Multi-level factors reported in colorectal cancer screening adherence studies reflect evolving challenges and opportunities in different care settings: A systematic review

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BACKGROUND

- Colorectal cancer (CRC) screening reduces CRC mortality[1] and happens in a wide variety of care settings[2]
- However, only two-thirds of those age ≥50 years are up-to-date on CRC screening[3]
- Certain populations have even lower screening rates, especially individuals aged 50-54 years (48%), those of Hispanic ethnicity (59%), and Medicaid recipients (53%)[4]
- Inequities in access to care contribute to suboptimal CRC screening adherence.[5] Different care settings serve a variety of patient populations and may be associated with different facilitators and barriers to CRC screening adherence.[6,7,8]
- Adherence to screening is therefore complex and driven by test, patient, provider, site, and neighborhood factors[9]

OBJECTIVE

- This study utilizes data from a systematic literature review to explore commonly reported factors influencing colorectal cancer (CRC) screening adherence across different care settings

METHODS

- The systematic literature review identified CRC screening adherence studies among average-risk adults in the U.S.
- PubMed, Embase, and CENTRAL trial databases were searched on 10/23/2020 for English language articles published from 01/01/1950-12/31/2020 on factors that impact CRC screening adherence
- Eligible studies examined adherence to endoscopy or stool-based tests and reported predictors of screening or described facilitators and barriers to screening
- Iterative thematic coding of extracted data identified multi-level predictors of adherence (test, patient, provider, site, and neighborhood) and five study settings (primary care, specialty care, integrated system, safety net, & regional cross-sectional surveys)
  - Examples of multi-level predictors include: test (sample collection, cost); patient (demographics, socioeconomic status, health status & behavior, health beliefs & knowledge); provider (provider recommendation, number of visits with provider); site (programmatic screening, appointment to test time interval); and neighborhood (federal poverty level, proximity to healthcare facility)
- This sub-analysis focused on studies defining adherence as one time testing (n=28; where adherence is defined as test completion within a study-defined timeframe) and grouped them as recent (2017-2021, n=6) or older (1990-2016, n=22) publications
- Additional methods and findings can be found by scanning the QR code below

RESULTS

- The studies were geographically representative, and the study sample sizes ranged from 216 to 17,249,117, with an average of 640,092 and a median of 940
- 8 studies reported adherence to screening with any guideline-recommended test, while 11 studies reported adherence to endoscopy and 15 reported adherence to stool-based tests
- Care setting representation varied within the 28 studies: primary care (n=3), specialty care (n=3), integrated system (n=11), safety net (n=6), and regional cross-sectional surveys (n=5)

Click here for additional methods and findings.

RESULTS (CONT'D)

Figure 1. PRISMA flow diagram of the 28 studies included in this sub-analysis on predictors of one time testing adherence

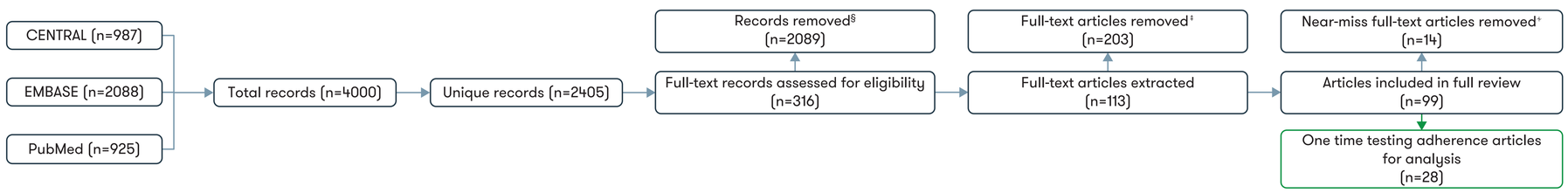
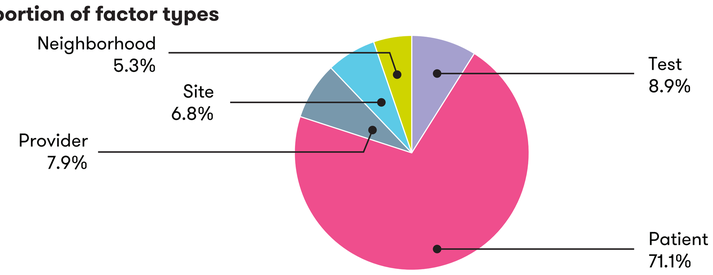
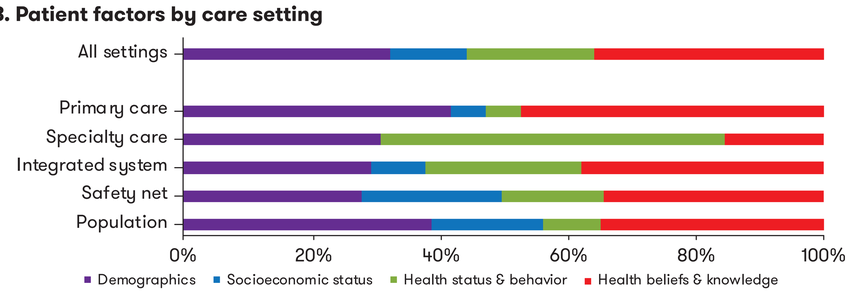


