

A Culturally Tailored Education Session to Improve Colorectal Cancer Screening Knowledge and Willingness Among Afghan Refugees: A Mixed-Methods Study

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Abstract

Background

Despite being a major cause of cancer-related death in the US, colorectal cancer (CRC) is largely preventable through routine screening. Yet screening rates remain disproportionately low among refugee and immigrant populations. Afghan refugees face a unique challenge given that widespread CRC screening infrastructure does not exist in Afghanistan. They have a limited baseline exposure to preventive healthcare and no prior screening normalization. There is a paucity of research examining CRC screening barriers and educational interventions specifically tailored to Afghan refugees.

Objective

This study evaluates whether a culturally tailored educational session can improve CRC screening knowledge, familiarity with screening options, and willingness to pursue screening in a population of Dari-speaking Afghan refugees at a refugee resettlement agency.

Methods

This mixed-methods prospective interventional study was conducted at a national refugee resettlement agency in Arlington, Virginia. Client-facing staff completed a cross-sectional survey assessing perceived barriers to CRC screening among refugee clients. Responses informed a two-hour CRC education session delivered to Dari-speaking Afghan refugee clients via a trained interpreter, accompanied by a two-way focus group discussion. Pre- and post-session surveys assessed CRC knowledge, attitudes toward screening, and perceived barriers. An AI-assisted ambient scribe was used for focus group transcription, followed by thematic analysis. Quantitative data were analyzed using Chi-Square Tests of Independence and Mann-Whitney U Tests ($p < 0.05$).

Results

17 staff members and 18–22 refugee clients participated. After the education session, correct identification of the recommended CRC screening age increased from 11.1% to 63.6% ($p = 0.002$) and knowledge of recommended screening interval improved from 5.9% to 72.7% ($p < 0.001$). Median familiarity with screening options increased ($p < 0.001$, $r = 0.68$), and median comfortability with undergoing screening increased ($p = 0.03$, $r = 0.39$). Fear was the most commonly observed client attitude (52.9% of staff), and participants reporting fear were significantly more likely to prefer stool-based testing (66.7% vs. 6.6%, $p = 0.01$). Notably, 72.2% of participants had never discussed CRC screening with a provider, including 87.5% of those who had lived in the US for three or more years.

Following the session, 90% of participants reported increased intent to screen, and all respondents felt more confident discussing screening with their provider.

Conclusions

A culturally tailored CRC education session delivered through a refugee resettlement agency improved knowledge, familiarity, and willingness to pursue screening in an Afghan refugee population. Knowledge gaps persisted independently of US residence duration, underscoring that acculturation alone does not reliably close screening disparities. Refugee resettlement agencies represent underutilized but effective settings for delivering targeted cancer screening education to refugee populations.

NEW CONTRIBUTION TO THE LITERATURE

This study is among the first to evaluate a culturally tailored CRC education intervention delivered specifically to Afghan refugees through a refugee resettlement agency. It demonstrates that this population-specific, interpreter-facilitated model produces significant improvements in CRC screening knowledge and willingness, and documents the persistence of knowledge deficits independent of US residence duration. The finding that fear-related barriers predict preference for stool-based over colonoscopy-based screening provides direct, population-specific guidance for clinicians delivering screening conversations to Afghan refugee patients. Finally, the study identifies refugee resettlement agencies as underutilized but effective settings for preventive health education, offering a scalable model for reaching underserved immigrant and refugee communities.

INTRODUCTION

Colorectal cancer (CRC) is the second leading cause of cancer-related death in the United States, accounting for approximately 53,000 deaths annually[1]. The disease is largely preventable through early detection via routine screening, which identifies precancerous polyps before they progress to malignancy. Despite well-established guidelines recommending screening initiation at age 45 for average-risk adults, uptake remains uneven across the US population. Refugee and foreign-born populations consistently demonstrate lower CRC screening rates than US-born individuals, a disparity with well-documented consequences for late-stage diagnosis and mortality [2, 3].

