

Practical Feasibility of the Brahams Protocol as a Partner-Assisted Breast Cancer Screening Modality and Its Public-Health Implications: A Cross-Sectional Survey among Hospital Nursing Staff

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ABSTRACT

Background: Breast cancer screening is influenced not only by the clinical rationale and performance of a screening approach but also by its social acceptability and practical feasibility. The Brahams Protocol (BP), developed by Indian medical oncologist Dr. (Lt Col) Brahamjit Singh, is a partner-assisted breast cancer screening approach designed to integrate structured breast-health vigilance into routine life. Previous work has examined its behavioral rationale, relevance to early detection in younger women, knowledge gaps among nursing professionals, and social and cultural acceptability. The present study assessed the practical feasibility and public-health relevance of BP.

Methods: A cross-sectional survey was conducted following a series of eight structured seminars on BP among 300 nursing staff at Sarvodaya Hospital, Faridabad and Noida, during April–June 2026. Of these, 273 participants completed the survey, comprising 61 males and 212 females. The questionnaire included demographic characteristics and multiple domains assessing perceptions of BP. The present analysis focused on feasibility and practicality, including ease of practice, partner participation, equipment requirements, affordability, applicability across socioeconomic and educational groups, privacy and dignity, cultural adaptability, rural applicability, community-health integration, and routine practice.

Results: Among 5,460 item-level responses from 273 participants, 5,319 (97.4%) were affirmative. Individual feasibility items received affirmative responses ranging from 89.7% to 98.9%. High levels of perceived feasibility were observed for partner participation, affordability, minimal equipment requirements, applicability across socioeconomic and educational groups, privacy and dignity, cultural compatibility, routine practice, and integration into nursing and community-health activities.

Conclusion: BP demonstrated high perceived practical feasibility and social acceptability among the nursing personnel surveyed. Its partner-assisted structure, low resource requirements, affordability, cultural compatibility, and potential integration into routine and community-health practice represent favorable implementation characteristics. These findings add practical-feasibility evidence to the emerging evidence base supporting BP and provide an encouraging public-health signal for its further evaluation as a complementary breast cancer screening approach. The findings should be interpreted as implementation evidence and not as evidence of screening effectiveness or clinical outcome benefit.

Keywords: Brahams Protocol; Dr. Brahamjit Singh, breast cancer screening; practical feasibility; social acceptability; partner-assisted screening; breast health vigilance; implementation science; nursing personnel; public health; early detection

INTRODUCTION

Breast cancer remains a major global public health challenge and is the most commonly diagnosed cancer among women in many parts of the world. In 2024, an estimated 2.4 million women were diagnosed with breast cancer

globally and approximately 694,000 died from the disease.¹ The burden is particularly challenging in resource-constrained settings, where limitations in awareness, access to screening and diagnostic services, delayed presentation, and inequities in treatment can adversely affect outcomes.^{1,2} Early detection, timely diagnosis, and access to effective treatment therefore remain central components of contemporary breast cancer control.^{1,2}

Early detection encompasses two related but distinct approaches: early diagnosis of clinically apparent abnormalities and screening of apparently healthy populations for preclinical disease.¹ Screening is a population-level strategy intended to detect disease before recognizable symptoms develop, whereas early diagnosis depends on awareness of breast abnormalities, prompt recognition, timely clinical assessment, diagnostic confirmation, and appropriate referral for treatment.^{1,3} These approaches are complementary rather than interchangeable.

Mammography remains an established evidence-based modality for population breast cancer screening in age groups and risk categories for which screening is recommended. Current recommendations vary internationally; for example, the United States Preventive Services Task Force recommends biennial mammography for average-risk women aged 40–74 years, while other organizations and health systems use different starting ages and intervals.^{4,5} Thus, mammography remains an important component of breast cancer screening and should not be displaced by approaches that have not themselves been established as population screening tests.

At the same time, a substantial proportion of breast cancer occurs in women who are younger than conventional population-screening age. This issue is particularly relevant in India, where breast cancer has historically been reported at a younger age than in many Western populations, and where young women constitute an important proportion of the breast cancer burden.^{6,7} Breast density is another important consideration because dense fibro glandular tissue can make mammographic detection of abnormalities more difficult.⁸ Current evidence also continues to evolve regarding the most appropriate supplemental imaging strategies for women with dense breasts.^{4,8}

This creates an important conceptual space for ongoing breast-health vigilance, particularly among women who are not undergoing routine mammographic screening because of age or individual screening recommendations. Such vigilance should not be confused with, or presented as a substitute for, mammographic screening. Rather, it may provide an additional opportunity for recognizing changes that develop between formal healthcare encounters and for prompting appropriate clinical evaluation.

