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**Manuscript Type: ORIGINAL ARTICLE**

**Retrospective Cohort Study**

**Title: Supply and quality of colonoscopy according to the characteristics of gastroenterologists in the French population-based colorectal-cancer screening program.**

*Dear Reviewers,*

*Thank you for your critics for improving the quality of the manuscript.*

*All comments, criticisms and suggestions have been amply ripened by all authors, the changes that they have entrained, were written in red in this new version. Changes were made either in review mode or written in red depending on the significance of the change. Four new references (23, 24, 28 and 29) have been introduced, bringing the number of references now to 32.*

*We thank all reviewers for the comment on the relevance of the subject covered in this manuscript. We have read carefully the text. We clarified the message and improved the presentation of the text. Some grammatical corrections were also made. However, for text quality, we also remain attentive to any proposals in this direction.*

*Please find below the answers to various questions and ambiguities.*

*We wish you good reception.*

*The Authors*

### **3 SCIENTIFIC QUALITY**

Please resolve all issues in the manuscript based on the peer review report and make a point-by-point response to each of the issues raised in the peer review report. Note, authors must resolve all issues in the manuscript that are raised in the peer-review report(s) and provide point-by-point responses to each of the issues raised in the peer-review report(s); these are listed below for your convenience:

**Reviewer #1:**

**Scientific Quality:** Grade C (Good)

**Language Quality:** Grade B (Minor language polishing)

**Conclusion:** Minor revision

**Specific Comments to Authors:** Dear Sir, This is an outstanding research and quite meticulous one, where new strategies can be learned, as well as to learn some implementation problems that can occur with some policies. However, there are some points that could be hard to analyze at there are some situations that could limit or bias our final conclusions, for example:

a) Each period FOB, FIT, STOP-FIT and COVID cover different years, from one to 4, and knowing that each period could have had an implementation time, how that could affect your numbers?

*Author' answer:* *The periods were defined according to the constraints, this should not imply that the program was hermetically stopped at the end of each period. We therefore did not have control over the occurrence of constraints to be able to balance the length of the periods. However, we do not believe that this makes up a bias because the constraints observed were spontaneous and not imposed by our analysis plan.*

b) How can you manage that the number of GE who practice just one colonoscopy could be well evaluated from your Quali-COLO analysis?

Author' answer: *When starting our analysis plan, we wanted to compare gastroenterologists who perform less than 30 colonoscopies per colonoscopy with those who perform 30-100 or more than 100. The first surprise came from the fact that there were little or no annual figures between 1 and 6 colonoscopies, in other words, a gastroenterologist could have a minimum annual figure of 1 or 6 colonoscopies. Secondly, it was while refining the regression models that we were alerted by 2 profiles of gastroenterologists who seem to be totally disinterested in screening colonoscopies. On a given site, it may be a senior who does only one screening colonoscopy every year with a very long waiting time. It can also be a new gastroenterologist who settles on a site one year (towards the end of the year for example) and who leaves the site (or the region) the following year. The best regression models were those simulated with this distinction of gastroenterologists performing only one colonoscopy per year. The choice of the number 1 was therefore purely statistical and its importance is visible in all the tables (4 to 7), for example, gastroenterologists performing only 1 colonoscopy per year before a high proportion of colonoscopies performed beyond 7 months whatever the period.*

c) It is not clear the population that is covered around Ile-de-France region and, even though, your research is retrospective, if your information is regarding all the population from 50-74 years old during the entire 11 years period? Or what is the proportion who entered into this screening program?

Author' answer: The screening campaigns obviously concern the entire target population aged 50 to 74 residing in the region. Admittedly, the participation rate is low, compared to other European countries. We have schematized the study on a figure, in the hope that this answers these questions.

Did you have patients who had had 2 or more colonoscopies during this time?  
(Eliminating those with cancer?)

Author' answer: It is possible that the analysis included people with 2 colonoscopies although the probability is low. Indeed, in the French program, a person having a colonoscopy is temporarily excluded from the program for 5 years if the results of this colonoscopy were negative (no tumor lesions or chronic colorectal diseases). The person is definitively excluded from the program once a tumor lesion (or chronic colorectal disease) has been found during the colonoscopy. However, the existence of such eventualities cannot impact the results of this study, so we did not seek to exclude them from the study.

It would be very important for us to get your corrections to have a clearer and easier way to conclude the importance of your work and the possible implications that could arise to many of us. Thank you

Author' answer: We have made some corrections that improve the readability of this study. We count on your foresight for its improvement. Your criticisms on the new version will help us more.

## Reviewer #2:

**Scientific Quality:** Grade B (Very good)

**Language Quality:** Grade B (Minor language polishing)

**Conclusion:** Major revision

**Specific Comments to Authors:** Koïvogui et al. aimed to describe the impact of the constraints listed above in terms of changes to the quality of screening colonoscopies (Quali-colo) in a cohort of gastroenterologists (GEs) practicing in Ile-de-France (IDF). They included screening-colonoscopies performed by the gastroenterologists between Jan-2010 and Dec-2020 in people aged 50-74 living in Ile-de-France (France) in this retrospective cohort. The reported as the detection rate of colonoscopy has dropped significantly in France during the years 2019 and 2020, probably due to the COVID health crisis. Despite all its limitations, it is a study that can contribute to the literature. I have some suggestions.

1- Table 3,4,5,6 are very complicated and not all of these results are included in the results section.

*Author' answer: We did not want to overload the text with a long results section, which is why we have reduced the results chapter to only guidelines for reading the tables. However, we have completed the chapter with other details that you will read in red color or in review mode.*

Although most of the results in the Tables mentioned above appear statistically significant, it is recommended to reduce the number of tables if they are not clinically significant.

