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How Effective Is Tele-Nursing in Overcoming Psychological Barriers to Colonoscopy Screening?

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Letter to the Editor

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Colorectal cancer (CRC) is the third most common cancer and the second leading cause of cancer-related deaths worldwide. According to global statistics, over 1.9 million new cases of this cancer are diagnosed annually, resulting in approximately 935,000 deaths(Miller et al., 2019). The rate of colorectal cancer in Iran over the past years has been reported to be 7 cases per 100,000 people, making it the fourth most common cancer in Iran(Vakili et al., 2014). Colonoscopy remains the gold standard for CRC screening and diagnosis, capable of reducing mortality rates by 40–60% (Miller et al., 2019). Despite its proven efficacy, acceptance rates for colonoscopy, particularly in developing countries and rural areas, remain suboptimal(Wang et al., 2019).

Colonoscopy screening represents a powerful tool in the fight against colorectal cancer, offering both early detection and preventive capabilities. While many high-income countries achieve screening coverage of 50–80%, low- and middle-income countries typically report rates below 10% (Dare et al., 2021, Gravitt et al., 2021, Petersen et al., 2022). This disparity reflects significant structural, financial, cultural, and educational barriers that disproportionately affect vulnerable populations(Petersen et al., 2022). In developed countries, psychological factors such as fear of pain, embarrassment, and anxiety about findings represent primary barriers(Miller et al., 2019, Yue et al., 2025). In developing countries, systemic challenges, including limited healthcare infrastructure, financial constraints, and low awareness, play a more significant role(Wang et al., 2019, Travis et al., 2024, Lim et al., 2021, Paudel et al., 2025).

Numerous studies have identified fear and anxiety as major barriers to colonoscopy acceptance (Wang et al., 2019, Travis et al., 2024, Lim et al., 2021, Paudel et al., 2025). Accordingly, patients commonly report concerns about pain during the procedure (68% of cases), anxiety about potential complications such as bleeding or perforation (54%), embarrassment due to the invasive nature of the procedure (62%), and worry about possible findings (45%)(Miller et al., 2019, Yue et al., 2025). These psychological factors, combined with insufficient knowledge about the benefits of early detection and health literacy limitations, lead many individuals to avoid this

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critical screening method(Miller et al., 2019, Wang et al., 2019).

Various educational interventions have been proposed to alleviate patient anxiety. Studies such as Shahrbabaki et al. (2022) have demonstrated that structured education programs can reduce patient anxiety by up to 35% (Shahrbabaki et al., 2022). In addition to requiring physical presence, these interventions are costly and time-consuming. Although digital interventions are available, they usually lack personal interaction and ongoing support(Evans et al., 2025).

Tele-nursing—structured telephone counseling and education delivered by trained nurses—offers a promising solution to these challenges. Research indicates that tele-nursing interventions can significantly increase colonoscopy acceptance rates by addressing psychological barriers remotely(De Leo et al., 2022, Hsueh et al., 2016, Tsagkaris et al., 2023). This approach has been shown to reduce patient anxiety by providing personalized education and emotional support(Coughtrey and Pistrang, 2018). The method is particularly valuable in contexts with limited healthcare access, such as rural areas and during public health emergencies(Peng et al., 2024).

The effectiveness of tele-nursing can be explained through self-efficacy theory. When patients receive targeted education and emotional support through telehealth platforms, their confidence in managing the procedure increases, thereby enhancing their willingness to undergo colonoscopy(Shahrbabaki et al., 2022). This method effectively addresses health literacy gaps and provides continuous support throughout the screening process(Cevheroğlu and Büyükyılmaz, 2024).

Despite promising evidence, challenges remain in implementing tele-nursing. Variations in telehealth infrastructure and digital literacy may affect effectiveness across different populations (Shahrbabaki et al., 2022). Additionally, standardizing educational content and training specialized personnel require more attention(Evans et al., 2025). Future research should focus on developing culturally adapted interventions and measuring long-term outcomes in diverse populations(Chen et al., 2023). The study by Mashhadi et al. showed that face-to-face education and educational videos were able to reduce the anxiety of patients who were candidates for colonoscopy, and also emphasized that the implementation of such interventions should be planned according to the time constraints of medical personnel and the conditions of the patients, including cultural differences; their literacy level should also be taken into account(Mashhadi et al., 2020). This point can indicate the importance of distance education and tele-nursing.

Key Points

- Colorectal cancer remains a significant global health burden with high mortality rates
- Psychological barriers significantly impact colonoscopy acceptance rates
- Traditional education methods face accessibility and implementation challenges
- Tele-nursing offers personalized, remote support to address psychological barriers
- Infrastructure and standardization requirements need further development
- Culturally adapted interventions are needed for diverse populations

Conflict of interest

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Keywords

Telemedicine, Colonoscopy, Colorectal Cancer, Anxiety

References

CEVHEROĞLU, S. & BÜYÜKYıLMAZ, F. (2024). Anxiety and health literacy levels of patients undergoing colonoscopy. *Gastroenterolog Nursing,* 47**,** 11-18.

CHEN, J., JIA, L., LI, Y., SHI, Y., DONG, X., YAO, J., ZHU, M., ZHANG, X. & YUAN, H.(2023). Factors influencing adherence to healthy eating behaviors among adult colorectal cancer survivors:

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[DOI: 10.18502/jsbch.v9i2.20254]

a systematic mixed method review. *Supportive Care in Cancer,* 31(1)**,** 88.

COUGHTREY, A. E. & PISTRANG, N. (2018). The effectiveness of telephone-delivered psychological therapies for depression and anxiety: a systematic review. *Journal of telemedicine and telecare,* 24**,** 65-74.

