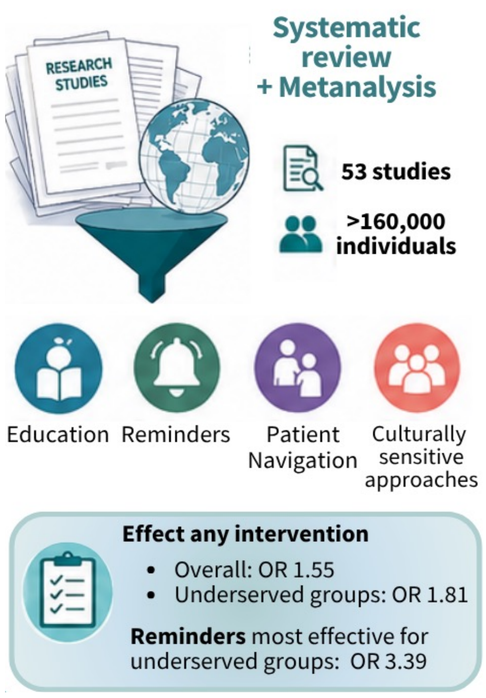
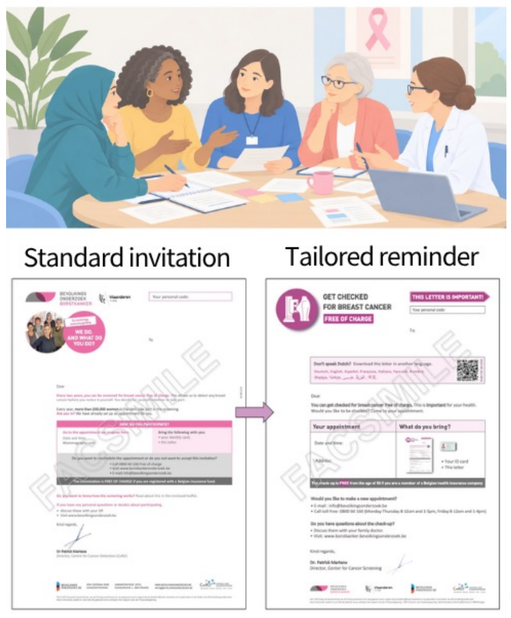
Improving Participation in Breast Cancer Screening Through a Tailored Reminder Letter: A Randomized Controlled Trial Tackling Socioeconomic Inequities

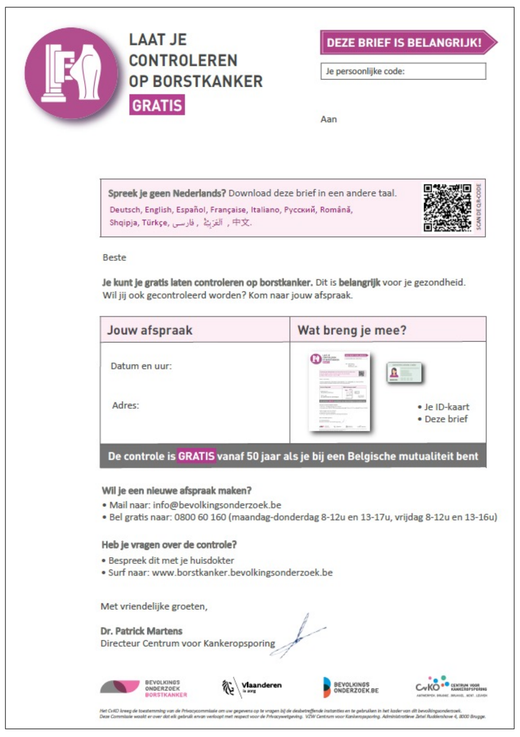
BACKGROUND

Organised breast cancer screening supports early detection and reduces breast cancer-specific mortality. In Flanders (Belgium), participation in the population-based Breast Cancer Screening Programme remains suboptimal and socially patterned, with lower uptake in socioeconomically disadvantaged areas. Participation barriers include limited financial resources, transport difficulties, lower health literacy, language barriers, cultural differences, mistrust of healthcare, and reduced access to healthcare resources. Tailored communication may reduce informational and comprehension-related barriers, especially among underserved groups.









OBJECTIVE

To evaluate whether co-created culturally and linguistically tailored reminder letter increases mammographic screening participation among prior non-attenders and narrows socioeconomic disparities in participation.

METHODS

Study population & randomization

- **Prior non-attenders** aged 50–69 years were randomized 1:1 within mammographic units.
- **Socioeconomic vulnerability:** participants were classified as **low-SES** when they were eligible for increased reimbursement of medical expenses [10]. Participants without this entitlement were classified as **non-low-SES**.

Study arms

- **Control:** standard invitation only, sent approximately three weeks before the appointment.
- **Intervention:** standard invitation plus a co-created, culturally and linguistically tailored reminder letter, sent approximately one week before the appointment. *The reminder letter was co-created with underserved groups. The letter used simplified language, visual elements, clear appointment information, and a QR code linking to multilingual translations [9].*

Outcome & statistical analysis

- **Primary outcome:** screening participation within 40 days, based on centralised registry data.
- **Analysis:** χ^2 tests and crude odds ratios with 95% confidence intervals, using intention-to-treat as the primary analysis.

RESULTS

The tailored reminder increased overall screening participation

Overall, 997 of 7,922 non attenders, participted with breast cancer screening within 40 days. The effect remained consistent in the per-protocol analysis, with a overall 6.4 percentage point increase and an OR of 1.81.

Study arm	Screening participation
Control: standard invitation only	9.4%
Intervention: standard invitation + tailored reminder	15.8%
Absolute increase	+6.4 percentage points
Effect size	OR 1.81, 95% CI 1.58–2.07

The largest gain was observed among low-SES participants

The tailored reminder significanlty increased participation in both groups, but the relative and absolute gain was larger among low-SES participants. **This suggests that the intervention helped narrow the socioeconomic participation gap among prior non-attenders**.

Group	Control	Intervention	Absolute increase	OR (95% CI)
Low-SES	4.0%	12.0%	+8.0 pp	3.24 (2.27–4.61)
Non-low-SES	11.7%	16.9%	+5.2 pp	1.53 (1.31–1.79)

DISCUSSION

- A co-created, culturally and linguistically tailored reminder letter increased breast cancer screening participation among prior non-attenders in Flanders.
- The largest gain was observed among low-SES participants, indicating that the intervention narrowed the socioeconomic participation gap.
- Because the reminder was implemented within routine screening procedures and had an estimated unit cost of approximately **€0.50 per person**, it offers a feasible option for scale-up within centralised invitation systems.

CONCLUSION

A tailored reminder letter is a low-cost, scalable strategy to improve screening participation and narrow socioeconomic inequities among persistent non-attenders.

Ferrari, A.; Goossens, M.; Van Bos, L.; van de Veerdonk, W.; Vandemaele, E.; Vanhecke, J.; Tran, T.N.; Martens, P.; Ding, L.; de Bock, G.; Van Hal, G. Improving participation in breast cancer screening through a tailored reminder letter: a randomized controlled trial tackling socioeconomic inequities. 2026. *International Journal of Equity in Health.* https://doi.org/10.1186/s12939-026-03027-2 *(allegra.ferrari@uantwerpen.be).*