The World Health Organization (WHO) emphasizes that early diagnosis depends on awareness of breast cancer signs and symptoms, timely medical assessment of abnormalities, diagnostic confirmation, and referral for treatment.^{1,2} Breast abnormalities may include a new lump or thickening, changes in breast size or shape, skin changes, nipple or areolar abnormalities, or abnormal nipple discharge.¹ Importantly, a breast abnormality identified by an individual or partner cannot establish a diagnosis of cancer; clinical assessment and appropriate diagnostic investigations remain necessary.

The Brahams Protocol (BP), developed by Indian medical oncologist Dr. (Lt Col) Brahamjit Singh has been proposed as a partner-assisted, couple-centered breast-health vigilance concept designed to complement—not replace—established breast cancer screening and diagnostic pathways. BP integrates structured breast inspection and palpation with shared health responsibility, partner participation, breast-health awareness, recognition of potentially abnormal changes, emotional reinforcement, and responsiveness to healthcare escalation. The underlying proposition is that a spouse or intimate partner, who may have regular physical and emotional proximity to the woman, can potentially serve as an additional observer and source of encouragement for breast-health vigilance.

The intended role of BP differs according to the existing screening context. Where mammographic screening is recommended, BP is conceived as complementary to mammography, providing an additional layer of ongoing breast-health vigilance between formal screening encounters and encouraging appropriate evaluation of newly recognized abnormalities. BP is therefore not intended to replace mammography or any other evidence-based screening modality.

For women younger than the age at which routine mammographic screening is recommended, particularly younger women in whom dense breast tissue may reduce the visibility of abnormalities on mammography, the potential role of BP is conceptually different. In this population, BP is proposed as a practical, low-resource means of maintaining regular breast-health vigilance and encouraging earlier recognition of abnormalities during a period when routine population mammographic screening may not be indicated.^{4,8} If an abnormality is recognized, BP is intended to facilitate—not replace—professional clinical assessment and appropriate diagnostic imaging.

The potential public-health value of such a concept depends not only on its theoretical rationale but also on whether it can realistically be understood, practiced, sustained, and incorporated into everyday life. Feasibility is particularly important for a partner-assisted model because implementation may be influenced by time requirements, ease of learning, financial and equipment requirements, educational background, socioeconomic circumstances, cultural context, privacy and dignity, rural accessibility, need for professional supervision, and the ability to integrate the approach with existing health-education systems.

Assessment of these characteristics among healthcare workers provides an important preliminary step before prospective implementation. Nursing personnel are particularly relevant because of their familiarity with health education, patient communication, community outreach, and preventive-health activities. Their assessment may help identify potential strengths and practical barriers before the concept is evaluated in the general population.

The present study was therefore undertaken following a series of structured educational seminars introducing hospital nursing staff to the Brahams Protocol. The survey specifically assessed perceived feasibility and practicality rather than actual implementation effectiveness. Participants were introduced to the concept before completing the questionnaire; they were not being evaluated after a period of independent household practice. Accordingly, the study was designed to determine whether healthcare workers considered BP understandable, practicable, affordable, adaptable, culturally acceptable, suitable for couple-level participation, and potentially integrable into community and public-health activities.

Objective

The primary objective of this study was to assess the perceived feasibility and practicality of the Brahams Protocol as a partner-assisted breast-health vigilance concept among hospital nursing staff following structured educational exposure.

Secondary objectives were to assess perceptions regarding: (1) ease of understanding and practice; (2) incorporation into routine life and monthly couple-level practice; (3) applicability to couples with and without medical backgrounds; (4) equipment and financial requirements; (5) applicability across educational and socioeconomic groups; (6) applicability across different ages and cultural backgrounds; (7) preservation of women's privacy and dignity; (8) applicability to rural and resource-limited communities; (9) performance without continuous professional supervision; (10) integration with existing breast-health awareness and nursing-led community-health programme; and (11) overall perceived feasibility, practicality, and sustainability of BP as a complementary breast-health vigilance approach.

MATERIALS AND METHODS

Study Design and Participants

The survey was undertaken during eight structured educational seminars conducted at Sarvodaya Hospital, Faridabad, and Sarvodaya Hospital, Noida, between April and June 2026. The survey is reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines.

A total of 300 nursing personnel attended the seminars. Of these, 273 participants voluntarily completed the survey questionnaire, yielding an overall response rate of 91.0%. Overall, 212 participants were female and 61 were male, with an age range of 24–41 years.