Figure 2. Patient-level factors represent the majority of factors studied in one time testing adherence articles

A. Proportion of factor types



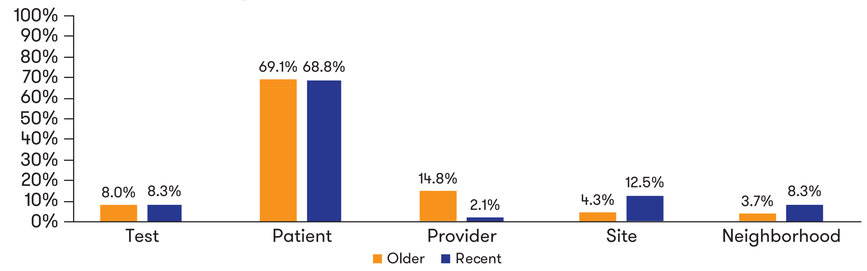
B. Patient factors by care setting



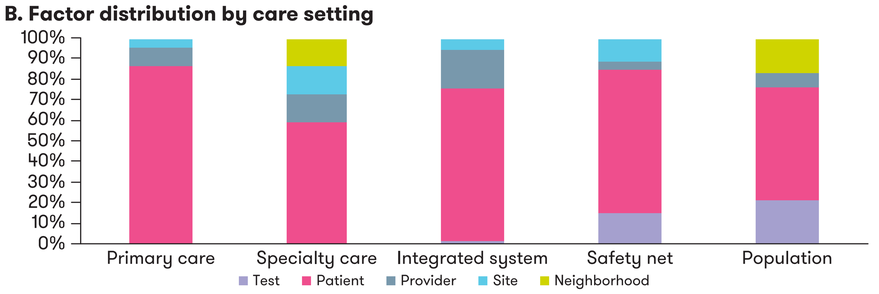
- The most common factors by level were: convenience (test), age (patient), provider recommendation (provider), programmatic screening (site), and federal poverty level (neighborhood)
- Across settings, 71.1% of predictors were patient factors, and the most common factors were demographics (age, ethnicity, sex) and health beliefs & knowledge (perceived importance of screening) (**Figure 2A**)
- The types of patient factors impacting adherence differed by care setting. For example, socioeconomic status factors were more common in safety net care settings (**Figure 2B**)
- Patient health status & behavior factors were more common in recent studies (33.3% vs 17.8%), especially in integrated care

Figure 3. Proportion of each multi-level predictor varied over time and by setting

A. Factor distribution by older versus recent studies



B. Factor distribution by care setting

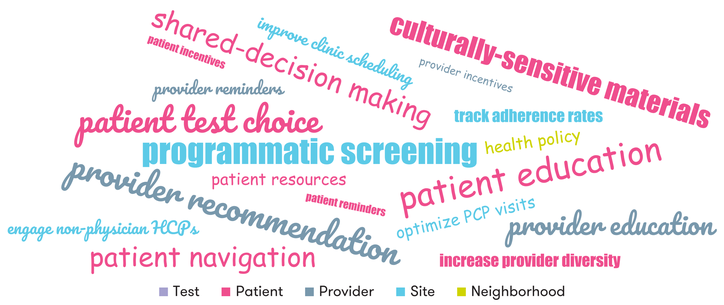


- The proportion of neighborhood factors doubled and site factors tripled in recent studies, driven by changes in specialty care and safety net settings, respectively (**Figure 3A**)
- Overall, the proportion of each multi-level predictor varied by setting (**Figure 3B**). For example, the breakdown for integrated care was 74.4% patient, 19.2% provider, 5.1% site, and 1.3% test factors, whereas for safety net it was 69.6% patient, 15.2% test, 10.9% site, and 4.3% provider factors.

Table 1. Strategies discussed to increase adherence to CRC screening

Setting	Most common strategies by setting
Primary care	patient navigation, programmatic screening
Specialty care	programmatic screening, track adherence rates
Integrated	patient education, provider recommendation, provider education, shared decision-making, programmatic screening
Safety net	culturally-competent materials, test choice, shared decision-making, provider recommendation, patient navigation
Regional surveys	culturally-competent materials, health policy, test choice, programmatic screening

Figure 4. Most common strategies by intervention level



- About half of the studies reported the need for multi-level strategies to improve CRC screening adherence (15/28)
- The most common reported strategies across settings were: implement programmatic screening and tailored outreach (n=19), prioritize patient education (n=11), offer patients test choice (n=10), ensure provider recommendations (n=10), develop culturally-competent content (n=8), offer patient navigation (n=9)
- In addition to continued support for programmatic screening, recent studies advocated for incorporating patient preferences and culturally-competent materials to increase adherence

CONCLUSIONS

- While the breakdown of multi-level factors differed by setting, patient factors were the most common predictors of adherence
- The diversity of factors reflects key differences in care settings and offers insights into the populations they serve
- Recent studies highlight the growing importance of site and neighborhood factors, and encourage more inclusive strategies to reach national CRC screening goals

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