*Author' answer: This study is one of the rare French studies that gives more details on the offer of screening colonoscopies. In the absence of a long text, we think that the number of tables is acceptable to better illustrate the French data. We planned this article to respond to a need for epidemiological data. If the clinical relevance of these data is debatable, the epidemiological relevance does not suffer from any ambiguity.*

Otherwise, these results should be discussed in the results section and discussion section if they are considered to be clinically significant.

*Author' answer: We have rewritten some paragraphs of the results and discussion chapters to highlight the relevance of the data. We stay tuned for any other suggestions for improvement.*

2- For such a detailed analysis, there is a discussion part that is far from the literature and did not adequately discuss the results of similar studies, it should be improved.

*Author' answer: We rewrote a few paragraphs from the discussion to make it recent to the purpose of the study. We stay tuned for any other suggestions for improvement.*

Thank you very much for giving me the opportunity to evaluate this study.

**Reviewer #3:**

**Scientific Quality:** Grade B (Very good)

**Language Quality:** Grade B (Minor language polishing)

**Conclusion:** Accept (General priority)

**Specific Comments to Authors:** In this study, authors showed that the detection rate of colonoscopy has dropped significantly in the French cohort during the years 2019 and 2020, probably due to the COVID-19 pandemic. The risk of a long delay over 7months in performing the colonoscopy was twice as high in public hospitals compared to private facilities. Although the constraint likely affected the time to colonoscopy as well as the colonoscopy detection rate, the occurrence of serious adverse events were not increased. The manuscript explored how COVID-19 pandemic involved in the colorectal cancer screening, which is very crucial issue worldwide for the time being. The paper is well-written, the main statistical analysis is well described, and the authors have clearly worked hard to produce a comprehensive dataset and detailed description of their methods.

*Author' answer:* *We thank you for the comment you made on the relevance of the subject covered in this manuscript. We clarified again the message and improved the presentation of the text. Some grammatical corrections were also made. However, for text quality, we also remain attentive to any proposals in this direction.*

#### Reviewer #4:

**Scientific Quality:** Grade C (Good)

**Language Quality:** Grade B (Minor language polishing)

**Conclusion:** Minor revision

**Specific Comments to Authors:** This is a study aimed to describe alterations in colonoscopy quality because of background constraints in a CRC screening program. The authors describe three major challenges for the program: change from gFOBT to FIT, constraints in FIT supply, and the COVID pandemic. The analysis has been performed at a population and gastroenterologist level. Of all the studied parameters the most affected was the time to colonoscopy. This is an interesting and well-written study, showing challenges in real practice that face every CRC screening program.

*Author' answer: We thank you for the comment you made on the relevance of the subject covered in this manuscript. We especially hope that our study will contribute to the definition of some standards in the practice of screening colonoscopies in France.*

Major comments:

A figure showing the three periods would help to understand the whole process

The authors state that “there is a risk of colorectal cancer increased by about 40% for any colonoscopy performed after a waiting period of 7-12 months”. Two recent meta-analyses suggest a delay no longer than 6 or 9 months (Forbes N, Clin Gastroenterol Hepatol 2021; Mutneja HR, J Gastroenterol Hepatol 2021). Twelve months may be a bit long. How long is the usual delay in your program?

*Author' answer: We found these two references very interesting and have incorporated them into the discussion (reference numbers 28 and 29). Their interest comes from the*



*fact that our study adopted the 7 months which seem to be the average between the 6 and 9 months which emerge from these two studies. We wanted to thank you very sincerely because we had limited ourselves to the first international reference found, in terms of time to colonoscopy.*

The explanation for some findings (mainly the different lengths of the time delay and the decrease in the CRC detection rate in the COVID period) should be more precise.

Author' answer: *We have provided some additional details in the discussion chapter (text colored in red). However, we remain very open to other suggestions aimed at improving this study.*

The hypothesis that general practitioners relaxed the program because of the marked crisis is not very intuitive.

Author' answer: *We are very aware of this, this explanation is not very intuitive. We're just struggling to find other more believable explanations. The next studies in perspective will elucidate better.*

The names FIT1 and FIT2 are not defined and in table 3 are named FIT and STOP-FIT in table 3.

Minor comments: There is a typo in the third line of page 10 ("colonoscopies")

Author' answer: *We have corrected these few persistent errors induced by the various modifications of the study scheme.*



***(1) Science editor:***

The manuscript has been peer-reviewed, and it's ready for the first decision.

***(2) Company editor-in-chief:***

I have reviewed the Peer-Review Report, the full text of the manuscript, and the relevant ethics documents, all of which have met the basic publishing requirements of the World Journal of Gastroenterology, and the manuscript is conditionally accepted.

I have sent the manuscript to the author(s) for its revision according to the Peer-Review Report, Editorial Office's comments and the Criteria for Manuscript Revision by Authors. Please authors are required to provide standard three-line tables, that is, only the top line, bottom line, and column line are displayed, while other table lines are hidden. The contents of each cell in the table should conform to the editing specifications, and the lines of each row or column of the table should be aligned. Do not use carriage returns or spaces to replace lines or vertical lines and do not segment cell content. Before final acceptance, when revising the manuscript, the author must supplement and improve the highlights of the latest cutting-edge research results, thereby further improving the content of the manuscript. To this end, authors are advised to apply a new tool, the Reference Citation Analysis (RCA). RCA is an artificial intelligence technology-based open multidisciplinary citation analysis database. In it, upon obtaining search results from the keywords entered by the author, "Impact Index Per Article" under "Ranked by" should be selected to find the latest highlight articles, which can then be used to further improve an article under preparation/peer-review/revision. Please visit our RCA database for more information at:

Author' answer: *We have followed all recommendations and remain willing to make further changes that may improve the quality of this manuscript.*