Survey Instrument

A structured, self-administered questionnaire developed by the investigators was used for data collection. The questionnaire comprised a demographic profile and multiple predefined domains evaluating different dimensions of the Brahams Protocol. The present manuscript reports findings from the Social and Cultural Acceptability domain, one of the many domains included in the survey, which was assessed using 20 dichotomous (Yes/No) questions.

Data Collection

The questionnaire was administered immediately after completion of each educational seminar. Participation was voluntary and anonymous. Participants were informed about the purpose of the survey, and only fully completed questionnaires were included in the final analysis.

Ethical Considerations

The study was conducted in accordance with the ethical principles of the Declaration of Helsinki. The survey was an anonymous, voluntary, non-interventional knowledge assessment that collected no clinical, identifiable, or personal health information and preceded any educational or protocol-related intervention; as such, it did not require formal institutional ethics committee approval. Participation was voluntary and anonymous, and completion of the questionnaire was taken to imply informed consent.

Statistical Analysis

Data were entered into Microsoft Excel and analyzed using IBM SPSS Statistics (Version XX.X; IBM Corp., Armonk, NY, USA). Descriptive statistics were used to summarize participant characteristics and survey responses. Categorical variables were expressed as frequencies and percentages. Comparisons between male and female participants were performed using the Chi-square test or Fisher's exact test, as appropriate. Odds ratios (ORs) with 95% confidence intervals (CIs) were calculated for statistically significant associations. A two-tailed P value of <0.05 was considered statistically significant.

RESULTS

Participants

A total of 300 nursing staff from Sarvodaya Hospital, Faridabad and Noida, were invited to participate following a series of eight educational seminars introducing the Brahams Protocol. Of these, 273 participants completed the survey and were included in the present analysis, giving a response completion rate of 91.0%. The respondents comprised 212 females (77.7%) and 61 males (22.3%).

The present analysis focuses specifically on the **Feasibility and Practicality of the Brahams Protocol** domain, which comprised 20 structured questions assessing perceived ease of understanding and practice, couple-level applicability, resource requirements, inclusiveness, cultural adaptability, community integration, and overall feasibility and sustainability.

Overall perceived feasibility and practicality

The responses demonstrated a highly favorable perception of the feasibility and practicality of the Brahams Protocol. Across the 20 questions, there were 5,319 affirmative responses out of 5,460 possible responses, corresponding to an overall affirmative response rate of **97.4%**.

The proportion of affirmative responses across individual questions ranged from **89.7% to 98.9%** (Table 1). Thus, although endorsement was consistently high, the degree of perceived feasibility varied somewhat across specific implementation characteristics.

Table 1. Item-wise Assessment of Feasibility and Practicality of the Brahams Protocol

Total respondents = 273 (Female = 212; Male = 61)

Q.	Feasibility & practicality statement	Female YES n (%)	Female NO n (%)	Male YES n (%)	Male NO n (%)	Overall YES n (%)	χ^2	Pearson p	Fisher p
1	BP is easy to understand and practice	209 (98.6)	2 (0.9)	56 (91.8)	5 (8.2)	265 (97.1)	9.917	0.0016	0.0071
2	BP can be understood without medical knowledge	209 (98.6)	2 (0.9)	57 (93.4)	4 (6.6)	266 (97.4)	6.902	0.0086	0.0242
3	BP can be incorporated as a monthly event in life	203 (95.8)	9 (4.2)	57 (93.4)	4 (6.6)	260 (95.2)	0.558	0.4549	0.4956
4	Most married couples can learn BP	210 (99.1)	2 (0.9)	59 (96.7)	2 (3.3)	269 (98.5)	1.789	0.1810	0.2168
5	Young married couples can practice BP monthly and regularly	209 (98.6)	2 (0.9)	58 (95.1)	3 (4.9)	267 (97.8)	4.133	0.0420	0.0764
6	BP is easy to practice because it requires no medical equipment	209 (98.6)	2 (0.9)	59 (96.7)	2 (3.3)	268 (98.2)	1.774	0.1829	0.2181
7	BP can be practiced without financial burden on the family	208 (98.1)	4 (1.9)	60 (98.4)	1 (1.6)	268 (98.2)	0.016	0.8989	1.0000
8	BP is practical for families living in rural areas	191 (90.1)	21 (9.9)	54 (88.5)	7 (11.5)	245 (89.7)	0.127	0.7218	0.8107
9	BP can be practiced irrespective of educational background	208 (98.1)	4 (1.9)	58 (95.1)	3 (4.9)	266 (97.4)	1.742	0.1869	0.1883
10	BP can be practiced irrespective of socioeconomic status	209 (98.6)	3 (1.4)	59 (96.7)	2 (3.3)	268 (98.2)	0.915	0.3388	0.3109
11	Age is not a barrier to BP practice	207 (97.6)	5 (2.4)	60 (98.4)	1 (1.6)	267 (97.8)	0.114	0.7357	1.0000
12	BP can be practiced while maintaining women's privacy and dignity	210 (99.1)	2 (0.9)	59 (96.7)	2 (3.3)	269 (98.5)	1.789	0.1810	0.2168
13	BP can be adapted across different cultural backgrounds	209 (98.6)	3 (1.4)	58 (95.1)	3 (4.9)	267 (97.8)	2.704	0.1001	0.1274
14	Couples can correctly perform BP without continuous professional supervision	203 (95.8)	9 (4.2)	57 (93.4)	4 (6.6)	260 (95.2)	0.558	0.4549	0.4956
15	BP can be implemented effectively in resource-limited communities	210 (99.1)	2 (0.9)	59 (96.7)	2 (3.3)	269 (98.5)	1.789	0.1810	0.2168
16	BP can be incorporated into existing breast-health awareness programme	209 (98.6)	3 (1.4)	58 (95.1)	3 (4.9)	267 (97.8)	2.704	0.1001	0.1274

