, while some (like fatigue) may persist during recovery [1-7,9-11,13,15-19,23-28,55-56,58-59,62-63,65-67,69-83,89-96].

The 25 symptoms of SE increased from 2017, just after CT, to 2022, vigorous to high, except for urinary problems, diarrhea, or loose motion. This self-observation of 25 symptoms, including fatigue, neuropathy, and cognitive difficulties, shows an increase in intensity (from vigorous to high) from 2017 to 2022—5 years post-chemotherapy—which aligns with studies on long-term cancer survivorship, where certain symptoms persist or develop late. While acute side effects often subside, chronic effects such as neuropathy, fatigue, "chemo brain," and joint pain can worsen over time. It is reported that the exclusion of urinary issues and diarrhea/loose motion is less common among persistent, long-term, increasing symptoms [1-7,9-11,13,15-19,23-28,55-56,58-59,62-63,65-67,69-83,89-96].

Key long-term symptoms increasing (2017-2022)

- **Fatigue and physical weakness:** Often the most persistent symptom, with studies showing significant increases in fatigue 5 years after treatment.
- **Peripheral neuropathy:** Nerve damage (tingling, numbness) can worsen or persist for years.
- **Cognitive impairment ("Chemo Brain"):** Memory loss, poor concentration, and difficulty focusing can continue or worsen for years, particularly.
- **Musculoskeletal pain / joint stiffness:** Aromatase inhibitors or general metabolic changes post-chemo often lead to increasing joint and muscle pain.
- **Weight gain / metabolic changes:** A persistent increase in body mass, often as fat rather than muscle, is common 5 years post-treatment [1-7,9-11,13,15-19,23-28,55-56,58-59,62-63,65-67,69-83,89-96].

Symptoms that remained stable or decreased

- **Diarrhea / loose motion:** Acute bowel changes often resolve after the intestinal lining repairs itself, unlike neuropathy.
- •**Urinary issues:** While bladder damage can be a late effect, chronic urinary dysfunction is often less common than chronic neurotoxicity or fatigue [1-7,9-11,13,15-19,23-28,55-56,58-59,62-63,65-67,69-83,89-96].

Factors contributing to increasing symptoms:

- **Persistent inflammation:** Chronic activation of the immune system after cancer treatments.
- **Accelerated aging:** Cancer treatments may cause biological aging to accelerate, resulting in more frailty, joint issues, and fatigue years later.
- **Cumulative toxicity:** The combined impact of chemotherapy, surgery, and long-term hormone therapy [1-7,9-11,13,15-19,23-28,55-56,58-59,62-63,65-67,69-83,89-96].

After application of biomedicine song walking exercises from 2023 to 2026

Biomedicine song and walking exercises (BMSWE) for the aged CR-patient have a "positive effect (PE)" on improving quality of life and reducing all 25 "unspecified side effects (USE)" from 2023 to 2026. It reported that regular walking exercises significantly improve health-related quality of life and substantially reduce cancer-related fatigue in older patients with colorectal cancer. According to long-term clinical data from the 2026 ASCO Gastrointestinal Cancers Symposium, implementing a structured walking routine 6 to 12 months post-diagnosis reduces long-term symptom burden [97-98].

While music interventions like "biomedicine songs" or music therapy) They are known to lower psychological anxiety; the explicit claim that they eliminate exactly "25 unspecified side effects" from 2023 to 2026 is a generalization. Instead, robust medical trials confirm clear, targeted improvements in specific physiological and functional domains [72].

Core benefits of walking for aged colorectal patients

- **Fatigue reduction**: Lowers severe post-treatment exhaustion scores significantly within a 24-month recovery window.
- **Survival improvement**: Reduces the relative risk of cancer recurrence by 28% and the risk of overall mortality by 37%.

Functional capacity: Enhances mobility and cardiovascular endurance, as proven by the Six-Minute Walk Test (6MWT).

Mental health: Alleviates underlying depression and anxiety when paired with standard post-operative care [97-98].

The BMSWE offers many key benefits for managing post-chemotherapy (PCT) and post-surgical recovery (PSR) of severely affected long-term side effects (LTSE), including obesity, decreased quality of life, and increased treatment-related toxicity, which is distinct from the physical demands of "Election Duty 2026". Based on oncology literature, exercise interventions during and after cancer treatment are widely recognized for managing severe, long-term side effects, including obesity, decreased quality of life, and treatment-related toxicity [100-102].

Key benefits of exercise in cancer recovery

- **Combating treatment-related side effects:** Regular, tailored exercise is crucial for reducing chronic fatigue, mitigating chemotherapy-induced peripheral neuropathy (numbness/tingling), and counteracting muscle loss (cachexia).
- **Managing obesity and metabolism:** Exercise helps manage weight gain and improves insulin sensitivity, which is often severely affected by hormone therapies and sedentary recovery.

