The prevalence of unmet needs in 625 women living beyond a diagnosis of early breast cancer

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Background: There are over half a million women with a previous breast cancer diagnosis living in the UK. It is important to establish their level of unmet physical and psychosocial needs, as many are not routinely seen for follow-up under current models of care.

Methods: We conducted a retrospective analysis of early breast cancer survivors entering an Open Access Follow-Up (OAFU) programme in 2015. Unmet needs were assessed using the Holistic Needs Assessment (HNA) or extracted directly from the electronic patient record (EPR), when the HNA had not been completed.

Results: Six hundred and twenty-five patients were eligible. Sixty-one per cent of the survivors had at least one unmet need and 18% had ≥5 needs. Consistently higher levels of unmet needs were identified using the formal HNA checklist as opposed to extraction from EPR (P<0.001). Physical and emotional needs were the most frequently reported (55 and 24% respectively). Patients receiving endocrine therapy and those who had received chemotherapy were more likely to report unmet needs (both P<0.001).

Conclusions: Unmet physical and emotional needs are common in breast cancer survivors. It is vital that the services are available for these patients as they transition from hospital-based follow-up to patient-led self-management models of care.

Breast cancer is the most commonly diagnosed cancer among women and the high survival rate for early stage disease means that breast cancer survivors represent the largest population of cancer survivors worldwide (Benson et al, 2009; DeSantis et al, 2014; Siegel et al, 2014). In 2010, there were estimated to be 570,000 female breast cancer survivors in the UK, and this is projected to reach nearly 1.7 million by 2040 (Maddams et al, 2012).

Many women may adjust well after completing initial treatment such as surgery, chemotherapy, radiotherapy and biological treatment for early breast cancer. However, this is not inevitably the case, and women can be at risk from a wide range of long-term physical and psychosocial effects following their diagnosis and treatment (Kornblith et al, 2003; Hodgkinson et al, 2007; Ganz and Hahn, 2008; Armes et al, 2009; Harrington et al, 2010; Harrison et al, 2011; Valdivieso et al, 2012; Burg et al, 2015). In the UK current health policy advocates a shift away from routine follow-up of cancer survivors and a greater emphasis on individualised needs, promotion of recovery, health and well-being (Department of Health, 2011; Richards et al, 2011). Several randomised studies have shown that open access follow-up appointments are a feasible alternative to routine hospital-based follow-up among breast cancer survivors (Grunfeld, 2009; Kirshbaum et al, 2017). As a result many UK breast units have adopted follow-up services that are patient-led, enabling quick access to clinical teams as needed;
instead of routine follow-up hospital appointments. These types of follow-up, such as the Open Access Follow-Up (OAFU) system used at our institution, are based on a principle of supported self-management.

Patients enter the OAFU programme after completion of the hospital-based treatment (surgery, radiotherapy and chemotherapy). They undergo a consultation with an advanced nurse practitioner regarding long-term treatment-related effects, duration of endocrine therapy, education about healthy life styles, breast cancer awareness and symptoms of recurrence. As part of this assessment patients are asked to complete a holistic needs assessment (HNA) using a formalised questionnaire/checklist to evaluate the whole person’s needs including physical, emotional, family, practical, spiritual needs (Supplementary online Material). This form is sent to all patients by post 2 weeks before the OAFU consultation as part of it and it is required to be completed prior to the consultation. The HNA is an opportunity for the patients to reflect on his/her needs, and then discuss them at the time of the consultation. Holistic needs assessment is a process of gathering and discussing information with the patient in order to develop an understanding of what the person living with and beyond cancer knows, understands and needs. Moreover, holistic needs assessment helps to tailor an individualised care planning and therefore set up early interventions, with onward referral to relevant support services (such as psychological support, physiotherapy or dieticians). A discharge summary, which includes patient’s unmet needs and her care planning, is created by the nurse practitioner at the end of the OAFU consultation and sent to the patient’s general practitioner.

In order to optimise this service and to adapt it to the needs of our patient population we have conducted a service evaluation to describe the unmet needs of patients as they transition to supported self-management. The primary objective of this study was therefore to estimate the prevalence of unmet needs in breast cancer survivors entering the OAFU programme. As secondary objectives we aimed to describe the nature of the unmet needs, and what factors might identify those patients at highest risk of having unmet needs at completion of hospital-based treatment.