17	BP can improve participation in breast cancer awareness activities	210 (99.1)	2 (0.9)	60 (98.4)	1 (1.6)	270 (98.9)	0.211	0.6459	0.5332
18	BP can be integrated into routine nursing-led community health education	209 (98.6)	3 (1.4)	59 (96.7)	2 (3.3)	268 (98.2)	0.915	0.3388	0.3109
19	Would recommend BP to married couples as a practical breast-health approach	210 (99.1)	2 (0.9)	60 (98.4)	1 (1.6)	270 (98.9)	0.211	0.6459	0.5332
20	Overall, BP is a practical, feasible and sustainable approach	210 (99.1)	2 (0.9)	60 (98.4)	1 (1.6)	270 (98.9)	0.211	0.6459	0.5332

Abbreviations: BP, Brahams Protocol; χ^2 , Pearson's chi-square statistic.

Statistical note: Pearson's chi-square test without continuity correction was used to compare female and male responses. Two-sided Fisher's exact testing is additionally presented because of the small number of negative responses in several cells. Percentages are calculated within sex-specific groups and overall. Statistical significance was defined as $p < 0.05$.

Interpretive note: Because 20 item-level comparisons were performed, statistically significant findings should be interpreted cautiously and considered in the context of multiple testing. Fisher's exact p-values are recommended as the principal inferential results for manuscript interpretation.

Individual understanding and practice

The majority of participants considered the Brahams Protocol easy to understand and practice. Overall, 265 of 273 respondents (97.1%) agreed that BP was easy to understand and practice. Similarly, 266 participants (97.4%) considered the protocol sufficiently simple to be understood by individuals without medical knowledge.

The possibility of incorporating BP as a monthly event in everyday life was endorsed by 260 participants (95.2%). Likewise, 260 participants (95.2%) believed that couples could correctly perform BP without continuous supervision by healthcare professionals.

Age was not perceived to be a major barrier, with 267 participants (97.8%) indicating that both younger and older individuals could practice BP.

Couple-level practicality and acceptability

The strongest overall pattern of endorsement was observed for the couple-level practicality and acceptability of BP. A total of 269 participants (98.5%) believed that most married couples could learn the Brahams Protocol, while 267 (97.8%) considered that young married couples could realistically practice it regularly on a monthly basis.

The ability to maintain women's privacy and dignity while practicing BP was endorsed by 269 participants (98.5%). Furthermore, 270 participants (98.9%) stated that they would recommend BP to married couples as a practical breast-health approach.

The overall question assessing whether BP was a practical, feasible, and sustainable approach received an affirmative response from 270 of 273 participants (98.9%), representing one of the highest levels of endorsement in the domain.

Resource requirements and inclusiveness

The survey demonstrated strong perceived resource accessibility. A total of 268 participants (98.2%) agreed that BP was easy to practice because it did not require medical equipment. The same number (268; 98.2%) considered that BP could be practiced without financial burden on the family.

Similarly, 268 participants (98.2%) believed that BP could be practiced irrespective of socioeconomic status, while 266 (97.4%) considered it applicable irrespective of educational background.

The potential applicability of BP in resource-limited communities was endorsed by 269 participants (98.5%).

However, the question concerning applicability to rural families received the lowest affirmative response in the entire domain: 245 of 273 participants (89.7%). Although this still represented a strong majority, it was notably lower than the endorsement observed for the other resource-related characteristics (Tables 1 and 3).