Afghan refugees represent a growing and underserved subpopulation within the United States. Following the 2021 US withdrawal from Afghanistan, resettlement of Afghan refugees accelerated substantially. Unlike many immigrant groups who may arrive with some familiarity with preventive healthcare systems, Afghans face a distinctive challenge: organized CRC screening infrastructure does not exist in Afghanistan. There is no cultural or societal norm of screening for disease in the absence of symptoms, meaning this population arrives without baseline exposure to the concept of preventive cancer screening. [4, 5]

Research on CRC screening barriers in refugee populations identifies several recurring themes such as limited knowledge of screening purpose, recommended age of initiation, and available modalities; fear of the screening procedure and of receiving a cancer diagnosis; difficulty navigating an unfamiliar healthcare system; and financial barriers related to insurance instability [3, 6, 7]. For recently arrived refugees, these barriers are compounded by the structural demands of resettlement, including unstable housing, Medicaid enrollment gaps, and reliance on case managers to navigate care. [8]

Culturally tailored educational interventions have shown promise in improving CRC screening uptake among diverse immigrant and minority populations. Such interventions, when delivered in the participant's native language with the appropriate cultural context, have improved screening knowledge, reduced fear, and increased screening intent [9]. However, data specific to Afghan refugee populations are limited. This study evaluated a culturally tailored CRC education session delivered in Dari at a refugee resettlement agency, with the aims of (1) assessing its impact on CRC screening knowledge, familiarity, and willingness to screen (2) characterizing psychological, cultural, and health systems barriers to screening in this population and (3) examining whether knowledge gaps vary with duration of US residence.

THEORETICAL/CONCEPTUAL FRAMEWORK

This study is grounded in the Health Belief Model (HBM), a widely used framework for understanding health behavior and the uptake of preventive services. The HBM suggests that an individual's likelihood of engaging in a health behavior is shaped by their perceived susceptibility to a condition, perceived severity of that condition, perceived benefits of taking action, perceived barriers to action, and cues to action that prompt behavior change. Among refugee populations with limited prior exposure to preventive healthcare, low perceived susceptibility and high perceived barriers (including fear, unfamiliarity with screening procedures, and limited health literacy) are well-documented drivers of screening avoidance. Culturally tailored education delivered in participants' native language and through trusted community settings was designed to address each of these constructs: increasing perceived susceptibility by contextualizing CRC risk, reducing perceived barriers by addressing misconceptions directly, and providing cues to action through specific guidance on accessing screening within the local healthcare system.

METHODS

Study Design and Setting

This mixed-methods prospective interventional study was conducted at a national refugee resettlement agency in Arlington, Virginia. The agency serves as a primary community hub for newly arrived refugees, providing case management, employment support, and social services. The study combined cross-sectional staff surveys, pre- and post-session client surveys, and a qualitative focus group. Ethics

approval was obtained from the university Institutional Review Board (IRB). All participants provided informed consent prior to participation.

Participants

Client-facing agency staff were recruited to complete an electronic cross-sectional survey assessing their observations of CRC screening barriers among refugee clients. The survey collected respondent demographics, job role, and years of experience, and asked about observed client attitudes toward cancer screening, common misconceptions about screening, specific barriers to consistent care, and the perceived difficulty of healthcare navigation for refugee clients. Responses were reviewed to identify priority content areas for the education session.

Data Collection

Education Session and Focus Group

Dari-speaking Afghan refugee clients were invited to attend a two-hour CRC education session. The session was delivered orally with visual aids and covered CRC epidemiology, risk factors, symptoms, available screening modalities (colonoscopy and stool-based tests), and recommended screening intervals. A Dari-speaking interpreter facilitated all communications. Visual materials were selected to help improve accessibility for participants with limited health literacy. Following the education session, a two-way focus group discussion was conducted to identify barriers to CRC screening and explore participant experiences and attitudes. An AI-assisted ambient scribe (Doximity) was used to transcribe the focus group discussion. Thematic analysis of the transcription identified recurring themes in participant-reported barriers, misconceptions, and attitudes.