**MATERIALS AND METHODS**

The population studied in this analysis were women with a previous diagnosis of early (stages I–III) breast cancer who had completed their initial treatment (surgery, chemotherapy, radiotherapy) and entered into the OAFU programme at the Royal Marsden Hospital (RMH) NHS Foundation Trust from 1 January to 31 December 2015. The catchment area of the RMH corresponds to central and South-West of London. Survivors of breast cancer who were followed up in clinical trials were not qualified to enter into the OAFU programme. Women with ductal carcinoma in situ, i.e., with no invasive cancer, men and women with invasive breast cancer who were lost before the OAFU appointment were excluded from this analysis (Figure 1).

Patient characteristics, tumour and treatment characteristic were collected from the electronic patient record (EPR). These included: age, menopausal status, race, marital status, working status, comorbidities according to Charlston scale, use of antidepressants, stage, hormone receptor status, human epidermal growth factor receptor 2-status, type of surgery, type of chemotherapy, endocrine therapy, radiotherapy and time from diagnosis to OAFU consultation.

Unmet needs were assessed using the formalised London HNA questionnaire (Holistic Needs Assessment, 2016; Supplementary online material), which was sent to all patients 2 weeks before the OAFU consultation. When the HNA had not been completed prior
| Characteristics                     | Unmet needs using HNA form n (%) | Unmet needs using EPR n (%) | Total n (%) | P-value |
|------------------------------------|----------------------------------|----------------------------|-------------|---------|
| **Total breast cancer survivors**  | 214 (34)                         | 411 (66)                   | 625 (100)   |         |
| **Patient characteristics**        |                                  |                            |             |         |
| **Age**                            |                                  |                            |             |         |
| Median                             | 62                               | 58                         | 59          | 0.092   |
| Range                              | 30–97                            | 27–92                      | 27–97       |         |
| SD                                 | 12                               | 13                         | 13          |         |
| <40-year-old                       | 6 (3)                            | 24 (6)                     | 30 (5)      |         |
| ≥40-year-old                       | 208 (97)                         | 387 (94)                   | 595 (95)    |         |
| **Menopausal status**              |                                  |                            |             |         |
| Premenopausal                      | 55 (26)                          | 123 (30)                   | 178 (28)    | 0.267   |
| Postmenopausal                     | 159 (74)                         | 288 (70)                   | 447 (72)    |         |
| **Race**                           |                                  |                            |             |         |
| Caucasian                          | 191 (89)                         | 365 (89)                   | 556 (89)    | 0.674   |
| Asian                              | 16 (8)                           | 27 (6)                     | 43 (7)      |         |
| Black                              | 7 (3)                            | 19 (5)                     | 26 (4)      |         |
| **Marital status**                 |                                  |                            |             |         |
| Single                             | 16 (8)                           | 45 (11)                    | 61 (10)     | 0.777   |
| Married/ with partner              | 119 (55)                         | 225 (55)                   | 344 (55)    |         |
| Divorced                           | 20 (9)                           | 40 (10)                    | 60 (9)      |         |
| Widow                              | 21 (10)                          | 29 (7)                     | 50 (8)      |         |
| Not reported                       | 38 (18)                          | 72 (17)                    | 110 (18)    |         |
| **Working status**                 |                                  |                            |             |         |
| Working                            | 87 (41)                          | 178 (44)                   | 265 (42)    | 0.474   |
| Not working                        | 95 (44)                          | 170 (41)                   | 265 (42)    |         |
| Not reported                       | 32 (15)                          | 63 (15)                    | 95 (16)     |         |
| **Living with**                    |                                  |                            |             |         |
| Alone                              | 56 (26)                          | 98 (24)                    | 154 (25)    | 0.474   |
| With someone                       | 137 (64)                         | 276 (67)                   | 413 (66)    |         |
| Not reported                       | 21 (10)                          | 37 (9)                     | 58 (9)      |         |
| **Comorbidities**                  |                                  |                            |             |         |
| Yes                                | 29 (14)                          | 56 (14)                    | 85 (14)     | 0.980   |
| No                                 | 185 (86)                         | 355 (86)                   | 540 (86)    |         |
| **Use of antidepressants**         |                                  |                            |             |         |
| Yes                                | 13 (6)                           | 33 (8)                     | 46 (7)      | 0.375   |
| No                                 | 201 (94)                         | 378 (92)                   | 579 (93)    |         |
| **Previous invasive cancer**       |                                  |                            |             |         |
| Yes                                | 24 (11)                          | 47 (11)                    | 71 (11)     | 0.934   |
| No                                 | 190 (89)                         | 364 (89)                   | 554 (89)    |         |
| **Time from diagnoses to OAFU**    |                                  |                            |             |         |
| < 12 months                        | 162 (76)                         | 266 (65)                   | 428 (68)    | 0.005   |
| ≥ 12 months                        | 52 (24)                          | 145 (35)                   | 197 (32)    |         |
| Median time from diagnosis to OAFU | 8 months                         | 9.5 months                 | 8.9 months  | 0.005   |
| **Tumour and treatment characteristics** |                                  |                            |             |         |
| **Stage**                          |                                  |                            |             |         |
| I                                  | 80 (37)                          | 136 (33)                   | 216 (35)    | 0.615   |
| II                                 | 115 (54)                         | 238 (58)                   | 353 (56)    |         |
| III                                | 19 (9)                           | 37 (9)                     | 56 (9)      |         |
| **Hormone receptor status**        |                                  |                            |             |         |
| Positive                           | 175 (82)                         | 341 (83)                   | 516 (83)    | 0.709   |
| Negative                           | 39 (18)                          | 70 (17)                    | 109 (17)    |         |
| **HER2- status**                   |                                  |                            |             |         |
| Positive                           | 27 (13)                          | 64 (16)                    | 91 (15)     | 0.320   |
| Negative                           | 187 (87)                         | 347 (84)                   | 534 (85)    |         |
| **Surgery**                        |                                  |                            |             |         |
| Mastectomy                         | 53 (25)                          | 140 (34)                   | 193 (31)    | 0.017   |
| Wide local excision                | 161 (75)                         | 271 (66)                   | 432 (69)    |         |
| **Axillary clearance**             |                                  |                            |             |         |
| Yes                                | 41 (19)                          | 95 (24)                    | 136 (22)    | 0.230   |
| No (SLNB)                          | 172 (80)                         | 310 (75)                   | 482 (77)    |         |
| Not done                           | 1 (1)                            | 6 (1)                      | 7 (1)       |         |
| **Chemotherapy**                   |                                  |                            |             |         |
| Yes                                | 91 (42)                          | 170 (41)                   | 261 (42)    | 0.780   |
| No                                 | 123 (58)                         | 241 (59)                   | 364 (58)    |         |
to the consultation, unmet needs were extracted directly from the EPR at the time of consultation.

