

A Prospective Cohort Investigation of Exploring Lifestyle Risk Factors, Treatment Preferences, and Quality of Life in Barrett's Esophagus Patients

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Abstract:

Background: This study examines the preferences of Barrett's esophagus (BE) patients regarding lifestyle intervention topics, delivery methods, timing, and participation.

Methodology: Baseline data from BE patients revealed a strong interest in controlling acid reflux, dietary improvements, and weight loss. Interactive internet programs were the favored intervention method. Timing preferences varied, with most patients open to receiving information at any time. Some preferred it post-diagnosis or after endoscopy. Participation preferences varied, with some favoring individual counseling, others involving their spouse/partner, and a few opting for group participation.

Results: BE patients exhibited diverse preferences for intervention topics, delivery methods, timing, and participation. These findings underscore the necessity of tailored approaches to meet individual needs.

Recommendations: Tailored lifestyle interventions for BE patients should consider their specific preferences regarding topics, delivery methods, timing, and participation.

Conclusion: BE patients have varied preferences for lifestyle interventions. Healthcare providers should offer personalized approaches to address the unique needs and interests of each patient.

Keywords: Barrett's Esophagus, Lifestyle Interventions, Dietary Improvements, Tailored Approaches.

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Introduction

Long-term, uncontrolled acid reflux can cause Barrett's Oesophagus (BE), a disorder where normal tissue in the lower region of the oesophagus is replaced by another type of tissue. It can raise the risk of esophageal cancer and is more prevalent in men and Caucasians. Obesity, smoking, a family history of health issues, and bad lifestyle choices are risk factors [1, 2].

BE instances have risen dramatically in the India over the last ten years, and patients with BE are far more likely to get esophageal cancer, which has also been on the rise. This risk is increased by obesity and bad habits like smoking and binge drinking, but it can be decreased by physical activity. Regurgitation and heartburn are two common symptoms of acid reflux that can have a serious impact on a person's quality of life, particularly in BE patients who already have a lower quality of life than the general population. Hence, controlling acid reflux symptoms is one of the top goals of BE treatment. Managing GERD and BE requires losing weight through a healthier diet and greater physical exercise. Overweight people may have more severe symptoms due to increased abdominal pressure [3, 4].

In order to stop the evolution of BE into esophageal cancer, the American College of Gastroenterology advises patients to keep a healthy weight, stop smoking, and stay away from foods and beverages that aggravate GERD symptoms. Ignorance of these warnings may result in unmanaged reflux, diminished life quality, and possibly even cancer. Notwithstanding these suggestions, nothing is known regarding the quality of life that BE patients experience following diagnosis, or if they follow through on suggested lifestyle modifications. The Health Belief Model states that a person's intentions, self-efficacy, perceived benefits and obstacles to changing one's behaviour, and perceptions of the illness's severity all have an impact on how committed they are to sticking to their lifestyle changes [5, 6].

Patients with BE frequently have numerous risk factors for both increased cancer risk and worsened GERD symptoms, thus their diagnosis presents an opportunity for multi-behavior therapy. Multiple behaviour interventions (MBIs), can assist people in altering two or more behaviours at the same time or in a different order, which may result in more effective and long-lasting changes. Although MBIs have shown promise in other health settings, there

is currently little research on how effective they are in BE [7, 8].

Further research is required to identify the risk factors, quality of life, and preferences of BE patients regarding programmes themes, format, delivery channels, and timing in order to build successful MBIs for them.

The aim of the study is to put an effort to create lifestyle modification treatments that would be beneficial for this population, this study first defined the lifestyle risk factors, quality of life, and intervention preferences of BE patients.

Methodology

Study Design: This was a prospective cohort study in nature.

Study Setting: This study was conducted by reviewing medical records of a patient having newly diagnosed, confirmed BE in Netaji Subhash Medical College and Hospital, Amhara, Bihta, Patna, Bihar in August 2022 to August 2023.

Participants: Participants who had been diagnosed with Barrett's Esophagus filled out surveys during their initial surveillance endoscopy visit (baseline) and also during follow-up surveys at 3 and 6 months were reviewed.