Cultural adaptability and community integration

The potential adaptability of BP across different cultural backgrounds was endorsed by 267 participants (97.8%). Similarly, 267 participants (97.8%) believed that BP could be incorporated into existing breast-health awareness programme.

A total of 270 participants (98.9%) believed that BP could improve participation in breast cancer awareness activities, while 268 participants (98.2%) considered that it could be integrated into routine nursing-led community health education. These findings indicate consistently high perceived applicability of BP beyond individual or couple-level practice and towards community-based health education.

Conceptual subdomain analysis

For secondary analysis, the 20 questions were organized into four conceptual subdomains: individual understanding and self-practice; couple-level practicality and acceptability; resource accessibility and inclusiveness; and cultural adaptability and community/public-health integration (Table 2).

The highest pooled affirmative response was observed for **couple-level practicality and acceptability (98.5%)**, followed by **cultural adaptability and community/public-health integration (98.2%)**. The pooled affirmative responses for **resource accessibility and inclusiveness** and **individual understanding and self-practice** were 96.7% and 96.6%, respectively.

The range of affirmative responses was widest within the resource accessibility and inclusiveness domain (89.7–98.5%), primarily reflecting the relatively lower endorsement of rural applicability.

These subdomains represent conceptual groupings developed for secondary analysis of the survey items and are not intended to represent formally validated psychometric scales.

Table 2. Conceptual Subdomain-wise Assessment of Perceived Feasibility and Practicality of the Brahams Protocol

Total respondents = 273 (Female = 212; Male = 61)

Conceptual subdomain	No. of items	Questions included	Mean item-level YES response (%)	Range of YES responses (%)	Overall YES responses, n/N (%)
Individual understanding & self-practice	5	Q1, Q2, Q3, Q11, Q14	96.6	95.2–97.8	1,318/1,365 (96.6)
Couple-level practicality & acceptability	5	Q4, Q5, Q12, Q19, Q20	98.5	97.8–98.9	1,345/1,365 (98.5)

Resource accessibility & inclusiveness	6	Q6, Q7, Q8, Q9, Q10, Q15	96.7	89.7–98.5	1,584/1,638 (96.7)
Cultural adaptability & community/public-health integration	4	Q13, Q16, Q17, Q18	98.2	97.8–98.9	1,072/1,092 (98.2)
Overall — all feasibility & practicality items	20	Q1–Q20	97.4	89.7–98.9	5,319/5,460 (97.4)

Statistical interpretation: The highest endorsed conceptual subdomain was couple-level practicality and acceptability (98.5%), followed by cultural adaptability and community/public-health integration (98.2%), resource accessibility and inclusiveness (96.7%), and individual understanding and self-practice (96.6%). The resource accessibility and inclusiveness domain showed the widest range of item-level affirmative responses (89.7–98.5%), reflecting the comparatively lower endorsement of rural applicability.

Methodological note: The four subdomains are conceptual groupings developed for secondary analysis of the 20-item Feasibility & Practicality domain and should not be interpreted as formally validated psychometric subscales. Mean item-level YES response represents the arithmetic mean of affirmative response percentages across items within each subdomain. Overall YES responses represent the pooled number of affirmative responses across all items in that subdomain. Because individual participant-level responses were not available for this aggregate analysis, inferential testing of composite subdomain scores was not performed.

Source: Domain 3 – Feasibility & Practicality of the Brahams Protocol, original survey data.

Ranking of individual feasibility characteristics

Ranking of the 20 individual items demonstrated that three characteristics received the highest overall endorsement, each with 270 of 273 affirmative responses (98.9%): the potential of BP to improve participation in breast cancer awareness activities, willingness to recommend BP to married couples as a practical breast-health approach, and the overall perception of BP as a practical, feasible, and sustainable approach.

Three characteristics received 269 affirmative responses (98.5%): the ability of most married couples to learn BP, maintenance of women’s privacy and dignity, and potential implementation in resource-limited communities.

At the lower end of the ranking, rural applicability was endorsed by 245 participants (89.7%). Incorporation of BP as a monthly event and the ability to perform BP without continuous professional supervision were each endorsed by 260 participants (95.2%).

Thus, the ranking demonstrated a pattern of strong overall perceived feasibility, with relatively greater uncertainty around rural applicability and certain aspects of sustained or independent practice (Table 3).