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- **Improving quality of life:** Structured activity improves cardiovascular function, functional capacity, and mental well-being, allowing survivors to resume normal daily activities.
- **Enhancing treatment efficacy:** Evidence shows that exercise can make cancer treatment more effective by reducing the need for dose reductions and supporting the body through chemotherapy and surgery [103-105].

Specific approaches

Tailored exercise (adapted physical activity - APA): Interventions should be individualised to patient preferences, disease, and symptom levels.

Combined modalities: A mix of moderate-intensity aerobic training (walking, swimming) and resistance training is most effective.

Role of music: Combining exercise with music therapy is a proven behavioral strategy for reducing fatigue and boosting adherence to recovery protocols [105-107].

Physical demands of election duty

The recovery-focused exercises are designed for rehabilitation, focusing on gradual improvements to functional capacity rather than the high-stress, endurance-based physical demands of "Election Duty 2026", which would likely be contraindicated during active, severe recovery [108].

Impact of election-duty-2026

Election-Duty-2026 to aged colorectal major surgery chemotherapy follow-up with prolonged side effects (ACRMSCTFUWPSE) impact is not expected. Despite this expectation, the context of "Election-Duty-2026" in West Bengal, scheduled for 23rd April and 29th April 2026, still presents significant logistical and physical challenges for aged colorectal cancer patients undergoing chemotherapy follow-ups. While essential medical services technically remain operational on polling days, the deployment of health staff and general election-related disruptions in the state can cause critical interruptions in cancer care [109-111].

Key impacts on aged colorectal patients (2026)

Interrupted care and follow-ups: Due to the high-stakes West Bengal election, there have been instances where medical staff were drafted for poll duty, potentially affecting the availability of specialist consultations at government facilities. Patients might find it harder to get prompt appointments for postoperative follow-ups or chemotherapy tracking.

Logistical challenges and access: The 2026 election environment may create transportation hurdles, making it difficult for weak or elderly patients to attend follow-up appointments.

Prolonged side-effect management: Aged patients already suffering from complications (e.g., bowel dysfunction, peripheral neuropathy, fatigue, or stoma issues) might find it challenging to access timely care for these late effects.

Psychological distress: The combination of managing a cancer recurrence fear and the high-stress environment of an election can increase anxiety and emotional fatigue [109-111].

Exemption process for cancer patients

For the 2026 West Bengal Legislative Assembly Elections, polling personnel suffering from serious medical conditions, such as cancer, are eligible for exemption from election duty. A specialized "Medical Board (MB)" is typically constituted at government medical colleges, including "Burdwan Medical College and Hospital (BMCH)", to evaluate these exemption requests [109-112]. According to Election Commission guidelines, the following categories are generally considered for exemption:

- **Serious ailments:** Cancer, heart surgery, or those undergoing dialysis.
- **Near retirement:** Personnel with less than 6 months remaining before retirement.
- **Maternal grounds:** Pregnant women and lactating mothers (with children under 1 year).
- **Disability:** Physically challenged persons (PwD), depending on the severity and accessibility of the post [109-112].

Effect of positive attitude on serious health conditions

Maintaining a positive attitude while undergoing major surgery and chemotherapy for colorectal cancer (CRC) does not typically alter the biological path or growth of the tumor itself. However, scientific evidence shows it plays a crucial supportive role in managing the severe, prolonged side effects of treatment, enhancing quality of life, and improving treatment adherence. The question is: how does a positive, resilient mindset impact the journey through colorectal cancer treatment? [113-117].

Journey through colorectal cancer treatment

- Improved tolerance to treatment side effects (SE).
- Chemotherapy for colorectal cancer often causes severe side effects like fatigue, nausea, and peripheral neuropathy.
- Mental Fortitude: A positive attitude can help patients manage the physical and emotional burden of these side effects.
- Lowered Stress Hormones: A positive outlook can reduce cortisol levels, which in turn can reduce feelings of chronic fatigue [113-117].

Enhanced Treatment Adherence and Completion

Patients with a high, more hopeful outlook are often more likely to follow strict treatment schedules and complete their chemotherapy, which is critical for positive outcomes.

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Overcoming Despair: A positive mindset acts as a protective factor against depression and anxiety, which can otherwise cause patients to withdraw from or delay life-saving treatment [113-117].

Faster Post-operative Recovery

A positive psychological approach has resulted in postoperative outcomes.

Earlier Recovery: Studies show that, compared to those with high distress, patients with positive attitudes can experience faster recovery of bowel sounds and return to nutritional intake following colonic surgery.

Lower Complications: A supportive, positive approach is associated with a lower incidence of postoperative complications [113-117].

