

## Research Article

### The Prevalence of Colorectal Cancer Screening in South Asia

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#### Abstract:

**Background:** Colorectal cancer (CRC) is the third most commonly diagnosed cancer in Asia. Early diagnosis and early treatment pave the way for a better disease outcome. The purpose of this systematic review is to identify the prevalence of CRC screening in Asia, so that the burden of this disease may be determined.

**Methodology:** In this systematic review, we conducted an extensive search on PubMed, Cochrane, and Google Scholar in August 2022. We used a combination of keywords such as colorectal cancer, names of all Asian countries, screening, and diagnosing for our search. We limited our search to studies conducted in the English language only spanning over the last ten years.

**Results:** We were able to select eight articles in total to include in our review. The highest prevalence rate reported was 59% while the lowest was only 2.6%..

**Conclusion:** Overall prevalence of CRC screening is very low in South Asia. There is a need for more awareness programs by the governments, our healthcare departments, and different for-profit and non-profit healthcare organizations to increase the knowledge of the masses so that they can take part in regular screening. This will ensure that the disease is diagnosed at its early stages and its complications will be minimized.

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**Keywords:**.....

#### INTRODUCTION:

Of the most commonly diagnosed cancers around the world, Colorectal cancer (CRC) stands third, with continuously increasing frequency and death rates in Asia. 1 In 2018, Asia had the highest prevalence (51.8%) and rate of mortality (52.4%) of CRC cases (all sexes and ages) per one hundred thousand population in the world.2 Early detection of colon cancer by timely screening has

decidedly improved patient survival over recent years.<sup>3</sup> However, patients face multiple barriers in the way of early screening and diagnosis.

Although a lack of knowledge is a major factor in patients' reluctance to get checked for colon cancer, socioreligious and socioeconomic factors also play a part.<sup>4</sup> On one hand, a huge majority of people regard a cancer diagnosis to be final and ominous and are deterred by the fear of a poor consequence. Another common result is that people are discouraged from getting checked for colon cancer because of feelings of shame and a lack of spousal agreement. This issue is made worse by the rising poverty rate and economic inequality.<sup>4</sup> On the other hand, more people are taking part in screening programs as they become more aware of the reasons and risk factors of CRC screening.<sup>5</sup>

The recommended options for colorectal cancer screening in Asia are colonoscopy, flexible sigmoidoscopy, and FOBT (fecal occult blood testing) (or fecal immunochemical testing), with FOBT, suggested as the first choice of screening test in countries with limited resources.<sup>6</sup>

Despite this issue's extreme importance, there is a severe lack of literature regarding this topic. Thus, we aim to fill this gap in the literature which would help us in understanding the steps required to improve the status quo.

#### **OBJECTIVES:**

- To determine the prevalence of colorectal screening in South Asia.

#### **MATERIALS AND METHODS:**

This systematic review was conducted according to

the PRISMA (Preferred Reporting Items for The Systematic Review and Meta-Analysis) guidelines.

#### ***Search strategy:***

For this systematic review, we conducted an extensive search on PubMed, Cochrane, and Google Scholar from the study's beginning until the end of August 2020. We used a combination of keywords such as colorectal cancer, names of all Asian countries, screening, and diagnosing for our search. We eliminated any duplicate entries, reviewed the titles and abstracts, and handpicked the articles that aligned most closely with our criteria. Then, we proceeded to review full-text articles that determined the prevalence of CRC screening and included them in our study. We did not filter or restrict our search results in any way. Two reviewers (TF and ST) separately examined the titles, full texts, and abstracts of papers. To eliminate duplicate studies, Endnote X9 (Clarivate Analytics, US)

#### ***Criteria for inclusion:***

For this study, original observational studies (case-control, cross-sectional studies and cohort studies) that investigated CRC screening prevalence and used our keywords in their title or abstracts were included. Only the studies done in the last ten years were included.

#### ***Criteria for exclusion:***

We excluded clinical trials, letters to editors, editorials, case reports, review studies, and studies not having the full text available online.

#### **RESULTS:**

##### **Specification of included studies:**

We determined 2113 studies from the total search of

all our included databases and then excluded 1008 studies owing to duplication. A total of eight articles were filtered for this systematic review after careful screening of the title, abstract and full texts.