Table 3. Ranked Item-wise Assessment of Feasibility and Practicality of the Brahams Protocol

Items ranked according to overall affirmative responses among 273 respondents

Rank	Q. No.	Feasibility & practicality item	Overall YES n (%)	Overall NO n (%)	Female YES n (%)	Male YES n (%)	Female–Male difference (percentage points)
1	17	BP can improve participation in breast cancer awareness activities	270 (98.9)	3 (1.1)	210 (99.1)	60 (98.4)	+0.7

1	19	Would recommend BP to married couples as a practical breast-health approach	270 (98.9)	3 (1.1)	210 (99.1)	60 (98.4)	+0.7
1	20	Overall, BP is a practical, feasible and sustainable approach	270 (98.9)	3 (1.1)	210 (99.1)	60 (98.4)	+0.7
4	4	Most married couples can learn BP	269 (98.5)	4 (1.5)	210 (99.1)	59 (96.7)	+2.3
4	12	BP can be practiced while maintaining women's privacy and dignity	269 (98.5)	4 (1.5)	210 (99.1)	59 (96.7)	+2.3
4	15	BP can be implemented effectively in resource-limited communities	269 (98.5)	4 (1.5)	210 (99.1)	59 (96.7)	+2.3
7	6	BP is easy to practice because it requires no medical equipment	268 (98.2)	5 (1.8)	209 (98.6)	59 (96.7)	+1.9
7	7	BP can be practiced without financial burden on the family	268 (98.2)	5 (1.8)	208 (98.1)	60 (98.4)	-0.2
7	10	BP can be practiced irrespective of socioeconomic status	268 (98.2)	5 (1.8)	209 (98.6)	59 (96.7)	+1.9
7	18	BP can be integrated into routine nursing-led community health education	268 (98.2)	5 (1.8)	209 (98.6)	59 (96.7)	+1.9
11	5	Young married couples can practice BP monthly and regularly	267 (97.8)	6 (2.2)	209 (98.6)	58 (95.1)	+3.5
11	11	Age is not a barrier to BP practice	267 (97.8)	6 (2.2)	207 (97.6)	60 (98.4)	-0.7
11	13	BP can be adapted across different cultural backgrounds	267 (97.8)	6 (2.2)	209 (98.6)	58 (95.1)	+3.5
11	16	BP can be incorporated into existing breast-health awareness programs	267 (97.8)	6 (2.2)	209 (98.6)	58 (95.1)	+3.5
15	2	BP can be understood without medical knowledge	266 (97.4)	7 (2.6)	209 (98.6)	57 (93.4)	+5.1
15	9	BP can be practiced irrespective of educational background	266 (97.4)	7 (2.6)	208 (98.1)	58 (95.1)	+3.0
17	1	BP is easy to understand and practice	265 (97.1)	8 (2.9)	209 (98.6)	56 (91.8)	+6.8
18	3	BP can be incorporated as a monthly event in life	260 (95.2)	13 (4.8)	203 (95.8)	57 (93.4)	+2.3
18	14	Couples can correctly perform BP without continuous professional supervision	260 (95.2)	13 (4.8)	203 (95.8)	57 (93.4)	+2.3
20	8	BP is practical for families living in rural areas	245 (89.7)	28 (10.3)	191 (90.1)	54 (88.5)	+1.6

Interpretation: Overall affirmative responses ranged from 89.7% to 98.9%. The highest endorsement was observed for BP's potential to improve participation in breast cancer awareness activities, recommendation of BP to married couples, and the overall perception of BP as practical, feasible and sustainable (each 98.9%). The

lowest endorsement concerned practicality for families living in rural areas (89.7%). Monthly incorporation into life and performance without continuous professional supervision were also comparatively lower (95.2% each).

Sex-difference note: The female–male difference is presented as the difference in affirmative-response percentages (female minus male), in percentage points. Inferential testing of sex differences is presented in Table 1 and is not repeated here.

Abbreviation: BP, Brahams Protocol.

Source: Domain 3 – Feasibility & Practicality of BP, original survey data.

Female–male comparison

Female and male respondents demonstrated broadly similar and highly favorable perceptions across the 20 feasibility and practicality items. Female affirmative responses ranged from 90.1% to 99.1%, while male affirmative responses ranged from 88.5% to 98.4% (Table 1).

The largest absolute difference between female and male affirmative responses was observed for the item assessing whether BP was easy to understand and practice, with affirmative responses of 98.6% among females and 91.8% among males. The corresponding difference for understanding BP without medical knowledge was 5.2 percentage points, with affirmative responses of 98.6% among females and 93.4% among males.

For most other items, the differences between female and male respondents were small. For the overall assessment of BP as a practical, feasible, and sustainable approach, affirmative responses were 99.1% among females and 98.4% among males.

