

Categories of systematic influences applied to increase cancer screening participation: a literature review and analysis

Or Joseph Rahbek, Christian P. Jauernik, Thomas Ploug, John Brodersen
European Journal of Public Health, Volume 31, Issue 1, February 2021, Pages 200–206,

Adapted : Tables extracted from original supplementary material, only the examples related to breast cancer screening are presented.

Examples from France used by National Cancer Institute are highlighted

TABLE 4. EMPIRICAL EXAMPLES FROM EXPERT INQUIRY

ITEM	Description	Source	Country / area	Contributor
3	Personal comment referring to GP's receiving economical incentives to screen as many of their patients as possible.	E-mail with personal comment	Canada	Cornelia Baines Google group with special interest in screening mammography
5	Informational website recommending mammography screening for all women over 40 years.	URL: https://brighamhealthhub.org/prevention/breast-cancer-screening-understanding-the-guidelines [Accessed 15.01.2020]	Australia	Les Irwig Wiser Healthcare
6	Press release stressing the importance of cancer screening .	URL: http://www.esmo.org/Press-Office/Press-Releases/Improving-Cancer-Screening-Participation-Should-be-a-Priority [Accessed 15.01.2020]	Europe	Michael Baum Google group with special interest in screening mammography
7	Promotional video urging women to participate in mammography screening.	URL: https://www.facebook.com/CanadianBreast-CancerCCS/videos/10153899458437633/ [Accessed 10.11.2018]	Canada	Alan Cassels Preventing Over-diagnosis
8	Informational website recommending mammography screening for all women over 40 years.	URL: http://www.hopkinsmedicine.org/mammogram [Accessed 15.01.2020]	Canada	Alan Cassels Preventing Over-diagnosis

TABLE 5. GREY LITERATURE SEARCH RESULTS

Example of systematic influence	Source	Country	Year	Medium/context of influence
Misleading presentation of statistics				
"The international studies believe that these programs allow avoid between 15% and 21% of breast cancer deaths." [Authors' translation]	https://cancersdusein.e-cancer.fr/infos/un-livret-sur-le-depistage-pour-sinformer-et-de-cider/	France	2019 [Accessed 15.01.20]	Informational pamphlet
Misrepresentation of harms vs benefits				
Harms omitted.	https://www.juntadeandalucia.es/export/drupaljda/190517%20trip-tico%20con%20nueva%20denominaci%C3%B3n.pdf?fbclid=IwAR2rORKELp2gDWWioGAd44cpptY-fTrAQae5soek2n968Zv-VilgHZfIoNqM	Spain	2019 [Accessed 15.01.20]	Invitational pamphlet used in Andalusia
Opt-out systems				
Cancer screening material (breast and cervix) containing prebooked appointments from the Finnish Cancer Registry.	https://cancerregistry.fi/screening/organising-cancer-screening/	Finland	2019 [Accessed 15.01.20]	Prebooked appointment
Breast cancer screening invitation containing prebooked appointment	https://borstkanker.bevolkingsonderzoek.be/nl/documenten	Netherlands	2019 [Accessed 15.01.20]	Prebooked appointment
Recommendation of participation				
Explicit recommendation to every cancer screening programme.	https://www.acog.org/Patients/FAQs/Reducing-Your-Risk-of-Cancer-Life-Style-Changes-and-Screening-Tests?IsMobileSet=false&fbclid=IwAR17F3Hr56z7Z35Sx9gNlzdap-	USA	2018 [Accessed 15.01.20]	American College of Obstetricians and Gynecologists

	CrG-CluI0eMdhG6YrXdz97K-DkFkGV8Y#how			
Fear appeals				
Fear-inducing quotes from breast cancer survivors. "... age is not a factor", "don't ignore your body if something feels off..." on webpage of Cancer Association of South Africa	https://www.cansa.org.za/womens-health/	South Africa	2019 [Accessed 15.01.20]	Breast cancer survivor quotes
Influencing GPs and other healthcare professionals				
Various influences targeting healthcare professionals in pamphlets. "Our shared efforts are working, community health clinics, health plans, employers, counties, and others are seeing 80% screening rates and higher."	https://ncrt.org/80-in-every-community/	USA	2019 [Accessed 15.01.20]	National Colorectal Cancer Roundtable campaign "80% in every community"
Financial incentive participation rate (breast, CRC, pap smear)	http://health.gov.on.ca/en/pro/programs/ohip/bulletins/11000/11209_Info.pdf	Canada	2019 [Accessed 15.01.20]	Financial incentives for GP's