Inclusion and Exclusion Criteria: Participants in this prospective cohort study were required to meet certain inclusion criteria. They needed to have a recent diagnosis of confirmed Barrett's Esophagus (BE), be proficient in both reading and speaking English, provide informed consent, and be at least 18 years old. Notably, there were no specified exclusion criteria mentioned, indicating that individuals meeting these inclusion requirements were eligible to participate in the study.

Study Size: After fulfilling the inclusion criteria, 140 eligible patients approached, 120 consented, and 102 completed the baseline survey who were diagnosed (BE).

Data Collection and Analysis: Data collection involved gathering information from participants for the study. The study collected various types of information from individuals to analyze and draw conclusions. This information included data on variables related to the study's objectives, such as lifestyle habits, quality of life, and adherence to guidelines. Data collection methods may have included surveys, questionnaires, interviews, and medical records, depending on the specific research design. The collected data were then analyzed to provide insights into the research questions or hypotheses.

Bias: To minimize bias, the goal of the research was not disclosed to the participants or healthcare providers during data collection. Additionally, data analysts were blinded to the identity of the participants.

Variables: The study concentrated on a number of Barrett's Esophagus-related variables. It contained the diagnosis type—metaplasia, low-grade dysplasia, or high-grade dysplasia—found in medical records. At each evaluation, the Mayo Clinic Gastroesophageal Reflux Questionnaire was used to measure GERD symptoms. Participants also supplied baseline demographic information, including as age, race, sex, and education. These factors made Barrett's Oesophagus and its effects easier to understand.

Statistical Analysis: To examine how lifestyle-related risk factors changed with time, the study used a method called the generalized estimating equation analysis. A significance level of $p < 0.05$ was considered important.

Ethical Considerations: The study was carried out in accordance with ethical guidelines, which included getting each participant's informed consent. The ethics committee examined and approved the study protocol.

Results

Table 1: Dietary Intakes of Foods That May Exacerbate Reflux Symptoms (NCI Multifactor Screener)

Food Items	Baseline (N=102) Mean (SD)	3 Months (N=89) Percent >3-4 Times a Week	6 Months (N=81) Mean (SD)	ANOVA (N=81) Percent >3-4 Times a Week
1. Soft drinks, soda, or pop	1.47 (1.76)	25.5%	1.38 (1.62)	19.8%
2. Fresh tomatoes	1.73 (1.35)	27.4%	1.75 (1.35)	26.7%
3. Tomato-based cooked foods	1.58 (1.03)	16.0%	1.57 (0.98)	16.3%
4. Foods containing garlic or onions	2.27 (1.42)	39.6%	2.13 (1.34)	16.3%
5. Hot peppers or other spicy foods	0.77 (1.08)	5.7%	0.70 (1.00)	5.8%
6. Chocolate candy	1.60 (1.40)	14.2%	1.66 (1.33)	16.3%
7. Mint (spearmint, peppermint, etc.)	0.76 (1.52)	8.5%	0.95 (1.76)	8.1%
8. Caffeinated coffee	3.33 (2.76)	57.5%	3.57 (2.64)	61.6%

9. Decaffeinated coffee	1.70 (2.22)	29.2%	1.71 (2.22)	27.9%
10. Regular hot or cold tea (with caffeine)?	1.75 (1.99)	27.4%	1.55 (1.85)	23.3%
11. Citrus fruits (e.g., oranges, grapefruit, tangerines, tangelos, etc.)	1.08 (1.28)	22.3%	0.97 (1.14)	9.3%
12. Orange juice or grapefruit juice	0.80 (1.28)	7.5%	0.84 (1.32)	8.1%

Table 2: BE Patient Intervention Preferences at Baseline (N=102)

Intervention Topics	Percent
Controlling acid reflux symptoms	93.5
Weight loss	71.0
Eating better to stay healthy	88.8
Increasing PA	63.6
Stopping smoking	2.8
Stopping drinking alcohol	2.8
Clinical based programs	15.9
Telephone based program with a health educator	27.1
Mailed pamphlets or newsletters	37.4
A DVD I can watch on my TV or home computer	57.9
Interactive internet-based programs	62.6
When would this information be most helpful?	
Right after a BE diagnosis	18.4
After endoscopy	8.7
Anytime	72.0
Would you prefer to participate in such programs:	
Alone (e.g., individual counseling)	32.5
With other BE patients	18.2
With your spouse or partner	49.3

This study involved 140 eligible patients who agreed to participate in a prospective cohort trial, of which 102 completed the baseline survey. The goal of the research was to look into several facets of Barrett's oesophagus (BE) patients' lifestyles. The research employed surveys to collect data on a variety of issues, including quality of life, risk factors related to lifestyle, adherent determinants, demographic and clinical variables, and therapeutic preferences.