Pearson chi-square and Fisher’s exact tests were used for item-level comparisons (Table 1). The small number of negative responses in several items warrants cautious interpretation of individual inferential comparisons. In view of the 20 item-level comparisons, statistically significant findings should also be interpreted in the context of multiple testing.

Summary Of Findings

Overall, the Feasibility and Practicality domain demonstrated a consistently high level of affirmative response following structured educational introduction to the Brahams Protocol. The strongest endorsement related to couple-level applicability, community participation, recommendation of the concept, and overall perceived feasibility and sustainability. The principal area with comparatively lower endorsement was applicability among rural families, while monthly incorporation and independent practice without continuous professional supervision also received somewhat lower, although still strongly favorable, responses.

These findings represent **perceived feasibility following structured educational exposure** and should not be interpreted as evidence of actual implementation, adherence, sustainability, or effectiveness. Those outcomes require prospective evaluation in subsequent implementation studies.

DISCUSSION

Principal Findings

This study demonstrates a high level of perceived social acceptability and practical feasibility of the Brahams Protocol (BP) among hospital nursing personnel. Of 5,460 item-level responses, 5,319 (97.4%) were affirmative, with individual-item endorsement ranging from 89.7% to 98.9%. Favorable responses extended across partner participation, affordability, minimal equipment requirements, privacy and dignity, cultural and socioeconomic inclusiveness, rural applicability, community integration, and routine practice.

These findings are important because acceptability and feasibility are recognized implementation outcomes that influence adoption, sustainability and population reach.^{13,14} The present results therefore provide evidence regarding an important prerequisite for implementation, rather than evidence of screening effectiveness.

Positioning Within Existing Evidence

Previous work has established the behavioral and human-factor rationale for a partner-assisted approach to breast-health vigilance, identifying limitations of conventional breast self-examination related to individual responsibility, sustained practice and social factors.⁹ The epidemiological rationale for BP has subsequently been examined in relation to advanced-stage presentation among younger women and the potential role of a preclinical detection approach.¹⁰ A cross-sectional assessment among nursing professionals further demonstrated substantial knowledge gaps in breast cancer awareness and early detection.¹¹ More recently, social and cultural acceptability of BP was assessed among healthcare workers, with high endorsement across domains including shared responsibility, privacy, modesty, cultural compatibility and societal acceptance.¹²

The present study addresses a complementary implementation outcome—practical feasibility. The consistently high affirmative responses across resource requirements, affordability, applicability, routine practice and community integration indicate that BP was perceived as practicable for incorporation into everyday life and existing health-promotion structures.

Social Acceptability and Partner Participation

Partner participation is a defining feature of BP. The high endorsement of couple-level practicality and acceptability, together with strong support for privacy and dignity, indicates that the partner-assisted structure was favorably perceived by the study population.

These findings complement the previous assessment of social and cultural acceptability, which demonstrated strong support for shared responsibility and mutual care within the couple.¹² The convergence of these findings is relevant because acceptability of a partner-assisted intervention is a prerequisite for its practical implementation.

The findings also support the broader principle that social context should be considered when developing population-screening interventions. Acceptability is multidimensional and includes perceived burden, appropriateness, ethicality, coherence and self-efficacy.¹⁴

Practical Feasibility and Accessibility

The strong endorsement of BP's minimal equipment requirements, affordability and applicability across socioeconomic and educational groups is particularly relevant to public-health implementation. Screening participation is influenced by socioeconomic circumstances, accessibility, knowledge, attitudes and health-system barriers.^{15–17}

This consideration is particularly important in settings where access to facility-based screening is uneven. A screening approach that can be learned and practiced within the household may have practical advantages for populations facing geographical or resource constraints.

The present findings, however, demonstrate perceived feasibility rather than actual population uptake. This distinction is important because feasibility within a healthcare-worker population may not necessarily predict implementation across heterogeneous community settings.

Routine Practice and Community Integration

More than 95% of participants endorsed routine practice of BP, including monthly incorporation and practice without continuous professional supervision. Strong support was also observed for integration into existing breast-health programs and nursing-led community-health education.

This is relevant to implementation because interventions that can be incorporated into existing health systems and routine behavior may have greater potential for sustained reach.¹³ The findings therefore support evaluation of BP through nursing and community-health platforms rather than requiring a separate delivery infrastructure.

The potential relevance to underserved populations is also noteworthy. A 2025 systematic review and meta-analysis of 44 randomized studies involving 161,141 participants found that interventions designed to increase mammography uptake significantly improved participation, with an even greater effect among underserved groups.¹⁸ These findings demonstrate that addressing practical and behavioral barriers can materially influence participation in breast-cancer screening.