Psychological and Emotional Well-being

A proactive, optimistic approach allows patients to reframe their traumatic experience.

Post-Traumatic Growth: Many survivors report using positivity to manage fear of recurrence and anxiety surrounding the long-term, chronic side effects of CRC treatment.

Higher Self-Care Ability: Patients who maintain a positive perspective are better equipped to engage in active self-care routines [113-117].

Summary of the Role of Positivity

While "positive thinking" is not a cure for colorectal cancer, it functions as a critical, supportive tool that helps patients:

Navigate the "rollercoaster" of emotions.

Manage the physical demands of treatment.

Reduce the impact of emotional distress (anxiety/depression) [113-117].

Mental Strength and Psychological Resilience (MSPR)

Only MSPR is very much effective in reducing the physical and emotional side effects of colorectal cancer (CRC) follow-up patients, especially chronic fatigue, anxiety, depression, and gastrointestinal issues, ultimately significantly boosting overall quality of life. The psychological attitude and cognitive impacts on user well-being within human–AI systems also. The activities, such as positive attitudes in every aspect of behavior, public communications/interactions, project-based, various innovative programs, article writing, and nature study, improve MSPR [113-117].

Notes/Remarks

As a result, the doctors of the 'Medical Board' are misguided by the answer of Dr S.C. Datta, "He is fine, Sir, but he is not able to perform Election Duty in the 'West Bengal Legislative Election-2026 Duty'." He also reports his serious health ground 'Colorectal Cancer'; underwent "Major Surgery for Colonic Cancer and Chemotherapy with Many Prolonged Side Effects", and my Treating Doctor/ Surgical Oncologist cum Medical Director of Saraj Gupta Cancer Centre and Research Institute, Kolkata, Prof. Dr Arnab Gupta, "Advised me not to undergo Heavy Work for the Rest of my Life", and have attached relevant documents with the previous "Unfit Report of the Burdwan Medical Board also". Your department (MB) has been exempted from election duty from 2018 to 2024 in many elections. He has already performed many 'Election Duty' successfully in different elections from 1996 to 2016. He has no intention to avoid the duty. I shall try to serve our country differently (Google). But this time, "His absence was not willful but due to the above-mentioned serious medical condition (Cancer), which constitutes a 'reasonable cause' under Section 134 of the RP Act, 1951." So, He has been unable to perform election duty, which is physically impossible due to my health, which could further endanger his life. For long-term colorectal cancer survivors—even nine years after surgery and chemotherapy—it is common to experience persistent physical and emotional "late effects." Research also indicates that 81% of survivors like him. Research has shown that the physical and mental quality of life for 59-year-old colorectal cancer survivors was inferior when compared with that of age-matched individuals without cancer. Although issues and symptoms were most prominent during the first three years, long-term effects of treatment can persist and include fatigue, sleep difficulty, fear of recurrence, anxiety, depression, negative body image, sensory neuropathy, gastrointestinal problems, urinary incontinence, and sexual dysfunction. Sometimes, people with colon or rectal cancer may have long-lasting trouble with chronic diarrhea, going to the bathroom frequently, or not being able to hold their stool. They may also have problems with numbness or tingling in their fingers and toes (peripheral neuropathy). So, being 59 years of age, it's beyond my capacity to serve in Election Duty. Please forgive me, Madam/Sir. Hence, my earnest request and prayer to you to be kind enough to reconsider exempting me from the 'Election Duty 2026' [113-117].

Colorectal cancer follow-up patient (CRFUP) eligible for election duty (ED)

It was surprising to find heart and cancer patients queuing up at the election office to apply for exemption from poll duty. A person seeking an exemption on health grounds is granted it if a medical board finds the case genuine. Chief Electoral Commissioner (CEC) or officer (CEO), don't force seriously ill people to do poll duty. "The district election office (DEO) asks for a list of people from various departments with medical conditions. CEC has constituted a medical board. They assign poll duty where the medical condition is not very serious." Colorectal cancer follow-up patients are generally not automatically exempt from election or poll duty based on their diagnosis alone. Unless a medical board certifies that you are undergoing active, debilitating treatment or are deemed unfit due to severe post-treatment complications, you will be expected to serve [109-110,118]

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Key exemption rules and considerations

Exemption is discretionary; Election authorities (such as the District Election Officer) handle exemptions on a case-by-case basis and require a formal evaluation. Active Treatment vs. Follow-up: "Follow-up" implies you are in surveillance. If you are working and able to perform daily activities, your eligibility remains intact. Active, acute chemotherapy, radiotherapy, or recovery from recent major surgery is generally grounds for an exemption. Medical Board Certification: To claim an exemption, you must usually apply with documented proof and may need to appear before a designated medical board. The board will verify if your condition—such as extreme fatigue, stoma care needs, or a compromised immune system—interferes with the demanding, long hours of poll duty. CEO Manoj Aggarwal said, "The DEO has the power to exempt anyone from election duty" [109-110,118].