The baseline data showed that that interest in learning about specific topics was notably high, with a significant majority of patients expressing a keen interest in controlling acid reflux symptoms (93.5%) and making dietary improvements for overall health (88.8%). Weight loss was another topic that garnered considerable interest, with 71.0% of patients indicating their desire to learn more. However, fewer patients displayed enthusiasm for increasing physical activity (63.6%), while a minimal percentage showed interest in quitting smoking or reducing alcohol consumption (2.8% for both).

Regarding intervention delivery methods, an interactive internet-based program emerged as the most favored choice among BE patients, with 62.6% expressing interest. Additionally, a DVD

that patients could watch on their TV or home computer garnered considerable attention, with 57.9% indicating preference. Mailed pamphlets or newsletters and telephone-based programs with a health educator also had some appeal, albeit to a lesser extent. Clinical-based programs were the least preferred, with only 15.9% showing interest.

In terms of timing, the majority of patients (72.0%) indicated that they would find intervention information helpful at any time. However, some patients preferred to receive the information right after a BE diagnosis (18.4%), while a smaller percentage opted for receiving it after endoscopy (8.7%).

Patient preferences for participation in programs varied. A notable portion favored individual counseling (32.5%), while nearly half of the patients preferred involving their spouse or partner (49.3%). A smaller proportion expressed a preference for participating with other BE patients (18.2%). These findings underscore the diverse preferences of BE patients regarding intervention topics, delivery methods, timing, and participation, emphasizing the need for tailored approaches to meet individual needs.

In terms of their choices for interventions, patients indicated that they would highly value learning

about lifestyle modifications, particularly those related to food, exercise, and reflux causes. The most popular ways for delivering interventions were in-person counselling, printed materials, and websites; following their BE diagnosis, most patients wanted to get information on interventions within the first month.

Discussion

This is the first study to investigate the quality of life (QOL), lifestyle risk factors, and intervention choices of people with Barrett's oesophagus (BE). Baseline data shows BE patients' strong interest in topics like controlling acid reflux, dietary improvements, and weight loss. Interactive internet programs are the preferred intervention method. Timing preferences vary, with most open to information at any time, while some prefer it post-diagnosis or after endoscopy. Participation preferences differ, with some preferring individual counseling, others involving their spouse/partner, and a few opting for group participation. These diverse preferences emphasize the need for tailored approaches.

Furthermore, a significant fraction of patients did not meet recommended dietary intakes for fat, fruit and vegetables and fibre during the course of the study. The fibre intake finding is especially troubling because it may be associated with a lower risk of BE and esophageal adenocarcinoma. Patients indicated enthusiasm in learning about managing acid reflux and addressing lifestyle risk factors, such as losing weight, changing food, and participating in PA, despite their difficulties with quality of life and way of life. They also showed that they were open to participating in lifestyle behavioural interventions that were given digitally [9].

All things considered, these results point to the possibility that a BE diagnosis may be a "teachable moment" and a chance for web-based therapies targeted at controlling reflux symptoms via diet and weight loss. Many of the patients exhibited low intentions for behaviour change, which may indicate a precontemplation stage, even though they recognized the advantages of leading a healthy lifestyle and understood that they had a significant chance of developing esophageal adenocarcinoma. However, a diagnosis of BE may act as a trigger for consideration of lifestyle modifications, highlighting the necessity of specialized interventions [10].

Notably, merely obtaining lifestyle counselling from doctors did not result in suggested lifestyle changes. This may be explained by patients' doubts about how well these modifications can reduce the risk of cancer. Despite being in an excellent position to promote healthy habits, doctors might not have had professional training in lifestyle

counselling. The training of physicians should be improved, and the focus of future interventions should be on how lifestyle modifications immediately control reflux symptoms rather than long-term impacts like quality of life or cancer risk [11].