**Baseline Characteristics:**

Characteristics of these studies are reported in **table 1** below. All the selected studies were cross-sectional studies. The sample size ranged from 200 to 1060. Only two studies had predominantly male participants.<sup>7,8</sup>

Eight out of nine studies were based in Iran<sup>9,10,11,12,13,14,8</sup> while only one was based in Pakistan<sup>7</sup> as the full text was unavailable for many studies. Our literature search found no exact study on the prevalence of CRC alone, other factors like barriers, facilitators and efficacy, etc. were more extensively researched.

**Prevalence:**

There was a great difference in the screening prevalence of CRC (colorectal cancer) in all of the included studies. The highest percentage of people getting screened for colorectal cancer was 59% in the study by Arezoo Chouhdari et al.<sup>13</sup> The study by Fariha Hasan et al (2017) showed the lowest prevalence of only 2.6%.<sup>14</sup> (table 2)

**Prevalence in Males vs Females:**

The majority of the studies did not specify which gender got screened for CRC more while the two studies which did specify showed females to be more likely screened for CRC.<sup>8,12</sup> (Table 2)

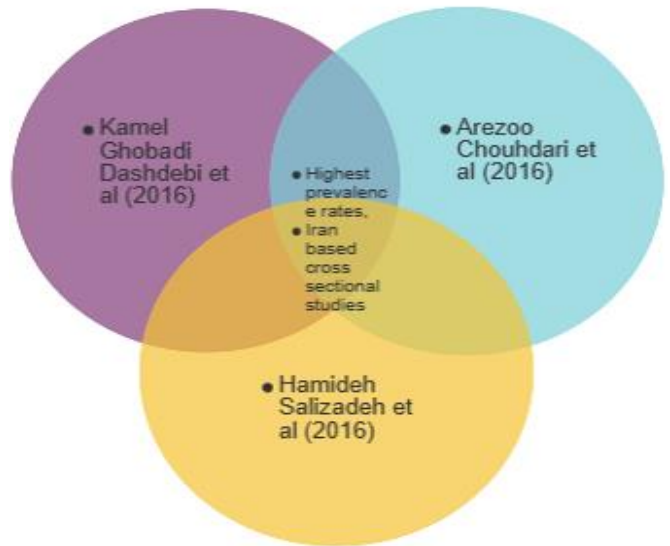
**Type of screening method:**

Regarding the type of screening method, the results were quite uniform. Out of the total of 8 studies, two

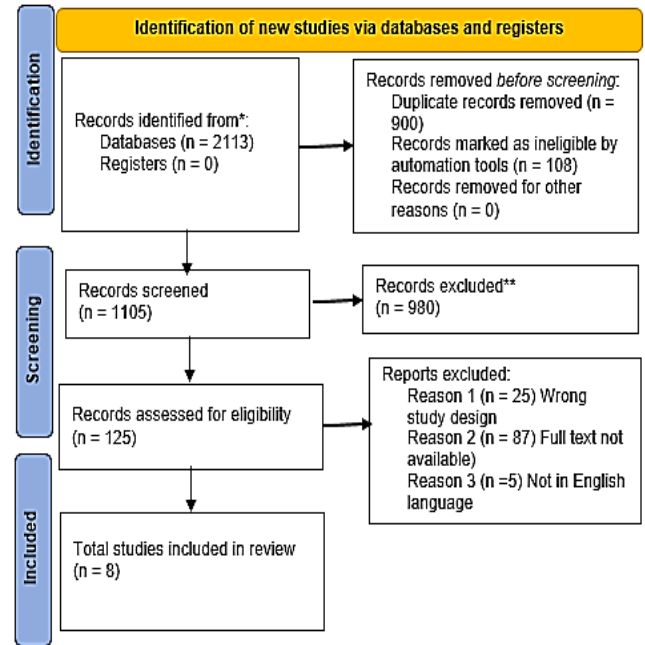
studies mentioned colonoscopy,<sup>11,13</sup> two employed fobt<sup>8,12</sup>, two mentioned both fobt and colonoscopy<sup>14</sup>,<sup>9</sup> while the remaining two did not specify the screening method employed.<sup>7,10</sup> (Table 2)