Measures

Pre- and Post-Session Surveys

Pre-session surveys were distributed before the education session and collected participant demographics (age, gender, years in the US), prior cancer screening history across multiple modalities, prior provider discussions about CRC, and perceived barriers to screening. A ten-item knowledge assessment covered screening purpose, CRC etiology, risk factors, symptoms, screening modalities, and recommended screening intervals. A Likert-scale was used to assess familiarity with CRC screening options and comfortability with undergoing CRC screening. Post-session surveys repeated the knowledge and barrier items, and additionally assessed confidence discussing screening with a provider, likelihood of pursuing screening, and overall session satisfaction.

Analysis

Nominal categorical data were analyzed using Chi-Square Tests of Independence. Ordinal Likert-scale data were compared between pre- and post-survey groups using Mann-Whitney U Tests, with effect size reported as r . Statistical significance was set at $p < 0.05$ for all analyses. Participants were stratified by duration of US residence (recent arrivals, defined as ≤ 2 years in the US, vs. longer-term residents, defined as ≥ 3 years) to examine whether knowledge and provider discussion rates varied with time in the United States. Descriptive statistics were used to characterize overall cancer screening rates across guideline-recommended modalities in the cohort.

RESULTS

Participant Characteristics

17 client-facing agency staff completed the staff survey, including case managers, social workers, and employment specialists. Staff had varied levels of experience with refugee populations, including several that had personal experience as refugees themselves. 18 refugee participants completed the pre-session survey and 22 refugee participants completed the post-session survey. Refugee participants were predominantly female and self-identified as Asian, consistent with the agency's client population. Years of stay in the US ranged from less than one year to nine years among pre-survey respondents. Refugee participants were stratified into recent arrivals (≤ 2 years, $n = 10$) and longer-term residents (≥ 3 years, $n = 8$) for subgroup analysis.

Intervention Outcomes: Knowledge, Familiarity, and Willingness

The education session produced significant improvements in CRC knowledge. Correct identification of the recommended CRC screening initiation age (45 years) increased from 11.1% pre-session to 63.6% post-session ($p = 0.002$). Knowledge of the recommended screening interval following a normal colonoscopy increased from 5.9% pre-session to 72.7% post-session ($p < 0.001$).

Likert-scale measures showed increases in both median familiarity with CRC screening options (slightly familiar to somewhat familiar; $p < 0.001$, $r = 0.68$) and median comfortability with undergoing a CRC screening test (uncomfortable to neutral; $p = 0.03$, $r = 0.39$).

Following the session, 90% of respondents (18/20) reported being more likely to pursue CRC screening, all 20 respondents felt more confident discussing CRC screening with their provider, and 100% of respondents (19/19) indicated they would recommend the session to others.

Psychological Barriers: Fear, Anxiety, and Misconceptions

Fear and anxiety were the most reported client attitude observed by staff, identified by 52.9% of staff respondents. Among specific fear-related barriers, staff identified fear of the screening procedure

(37.5%) and fear of receiving a cancer diagnosis (31.3%) as most common.

On pre-session surveys, participants reporting fear as a barrier were significantly more likely to prefer stool-based CRC testing over colonoscopy, compared to those not reporting fear (66.7% vs. 6.6%, $p = 0.01$). Focus group discussion confirmed that fear was reinforced by specific misconceptions. Multiple participants expressed concern that colonoscopy images shown during the session appeared to depict a dangerous procedure. Counseling was provided that colonoscopy is routinely performed by gastroenterologists, typically lasts 20–30 minutes when normal, and that bowel preparation the day prior is the most uncomfortable aspect for most patients. Participants also raised the belief that chlorine in tap water causes colorectal cancer. This misconception was addressed and dispelled during the session. These focus group findings highlight that educational visual materials depicting procedures require careful design to avoid amplifying fear.

Healthcare System Barriers

Healthcare system navigation was identified as a significant structural barrier. Half of staff respondents (50%) characterized healthcare navigation as at least moderately challenging for refugee clients. Insurance instability and cost were reported as barriers by 45.4% of clients and 56.3% of staff ($p = 0.51$). Focus group participants described specific experiences of insurance disruption during resettlement. One participant reported a six-month Medicaid coverage gap following a state-to-state relocation, and another described Medicaid discontinuation after moving, a resulting six-day lapse in medical care, subsequent hospitalization, and a hospital bill of \$6,000. Difficulty scheduling medical appointments was also raised as a barrier in the focus group.