Table 6: Example of systematic influence	Country	Year	Material	Identified in...
MISLEADING PRESENTATION OF STATISTICS				Literature search = LS Expert inquiry = EI Grey literature search = GLS
Reduction in mortality expressed only by using relative risk reductions in several Australian invitational pamphlets for breast cancer screening (24, 28)	Australia	1998	Information brochures from various official organizations	LS
Reduction in mortality expressed only by using relative risk reductions in governmental, advocacy and consumer websites concerning mammography screening (25)	Various	2004	Websites	LS
Reduction in mortality expressed only by using relative risk reductions in official information brochures (22)	Italy France Spain	2009	Information brochures from various official organizations	LS
Reduction in mortality expressed only by using (non evidence-based) relative risk reductions in the invitational pamphlet for the Danish breast screening programme (34)	Denmark	2012	Screening invitation	LS
Reduction in mortality of breast cancer only expressed by using relative risk reductions in an article by The Independent (59)	UK	2003	News media	LS
Reduction in mortality expressed only by using relative risk reductions in several Australian invitational pamphlets for breast cancer screening (23)	Canada Denmark New Zealand	2005	Screening invitation	LS
Reduction of breast cancer mortality only expressed as relative risk reductions by the French national screening agency. (68)	France	2019	Information brochure	GLS

MISREPRESENTATION OF HARMS VS BENEFITS				
Complete omission of harms in Australian information pamphlets for breast cancer screening (24, 28)	Australia	1998	Information brochures from various official organizations	LS
Omission of overdiagnosis and overtreatment as a possible outcome from a mammography and downplaying the impact of pain on several advocacy and governmental websites (25)	Various	2004	Websites	LS
Downplaying harms of overdiagnosis and overtreatment and exaggerating the probability of not having cancer when getting a negative mammography in a Danish invitation for breast cancer screening (34)	Denmark	2012	Screening invitation	LS
Omission of harms of radiation exposure in official information brochures concerning breast cancer screening (22)	Italy France Spain	2009	Information brochures from various official organizations	LS
Omission of overdiagnosis as a possible harm in an information brochure targeting women who are eligible for breast cancer screening (69)	Germany	2010	Screening invitation	LS
Presentation of the results from a negative mammogram as unambiguous and proof of healthy breasts (33, 40)	Norway	2009	Screening invitation	LS
Descriptions of colonoscopy as safe and not painful as well as omission of overdiagnosis/overtreatment in official information material (70)	Germany	2010	Various information material from official organizations	LS
Omission of overdiagnosis as a possible harm in official information brochures (22)	Germany, Italy, France, Spain	2009	Information brochures from various official organizations	LS
Omission of false-positive results as a possible outcome from a mammography in official pamphlets (23, 32)	Australia, Denmark, Canada, Norway, Sweden, UK	2005	Various information material from official organizations	LS

Omission of pain as a possible harm from mammography procedure in official pamphlets (23, 33)	Australia, Denmark, Canada, Norway, Sweden, UK	2005	Various information material from official organizations	LS
Omission of overtreatment and overdiagnosis as possible outcomes of cancer screening in official pamphlets (23, 33)	Australia, Denmark, Canada, New Zealand, Norway, Sweden, UK	2005	Various information material from official organizations	LS
Presentation of cumulative benefits of five screening rounds against false-positive rate of one single screening round. Omission of overdiagnosis/overtreatment as possible harms in information brochure (32)	UK	2009	Information brochure	LS
Omission of size of benefits in various information material for breast cancer screening (23, 33)	Australia, Norway, Sweden, UK	2005	Screening invitation	LS
Omission of harms in European Society of Medical Oncology 's press release (Item 6, Supplementary file, Table 4)	Europe	2016	Press release	EI
Omission of harms in Croatian information brochures for breast, cervical and colorectal cancer screening. (30)	Croatia	2019	Information brochure	GLS
OPT-OUT SYSTEMS				
Women receiving a pre-booked appointment for a mammogram in breast screening programme from Norway (33, 40)	Norway	2003	Screening invitation	LS
Women receiving a pre-booked appointment for a mammogram in breast screening programme from Denmark (34)	Denmark	2012	Screening invitation	LS
Telephoning individuals who do not attend their prescheduled screening session (23)	New Zealand	2005	Opt-out system	LS