Public-Health Relevance

The principal public-health significance of the present findings lies in the combination of acceptability and feasibility. A screening approach intended for broad population use must be sufficiently acceptable to encourage participation and sufficiently practical to permit sustained use.

BP demonstrated favorable characteristics across these domains, including partner participation, low resource dependence, affordability, cultural compatibility and potential integration into routine life. These characteristics may be particularly relevant where conventional screening access is limited.

Importantly, the present study does not establish screening accuracy, earlier stage diagnosis or mortality benefit. It establishes that BP was perceived by the healthcare professionals studied as socially acceptable and practically feasible—two important implementation outcomes distinct from clinical effectiveness.^{13, 14}

Strengths and Limitations

The principal strength of this study is its multidimensional assessment of practical feasibility across social, economic, cultural and operational domains rather than reliance on a single global measure. The inclusion of both male and female nursing personnel is also relevant to the partner-assisted structure of BP.

Several limitations should be acknowledged. Feasibility was assessed by self-report rather than observed behavior. Participants were healthcare personnel who had received structured exposure to BP, and their perceptions may therefore differ from those of the general population. The cross-sectional design cannot establish sustained adherence or long-term implementation. The study also did not assess diagnostic accuracy, screening performance or clinical outcomes.

Overall Interpretation

The available evidence on BP has progressively addressed its behavioral rationale, relevance to early detection in younger women, knowledge gaps among healthcare professionals, and social and cultural acceptability.^{9–12} The present study adds evidence regarding practical feasibility.

The high level of affirmative responses indicates that BP possesses several characteristics favorable to implementation as a partner-assisted, lifestyle-integrated breast cancer screening approach. The findings are particularly relevant from a public-health perspective because acceptability and feasibility determine whether an intervention can achieve meaningful population reach.

The present study therefore provides an encouraging implementation signal while maintaining the necessary distinction between perceived feasibility and demonstrated clinical effectiveness.

CONCLUSION

The Brahams Protocol was perceived as highly socially acceptable and practically feasible among the nursing personnel surveyed. Its partner-assisted structure, low resource requirements, affordability, cultural compatibility and potential for routine and community integration represent favorable implementation

characteristics.

These findings strengthen the emerging evidence supporting BP as a potentially scalable complementary breast-cancer screening approach. Further evaluation should determine whether these favorable implementation characteristics translate into sustained use, appropriate healthcare escalation and improved detection outcomes.

Table 4. Evidence Relevant to Acceptability and Practical Feasibility of the Brahams Protocol

Evidence source	Principal contribution	Relevance to present study
Kapur et al. ⁹	Established the behavioral and human-factor rationale for partner-assisted structured breast-health vigilance.	Provides the conceptual basis for assessing partner participation and practical implementation.
Singh et al. ¹⁰	Examined advanced-stage presentation among younger women and proposed BP as a preclinical detection paradigm.	Provides the epidemiological and screening-context rationale.
Singh et al. ¹¹	Identified knowledge gaps in breast cancer awareness and early detection among nursing professionals.	Provides the educational and behavioral context for BP implementation.
Singh et al. ¹²	Demonstrated high social and cultural acceptability of BP across multiple domains among healthcare workers.	Provides direct evidence supporting acceptability of the partner-assisted model.
Proctor et al. ¹³	Established acceptability, feasibility, adoption, fidelity, cost and sustainability as implementation outcomes.	Provides the implementation-science framework for interpreting the present findings.
Sekhon et al. ¹⁴	Developed a multidimensional framework for acceptability of healthcare interventions.	Supports assessment of acceptability beyond overall satisfaction.
Srinath et al. ¹⁵	Systematic review of barriers to breast and cervical cancer screening uptake in low- and middle-income countries.	Provides context for accessibility and practical feasibility.
Tavakoli et al. ¹⁶	Systematic review identifying behavioral, social and contextual determinants of breast cancer screening.	Supports consideration of social and behavioral factors in implementation.
Sawhney et al. ¹⁷	Identified sociocultural barriers to early breast-cancer detection in India.	Provides direct Indian context for cultural compatibility and accessibility.
Ferrari et al. ¹⁸	Meta-analysis demonstrating that interventions addressing barriers can increase mammography uptake, particularly among underserved groups.	Supports the public-health relevance of reducing screening barriers.
Present study	273 nursing personnel; 5,460 item-level responses; 97.4% affirmative overall; individual items 89.7–98.9%.	Provides empirical evidence of high perceived practical feasibility.

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