A notable discrepancy emerged between staff and client perceptions of language as a barrier to CRC screening. Staff identified language or lack of interpretation as a barrier for 56.3% of clients, whereas only 9.1% of clients reported this themselves ($p < 0.01$). The reasons for this discrepancy are unclear, though it may partly reflect that client surveys were completed in the context of an interpreter-facilitated session, potentially minimizing the language barrier in the immediate experience.

Duration of US Residence and Persistent Knowledge Gaps

Lack of information was the most commonly cited pre-session barrier to CRC screening, reported by 50.0% of participants (9/18). Following the education session, the proportion reporting lack of information as a barrier decreased to 31.8% (7/22), though this did not attain statistical significance ($p = 0.33$).

Knowledge of CRC screening did not improve with longer US residence. Overall, 72.2% of pre-survey participants (13/18) reported that a healthcare provider had never discussed CRC screening with them. This proportion was higher among longer-term residents: 87.5% (7/8) of those living in the US for three or more years had not discussed CRC screening with a provider, compared to 60.0% (6/10) of recent arrivals ($p = 0.31$). Pre-session knowledge of the recommended CRC screening initiation age was similarly low across both groups, with 11.1% (1/9) of recent arrivals and 16.7% (1/6) of longer-term

residents answering correctly. In the focus group, participants described the absence of CRC screening infrastructure in Afghanistan and noted that cancer screening in the absence of symptoms was not part of their understanding of routine medical care in their country of origin.

Cancer Screening Rates Across Modalities

Pre-session survey data documented low rates of guideline-recommended cancer screening across multiple modalities. Among the six participants aged 45 or older (the recommended threshold for CRC screening initiation), three (50.0%) had completed any form of CRC screening. Among 14 age-eligible females, 7 (50.0%) had completed cervical cancer screening. Mammography completion was comparatively higher with all four age-eligible females (100%) reporting prior mammography. These rates are broadly consistent with prior literature documenting cancer screening disparities in refugee populations. [2, 3, 6]

DISCUSSION

This study demonstrates that a culturally tailored, two-hour CRC education session delivered in Dari at a refugee resettlement agency can meaningfully improve CRC screening knowledge, familiarity with screening options, and willingness to pursue screening in an Afghan refugee population. The near-universal endorsement of the session, as demonstrated by 90% of participants reporting increased intent to screen, all participants feeling more confident discussing screening with their provider, and effectively all recommending the session to others, indicates that this community-based, interpreter-facilitated model is both feasible and well-received.

A prominent finding is that CRC knowledge gaps did not diminish with longer US residence. Nearly three-quarters of participants had never discussed CRC screening with a provider, and this proportion was higher among those who had lived in the US for three or more years. This challenges the assumption that acculturation over time naturally integrates refugees into preventive care routines. Data from the focus group revealed that participants described the complete absence of a screening culture in Afghanistan, where neither providers nor patients have historically engaged with preventive cancer testing in the absence of symptoms. Without pre-migration exposure to this concept, and the absence of provider-initiated discussions after resettlement, these knowledge gaps remain. These findings are in contrast to prior literature suggesting that longer duration of US residence is associated with improved cancer screening engagement among immigrant populations [10]. This discrepancy may be explained by several factors including cultural beliefs, with prior studies noting that cancer is viewed as a “taboo” topic amongst Afghan women [11], and differences in migration history, with Afghan migrants having a shorter history in the United States than other groups, potentially influencing healthcare exposure and engagement patterns. The association between fear and screening modality preferences carries a direct clinical implication. Participants who cited fear as a barrier were far more likely to prefer stool-based testing over colonoscopy (66.7% vs. 6.6%, $p = 0.01$). This finding supports offering non-invasive, stool-based testing as a first-line option for patients in this population, rather than defaulting to colonoscopy as the primary modality. Current guidelines already endorse stool-based tests (fecal immunochemical

test and stool DNA tests) as acceptable alternatives to colonoscopy for average-risk screening, and this study provides population-specific evidence that such options may be particularly important for reducing barriers in Afghan refugee communities [12]. The focus group further revealed that colonoscopy images in the educational materials were perceived as dangerous, highlighting the need for thoughtful, culture-appropriate visual communication in materials designed for this population.