Figure#1

Venn Diagram for the three studies with highest CRC prevalence



Figure#2



Table#1

#	Study name	author(s)	country of study	total participants	Female participants (%)	Methodology
1	<u>Knowledge and practice of Iranians toward colorectal cancer, and barriers to screening</u> <sup>9</sup>	<u>Hamideh Salimzadeh (2012)</u>	Iran	200	50	face to face interviews /convenience samples at the clinic
2	Knowledge and perception toward colorectal cancer screening in east Iran <sup>10</sup>	<u>Farzad Bidouei et al (2014)</u>	Iran	1060	52.2	face to face interviews/Random sample
3	Cancer risk awareness and screening uptake in individuals at higher risk for colon cancer: a cross-sectional study <sup>11</sup>	Hamideh Salimzadeh et al (2016)	Iran	1017	58.4	phone calls and in-person interviews/FDRS
4	Factors Predicting Fecal Occult Blood Testing among Residents of Bushehr, Iran, Based on the Health Belief Model <sup>12</sup>	Kamel Ghobadi Dashdebi et al (2016)	Iran	600	51.8	written questionnaire/convenience method
5	Association Between Socioeconomic Status and Participation in Colonoscopy Screening Program in First Degree Relatives of Colorectal Cancer Patients <sup>13</sup>	Arezoo Chouhdari et al (2016)	Iran	200	57.5	valid questionnaire via phone/ fdrs
6	Barriers to Colorectal Cancer Screening in Pakistan <sup>7</sup>	Fariha Hasan et al (2017)	Pakistan	450	42.4	A standardized 19-item questionnaire in Urdu language / healthy population
7	Feasibility of Colon Cancer Screening by Fecal Immunochemical Test in Iran <sup>14</sup>	Hamideh Salimzadeh et al (2017)	Iran	1044	63	in-person interview administered by health navigators in local language /asymptomatic average-risk individuals
8	Socio-cognitive determinants of	Mehdi Mirzaei-Alavijeh et al	Iran	500	47.4	Questionnaire-based interviews/

colorectal cancer (2019) random sample  
 screening uptake: An application of intervention mapping approach<sup>8</sup>

**Table#2**

Sr.#	author(s)	Total prevalence %	Screening method
1	Fariha Hasan et al (2017)	2.6	n/a
2	Mehdi Mirzaei-Alavijeh et al (2019)	11.1	Fobt
3	Hamideh Salimzadeh et al (2017)	2.7	2.2% colonoscopy, 0.5% fobt
4	Hamideh Salimzadeh et al (2016)	49.2	Colonoscopy
5	Arezoo Chouhdari et al (2016)	59	Colonoscopy
6	Kamel Ghobadi Dashdebi et al (2016)	29.9	Fobt
7	<u>Farzad Bidouei et al (2014)</u>	4.2	n/a
8	<u>Hamideh Salimzadeh (2012)</u>	11.0%	6.5% fobt 4.5% colonoscopy

**DISCUSSION:**

The ultimate goal of CRC screening is to discover potentially malignant polyps to prophylactically eliminate them before they convert into invasive cancer. Rising rates of colorectal cancer (CRC) are observed in Low- and middle-income countries (LMICs) including Pakistan in the last decade. These countries also have lower 5-year survival rates as compared to high-income countries (HICs) where advanced screening and treatment services are available.<sup>15</sup> A very low screening rate of only 2.6% was reported in a Pakistan-based study by Fariha Hasan et al.<sup>7</sup> This could be attributed to the significantly high cost of screening procedures and lack of knowledge and screening facilities in LMIC.<sup>7</sup> A wide range of prevalence rates was obtained in included Iran-based studies, with the highest rate of 59% reported by Arezoo Chouhdari et al<sup>13</sup>

Two Studies reported high CRC screening rates in females as compared to male participants.<sup>8,12</sup> A similar finding was reported in a review done in the United Kingdom.<sup>16</sup> whereas an opposite trend has also been reported.<sup>17</sup> in the past. Females have more opportunities to be screened during their routine visits to reproductive health specialists for obstetric and gynecological problems whereas men lack these kinds of health events.<sup>18</sup> This explains the higher rate of screening in females as compared to males.

The majority of our included studies were based in Iran. This may be because, in Iran, CRC is the fourth most common cancer.<sup>19</sup>

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