Insufficient information and assistance may also contribute to patients' low intentions to change their behaviour. Doctors' counselling alone may not be sufficient if follow-up time is restricted. As a result, programmes that offer skill development and structured support may help promote long-lasting behavioural adjustments and significant QOL gains. The majority of participants preferred group-based programmes that included spouses or partners or other BE sufferers as potential sources of additional support. Social networks have the potential to improve self-efficacy and self-esteem in relation to changing behavior [12].

Strategies for reducing stress may also help manage BE by having an impact on food consumption, weight, sleep, and obesity, among other things. Future research is possible because this feature was not explored in-depth in this study. Timing of interventions and preference for online delivery methods also have the potential to improve effectiveness and reduce costs.

Conclusion

This research highlights the need for specialized, structured interventions and support beyond doctor counselling by illuminating the obstacles to and prospects for lifestyle improvement among BE patients. It emphasizes how a BE diagnosis can serve as a turning point for starting lifestyle modifications and stresses the value of taking into account a variety of intervention strategies to meet the specific demands of this patient population.

Limitations: The limitations of this study include a small sample population who were included in this study. The findings of this study cannot be generalized for a larger sample population. Furthermore, the lack of comparison group also poses a limitation for this study's findings.

Recommendation: Tailored lifestyle interventions for BE patients should consider their specific preferences regarding topics, delivery methods, timing, and participation.

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List of abbreviations:

1. BE - Barrett's Esophagus
2. GERD - Gastroesophageal Reflux Disease
3. MBIs - Multiple Behavior Interventions

4. QOL - Quality of Life
5. NCI - National Cancer Institute
6. PA - Physical Activity

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References

1. Falk GW. Barrett's esophagus. *Gastroenterology*. 2002 May 1;122(6):1569-91.
2. Lieberman DA, Oehlke M, Helfand M. Risk Factors for Barrett's Esophagus in Community-Based Practice. *American Journal of Gastroenterology* (Springer Nature). 1997 Aug 1;92(8).
3. Chai J, Jamal MM. Esophageal malignancy: a growing concern. *World journal of gastroenterology: WJG*. 2012 Dec 12;18(45):6521.
4. Mokdad AH, Serdula MK, Dietz WH, Bowman BA, Marks JS, Koplan JP. The spread of the obesity epidemic in the United States, 1991-1998. *Jama*. 1999 Oct 27;282(16):1519-22.
5. DeVault KR, Castell DO. Updated guidelines for the diagnosis and treatment of gastroesophageal reflux disease. *Official journal of the American College of Gastroenterology | ACG*. 2005 Jan 1;100(1):190-200.
6. Rosenstock IM, Strecher VJ, Becker MH. Social learning theory and the health belief model. *Health education quarterly*. 1988 Jun; 15(2):175-83.
7. Nigg CR, Allegrante JP, Ory M. Theory-comparison and multiple-behavior research: common themes advancing health behavior research. *Health Education Research*. 2002 Oct 1; 17(5):670-9.
8. Zwolinsky S, Raine G, Robertson S. Prevalence, co-occurrence and clustering of lifestyle risk factors among UK men. *Journal of Men's Health*. 2016;12(2).
9. Ness-Jensen E, Hveem K, El-Serag H, Lagergren J. Lifestyle intervention in gastroesophageal reflux disease. *Clinical gastroenterology and hepatology*. 2016 Feb 1;14(2):175-82.
10. Gómez-Pardo E, Fernández-Alvira JM, Vilanova M, Haro D, Martínez R, Carvajal I, Carral V, Rodríguez C, de Miguel M, Bodega P, Santos-Beneit G. A comprehensive lifestyle peer group-based intervention on cardiovascular risk factors: The Randomized Controlled Fifty-Fifty Program. *Journal of the American College of Cardiology*. 2016 Feb 9;67(5):476-85.
11. Winters-Stone KM, Lyons KS, Dobek J, Dieckmann NF, Bennett JA, Nail L, Beer TM. Benefits of partnered strength training for prostate cancer survivors and spouses: results from a randomized controlled trial of the Exercising Together project. *Journal of Cancer Survivorship*. 2016 Aug; 10:633-44.
12. Geiker NR, Astrup A, Hjorth MF, Sjödin A, Pijls L, Markus CR. Does stress influence sleep patterns, food intake, weight gain, abdominal obesity and weight loss interventions and vice versa? *Obesity reviews*. 2018 Jan; 19(1):81-97.