The discrepancy between staff and client perceptions of language as a barrier warrants careful interpretation. Staff identified language barriers for the majority of clients (56.3%), while fewer than one in ten clients reported it themselves (9.1%, $p < 0.01$). One possibility is that clients did not experience language as a problem in the immediate context of an interpreter-facilitated session, and therefore did not identify it as a barrier when completing the survey. Alternatively, clients may have prioritized insurance and cost as significant structural barriers over language when responding. Whatever the mechanism, this gap brings to light the risk of relying solely on client report to assess refugee needs, and reinforces the importance of interpreter provision as a feature of healthcare delivery for this population.

The insurance-related focus group narratives were among the most striking qualitative findings. Participants described Medicaid coverage gaps of six months following interstate relocation, with one participant experiencing a hospitalization followed by a \$6,000 hospital bill after a coverage lapse. These accounts illustrate how state-based Medicaid administration may result in structural discontinuities that disproportionately affect refugee populations who relocate frequently during resettlement. These are not necessarily individual failures of healthcare navigation but rather a system-level design gap that educational interventions alone cannot solve. Advocacy for continuous Medicaid coverage during resettlement transitions, and streamlined re-enrollment processes, would address this barrier more directly.

This study also demonstrates the value of refugee resettlement agencies as partners for health outreach. These agencies serve as trusted points of contact at a critical juncture, when refugees are navigating an unfamiliar country with limited social networks. Conducting health education within this setting reduces transportation barriers and leverages existing community trust. The two-way focus group format allowed participant-driven dialogue that helped dispel locally specific misconceptions that a standardized didactic could not have anticipated. Future programs should consider integrating preventive health education as part of the standard services offered at resettlement agencies, extending beyond CRC to address the broader cancer screening gaps observed in this cohort.

Limitations

Several limitations should be acknowledged. The sample size was small (18–22 participants), thus limiting statistical power and generalizability. The pre- and post-survey participant counts differed (18 vs. 22), reflecting attendance variation and precluding a strict pairwise matched analysis. Survey data are self-reported and subject to recall bias, particularly for prior cancer screening history. The study was

conducted at a single site in a metropolitan area of Virginia, and thus findings may not apply to Afghan refugees in other geographic or resettlement contexts. Finally, the cross-sectional study design captures changes in knowledge and intent immediately following the session but cannot assess whether these changes translated into actual screening completion over time. Additional studies and longitudinal follow-up is needed to evaluate the sustained impact of this intervention.

Conclusions

A culturally tailored CRC education session, delivered in Dari through a refugee resettlement agency, improved CRC screening knowledge, familiarity, and willingness in a cohort of Afghan refugees. Knowledge deficits persisted regardless of duration of US residence, and fear of colonoscopy was associated with preference for stool-based testing. These findings should inform both the design of educational materials and the clinical approach to CRC screening conversations with this population. Refugee resettlement agencies represent an underutilized and effective venue for community health education, and this pilot model warrants expansion to a larger scale coupled with longitudinal evaluation in future interventions.

Declarations

Competing Interests

The authors declare no competing interests.

Ethics Approval

This study was approved by an Institutional Review Board (IRB). All procedures were conducted in accordance with the ethical standards of the responsible committee on human experimentation and with the Helsinki Declaration of 1975, as revised in 2000.

Informed Consent

Informed consent was obtained from all individual participants included in the study.

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Author Contribution

P.V. conceived and designed the study, collected data, performed statistical analysis, critically revised the manuscript, and contributed to data interpretation. M.E. performed statistical analysis, contributed to data interpretation, and critically revised the manuscript. S.R.E. assisted with data collection, contributed

to data interpretation, and prepared the original draft of the manuscript. L.K. contributed to data interpretation and critically revised the manuscript. A.D. contributed to data interpretation and critically revised the manuscript. M.B. supervised the study and reviewed the manuscript. All authors reviewed and approved the final manuscript.

Data Availability

The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request.

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