DARE, A. J., KNAPP, G. C., ROMANOFF, A., OLASEHINDE, O., FAMUREWA, O. C., KOMOLAFE, A. O., OLATOKE, S., KATUNG, A., ALATISE, O. I. & KINGHAM, T. P. (2021). High-burden cancers in Middle-income countries: a review of Prevention and early detection strategies targeting At-risk populations. *Cancer Prevention Research,* 14**,** 1061-1074.

DE LEO, A., LIQUORI, G., IEMULO, C., DIONISI, S., GIANNETTA, N., SPANO, A., RAGNOLI, V., PETRONE, F., DI MUZIO, M. & DI SIMONE, E. (2022). Cancer patients and telenursing interventions in Italy. a systematic review. *World Cancer Research Journal,* 9**,** 1-13.

EVANS, C., CLANCY, G., EVANS, K., BOOTH, A., NAZMEEN, B., SUNNEY, C., CLOWES, M., JONES, N. W., JONES, N. & TIMMONS, S. (2025). How to implement digital clinical consultations in UK maternity care: the ARM@ DA realist review. *Health and Social Care Delivery Research***,22,** 1-77.

GRAVITT, P. E., SILVER, M. I., HUSSEY, H. M., ARROSSI, S., HUCHKO, M., JERONIMO, J., KAPAMBWE, S., KUMAR, S., MEZA, G. & NERVI, L. (2021). Achieving equity in cervical cancer screening in low-and middle-income countries (LMICs): Strengthening health systems using a systems thinking approach. *Preventive medicine,* 144**,** 106322.

HSUEH, F.-C., CHEN, C.-M., SUN, C.-A., CHOU, Y.-C., HSIAO, S.-M. & YANG, T.(2016). A study on the effects of a health education intervention on anxiety and pain during colonoscopy procedures. *Journal of Nursing Research,* 24**,** 181-189.

LIM, K. T., NG, C. H., DECRUZ, G. M., LIM, T. Z., DEVI, K., TAN, K.-K. & CHONG, C. S. (2021). Barriers and facilitators towards colonoscopy: a qualitative systematic review. *European Journal of Cancer Prevention,* 30**,** 232-238.

MASHHADI, M., MOHAMMADI, P. A. & SHARIFIAN, P.(2020). Comparison of effect of two methods of face-to-face training and educational video on anxiety and physiological parameters in candidate patients for colonoscopy: A quasi-experimental study. Journal of Health and Care,22(3),267-276.[persian]

MILLER, K. D., NOGUEIRA, L., MARIOTTO, A. B., ROWLAND, J. H., YABROFF, K. R., ALFANO, C. M., JEMAL, A., KRAMER, J. L. & SIEGEL, R. L.(2019). Cancer treatment and survivorship statistics, 2019. *CA: a cancer journal for clinicians,* 69**,** 363-385.

PAUDEL, Y. R., MAH, S., ABOYEJI, A. & ADHIKARI, K.(2025). Barriers and facilitators to colonoscopy participation for colorectal cancer screening: a rapid review. *Journal of Public Health***,** 1-39.

PENG, W., HUANG, Q. & MAO, B. (2024). Evaluating variations in the barriers to colorectal cancer screening associated with telehealth use in rural US Pacific Northwest. *Cancer Causes & Control,* 35(4)**,** 635-645.

PETERSEN, Z., JACA, A., GININDZA, T., MASEKO, G., TAKATSHANA, S., NDLOVU, P., ZONDI, N., ZUNGU, N., VARGHESE, C. & HUNTING, G. (2022). Barriers to uptake of cervical cancer screening services in low-and-middle-income countries: a systematic review. *BMC women's health,* 22(1)**,** 486.

SHAHRBABAKI, P. M., ASADI, N. B., DEHESH, T. & NOUHI, E. (2022). The effect of a pre-colonoscopy education program on fear and anxiety of patients: a randomized clinical trial study. *Iranian Journal of Nursing and Midwifery Research,* 27**(6),** 554-559.[persian]

TRAVIS, E., KERRISON, R. S., O'CONNOR, D. B. & ASHLEY, L. (2024). Barriers and facilitators to colonoscopy for cancer detection: patient and practitioner perspectives. *Psychology & health,* 39(9)**,** 1263-1283.

TSAGKARIS, C., TRYGONIS, N., SPYROU, V. & KOULOURIS, A. (2023). Telemedicine in care of sarcoma patients beyond the COVID-19 pandemic:

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[DOI: 10.18502/jsbch.v9i2.20254]

challenges and opportunities. *Cancers,* 15(4)**,** 3700.

VAKILI, M., AGHAKOOCHAK, A., PIRDEHGHAN, A., SHIRYAZDY, M. & SAFFARMOGHADAM, A. (2014). The Survival Rate of Patients with Colorectal Cancer in Yazd during 2001-2011. *The Journal of Shahid Sadoughi University of Medical Sciences,* 22(3)**,** 1187-1195.

Wang, H., Roy, S., Kim, J., Farazi, P. A., Siahpush, M., & Su, D. (2019). Barriers of colorectal cancer screening in rural USA: a systematic review. *Rural and remote health*, *19*(3), 1-10.

YUE, Q.-Q., FENG, G.-H., PENG, T., TANG, T., SUN, Y.-X., MENG, X.-R., HUANG, L.-L., ZHAO, K.-H., HUANG, H.-L. & ZENG, Y. (2025). What is the current state of anxiety and its related factors in Chinese patients undergoing colonoscopy? A cross-sectional study. *BMC psychology,* 13**(1),** 169.

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[DOI: 10.18502/jsbch.v9i2.20254]

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