Reminder letters urging to participate in cancer screening (23)	Australia, Canada, Denmark, New Zealand, Norway	2005	Opt-out system	LS
Tedious opt-out-system: To avoid invitations for breast cancer screening, women have to telephone the screening unit to obtain a form, complete it and send it back (23, 33)	Norway	2009	Opt-out system	LS
Pre-booked appointment for breast and cervical cancer screening in Finnish screening invitations. (71)	Finland	2019	Screening invitation	GLS
Pre-booked appointment in Dutch breast cancer screening invitation. (72)	Netherlands	2019	Screening invitation	GLS
RECOMMENDATIONS OF PARTICIPATION				
Suggestive headlines in several invitation pamphlets encouraging participation (23)	Australia, Canada, Denmark, New Zealand, Norway, Sweden, UK	2005	Various information material from authorized organizations	LS
Governmental and advocacy websites recommend mammography screening at least implicitly (25)	Australia, Canada, Denmark, New Zealand, Norway, Sweden, UK, USA	2004	Websites	LS
Suggestive headline of invitational pamphlet for the Norwegian breast screening programme recommending participation because it "can save lives" (33, 40)	Norway	2009	Screening invitation	LS

An explicit recommendation of participation from the Danish National Board of Health on the first page of a screening invitation for the Danish breast cancer screening programme (34)	Denmark	2012	Screening invitation	LS
Celebrity recommendations to participate in different screening programmes and tests. (28, 48)	USA	2005	Unspecified	LS
Official poster idiotizing not having a mammogram and strongly recommending one from the American Cancer Society (43)	USA	Unspecified	Poster by patient organization	LS
Recommendation from NHS in an annual review of the national breast screening programme (43)	UK	2008	Annual review of screening programme by health authority	LS
Recommendation from the American Cancer Society and National Cancer Institute for all women over 40 to attend routine mammographic screening (45)	USA	1997	Board review at a patient organization	LS
"Why do I need breast screening" implying that you NEED breast screening in British leaflet concerning mammography screening (32)	UK	2009	Information brochure	LS
Recommendation from Brigham and Women's Hospital for all women over 40 to attend routine mammographic screening (Item 5, Supplementary file, Table 4)	USA	2016	Website	EI
Recommendation from John Hopkins Hospital for all women over 40 to attend routine mammographic screening (Item 8, Supplementary file, Table 4)	USA	2016	Website	EI
Recommendation from Irish national screening agency. (41)	Ireland	2019	Information brochure	GLS
Recommendation from American College of Obstetricians and Gynecologists to participate in colorectal, cervical and breast cancer screening. (46)	USA	2018	Website	GLS
FEAR APPEALS				
"Ten minutes to save your life" in official pamphlet concerning mammography screening (22)	Italy	2009	Information brochure	LS
Informational video eerily urging for mammography screening while unnerving background music plays (Item 7, Supplementary file, Table 4)	Canada	2016	Promotional video	EI

Selected relative numbers of statistics that invoke fear to motivate screening on homepage of NGO Fight Colorectal Cancer. (50)	USA	2019	Webpage	GLS
Fear-inducing breast cancer survivor quotes "... <i>age is not a factor</i> ", " <i>don't ignore your body if something feels off...</i> " on webpage of Cancer Association of South Africa. (49)	South Africa	2019	Webpage	GLS
INFLUENCING GP'S AND OTHER HEALTHCARE PROFESSIONALS				
US guidelines on several cancer screening procedures with positive recommendations as well as misrepresentation of harms vs benefits (26)	USA	2016	US guidelines for health personnel	LS
GPs are rewarded a monetary bonus if they reach a participation rate of 80% among their patients (52)	UK	Unspecified	Clinical setting	LS
Letters addressed to GPs from screening organs inquiring into reason for non-participation among the GPs patients (23)	Australia, New Zealand	2005	Opt-out system	LS
Monetary rewards to GPs when reaching a certain participation rate among their patients (Item 3, Supplementary file, Table 4) (53)	Canada	2016	Clinical setting	EI GLS
Various influences in brochures targeting GPs, hospitals, and radiologists from National Colorectal Cancer Roundtable campaign "80% in every community" (75)	USA	2019	Information brochures	GLS
LEGISLATIVE INFLUENCE				
Proposal of bill suggesting tax raise for cancer patient who did not commit to a screening programme for their cancer disease (43)	Germany	2007	Policy making	LS
THE PRESS				
The press expressing the reduction in mortality of breast cancer by using relative risk reductions in an article by The Independent (59)	UK	2003	News media	LS