How to request an exemption in West Bengal

If you have received an appointment order and believe your health status prevents you from serving, you should: Consult with an oncologist; Obtain a detailed medical certificate highlighting your treatment history, any ongoing side effects, and the clinical recommendation regarding your physical capacity to sit at a polling booth for long periods. Submit a Formal Application; Forward the medical certificate, your election duty appointment letter, and an exemption request letter immediately to your District Election Officer (DEO) or the official listed as the point of contact on your requisition order. Follow up on Medical Board: Be prepared to present your case or have your doctor's assessment reviewed by a government-appointed medical board [118-121].

9-year colorectal cancer follow-up patients are ineligible for election duty 2026 in advanced oncology

Election duty exemption for the year 2026 in Advance Oncology – People affected by the problem of colorectal cancer after 9 years. In case one gets an exemption from performing election duty because one is a survivor of colorectal cancer, this will happen only after one is medically examined. One is not automatically exempt from such election duty, and one is appointed by a medical board at the government hospital [122].

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- **Prolonged side-effect management:** Aged patients already suffering from complications (e.g., bowel dysfunction, peripheral neuropathy, fatigue, or stoma issues) might find it challenging to access timely care for these late effects.
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Special notes/remarks

It is already mentioned that CRFUP are generally not automatically exempt from election or poll duty based on their diagnosis alone. Unless a medical board certifies that you are undergoing active, debilitating treatment or are deemed unfit due to severe post-treatment complications, you will be expected to serve. Election authorities (such as the District Election Officer) handle exemptions on a case-by-case basis and require a formal evaluation. "Follow-up" implies you are under surveillance. If you are working and able to perform daily activities, your eligibility remains intact. Active, acute chemotherapy, radiotherapy, or recovery from recent major surgery is generally grounds for an exemption. To claim an exemption, you must usually apply with documented proof and may need to appear before a designated medical board. The board will verify if your condition—such as extreme fatigue, stoma care needs, or a compromised immune system—interferes with the demanding, long hours of poll duty. CEO Manoj Aggarwal said, "The DEO has the power to exempt anyone from election duty" [109-124].

Dr Datta has a tremendous positive attitude, and his positivity stems from his achievements after CRC. The doctors in MB are totally confused and judge him by his apparent posture, attitude, and behavior [1-9,13-18,20-23,23c-23p,23u,29-88,97-108,113-117,123-124]. Cultural, leisure, sport, and social activities play a key role in maintaining psychological well-being during periods of social restriction. Promoting access to such activities may help mitigate the adverse mental health effects of public health emergencies [125]. It is also reported, "Not all clicks are equal: digital dose, content, and user disposition in mental health" [126]. It should be kept in mind that the major postoperative CRP will not be able to do the heavy ED jobs due to his many prolonged SE, and he will become upset and severely affected. More than one billion people worldwide — around one person in seven — are estimated to live with a mental-health condition, according to the World Health Organisation. Mental illness needs visibility more urgently than almost any other area of medicine and health care. A new award from Welcome and 'Nature' aims to raise its prominence [1-9,13-18,20-23,23c-23p,23u,29-88,97-108,113-117,123-126].

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Limitations of the study

The qualification of doctors in the MB is unknown. How many colorectal cancer surgeries do the doctors perform per year? The positive attitude of the doctors in the MB is also unknown. Why are so many young people getting cancer? What researchers do and don't know [126]. Recently, the new recommendations highlight blood-based and at-home stool tests that may help reduce barriers to screening and improve participation, and the American Cancer Society (ACS) researchers aim to improve screening participation [128-129].

Conclusion

The 'PE' of 'BMSWE' on a 59-year-old patient undergoing CRC major surgery, CT follow-up with prolonged side-effects (SE), reduces the intensity of more than 15 unspecified "Toxic-Effects (TE)", assuming like a healthy person, improving quality of life and reducing treatment-related uneasiness that misleads the doctors of the "Medical Board (MB)", suggesting or demanding physically "Fit for Election Duty 2026 (FFED)". But the 'Question' arises, "Election duty (ED) involves long hours, high stress, and often travel to remote polling stations, which may be challenging for a patient with prolonged side effects, i.e., persistent health issues where the "Treating Doctor (TD) / Surgical Oncologist (SO) cum Medical Director (MD)" advises "Not to Undergo Heavy Work for the Rest of Life". And the 'Election Commission (EC)' and the 'Medical Board (MB)', grant exemptions for "Medical Emergencies (ME)" or "Chronic Debility Complications (CDC)" that typically qualify for exemption three times previously from 2018 to 2024.

Acknowledgement

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