

A false-positive on screening mammography has a negative psychosocial impact up to 3 years after receiving the all clear

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QUESTION

Question: What are the psychosocial effects of a screening mammography false-positive result for breast cancer?

Population: A total of 1362 women aged 50–69 years who had breast screening mammography in a public programme. All 590 women in this age group who had abnormal findings and were recalled for further testing were asked to participate and 454 (76.9%) agreed. A control group of 908 women was selected by matching each of these women with two women who were screened on the same day and had normal results. Of the 454 women with abnormal screening results, 8 were excluded (other cancers or unknown final diagnosis), 174 (38.3%) had breast cancer and 272 (59.9%) had a false-positive result. Of the 908 women selected for the normal finding group, 864 were included in analyses.

Setting: Copenhagen and Funen, Denmark; screening performed between June 2004 and June 2005.

Prognostic factors: False-positive mammography screening result.

Outcomes: Psychosocial consequences (Consequences of Screening in Breast Cancer questionnaire, (COS-BC)). COS-BC part I measures were completed at baseline, these assessed: anxiety, sense of dejection, sleep, sexuality, amount of breast self-examination, negative impact on behaviour, feeling less attractive and keeping busy as a distraction. For women screening positive, this was performed after receiving the screening result and before further examinations and for women with normal results it was performed 1 week after receiving these results. COS-BC part II measures assess changes as a result of screening results in: relationships within social networks, existential values, relationships with other people and anxiety about breast cancer. Higher scores indicate more negative consequences on both COS-BC parts. Participants completed the full COS-BC at 1, 6, 18 and 36 months after their final diagnosis (true-positives or false-positives) or their normal screening result. Results were adjusted for baseline covariates.

A threshold of $p < 0.01$ was used to identify statistical significance due to the multiple comparisons being carried out.

METHODS

Design: Prospective cohort study.

Follow-up period: Three years.

MAIN RESULTS

All screen-positive women (false-positives and true-positives) had significantly more negative psychosocial consequences after receiving their screening result (baseline) than those with a normal screening result, with no difference seen between the false-positives and the true-positives (COS-BC part I measures: $p < 0.001$ for all comparisons vs normal result group; $p > 0.01$ for all comparisons of false-positives vs true-positives; see webextra tables). One month after receiving the all clear, women who had received a false-positive result still had significantly more negative psychosocial consequences than those with a normal screening result (COS-BC part I and II measures: $p < 0.001$ for all comparisons; results not shown here). Although some of the differences reduced by 3 years after the all clear, women who had received a false-positive still had significantly more negative psychosocial consequences on some of the COS-BC measures than those with a normal screening result (see webextra table 2). When compared with the women who were diagnosed with breast cancer, false-positives had significantly fewer negative psychosocial consequences on most measures by 6 months after the all clear (see webextra table 1).

CONCLUSIONS

False-positive results after screening mammography is psychosocially harmful and the effects can last up to 3 years after receiving the all clear.

ABSTRACTED FROM

Broderson J, Siersma VD. Long-term psychosocial consequences of false-positive screening mammography. *Ann Fam Med* 2013;**11**:106–15.

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Broderson and Siersma provide a robustly executed study detailing the psychological effects accompanying false-positive mammograms; the work reflects increasing international recognition (US, UK and European-based studies) of this phenomenon.¹ The study is distinguished by repeated measurement, an extended follow-up and breast cancer-relevant outcomes. Prior studies predominantly detail implications for follow-up screening while this study shows there are serious psychological costs to false-positives. Although translating findings across healthcare contexts is complex, the high response rate, minimal baseline differences between groups and coherent pattern provide reasonable confidence that basic findings will replicate. Given the rates of false-positives, physicians should prepare for

distress in these women and recognise that, for some, distress will last.

The duration of distress is a key contribution of the work as is its measurement. Unlike other studies, outcomes were highly sensitive to the particular issues confronting women with false-positive diagnoses. However, one wonders whether the right balance between measurement comprehensiveness and redundancy has been obtained. The absence of reversed items makes psychological indices vulnerable to method bias, there are no reversed items and the number of tests is also high; more robust control over type I error, fewer outcomes or measurement of subsequent screening might further clarify findings.

Two further considerations appear noteworthy. First, 50% of the distress among false-positive

women was eliminated after 1 month. Repeated assessment may exacerbate distress in trauma and many people 'bounce back' relatively quickly. Second, it would be clinically useful to know if baseline characteristics (ideally assessed prenotification) might moderate distress trajectories. Resilience research implies that some women will be more impacted by false-positives than others and being able to identify specific groupings² such that either targeted support or distress-minimising notification paradigms could be implemented towards would be singularly useful.

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Competing interests None.