Statistical analysis was performed using the Stata 14 program. Chi-squared tests were used to compare clinical and social factors between subjects whose unmet needs were captured from EPR or HNA. Univariate logistic regression analysis were performed to assess clinical and social factors associated with having or not unmet needs. Factors analysed included age, menopausal status, married status, working status, living status, comorbidities, use of antidepressant, underwent mastectomy, axillary clearance, chemotherapy, endocrine treatment were coded as a binary variable and time from diagnoses to OAFU as a continuous variable. Multivariate logistic regression analysis were performed to assess independence of any significant $P<0.05$ univariate factors.

This study was approved by the Royal Marsden Hospital Committee for Clinical Research as a Service Evaluation (utilising routinely collected data and not requiring written informed consent).

**RESULTS**

A total of 738 patients entered the OAFU programme in the 12 months studied, and 625 were eligible for this study (Figure 1). The median age of patients was 59 years old (range: 27–97). The median time from diagnosis to assessment at OAFU was 8.9 months with an interquartile range from 6.3 to 13.6 months (Table 1).

Unmet needs were identified in 214 (34%) breast cancer survivors from an HNA questionnaire and in 411 (66%) direct from EPR at the time of OAFU consultation (where the HNA had not been completed prior to the consultation). Demographics, tumour and treatment characteristics were not statistically different between the two groups apart from the type of surgery ($P=0.02$) and the time from diagnosis to OAFU consultation ($P=0.005$).

Unmet needs were categorised in three different groups: 0 needs, 1–4 needs, and $\geq 5$ needs. Over 60% (61%) of the survivors have at least one need and 18% have $\geq 5$ unmet needs. Consistently higher levels of unmet needs were identified using the HNA as opposed to extraction from EPR (Table 2). In the light of this observation we conducted a multivariate analysis (incorporating age, menopausal status, social situation, co-morbidities, treatments received and time from diagnosis to OAFU) to evaluate factors associated with completion of an HNA prior to return to OAFU. The two independent factors associated with completing HNA checklist were age 50 years or older and those who entered into the OAFU programme within 12 months of diagnosis ($P=0.032$ and $P=0.019$, respectively).

We classified the unmet needs in five different categories—practical, family, emotional, spiritual and physical needs—aligned to the HNA checklist questionnaire (Supplementary Online Material). Physical and emotional needs were the most frequently reported (55% and 24%, respectively). Practical, family and spiritual needs were reported in less than 10% (6, 5 and 4%, respectively) (Table 3). Unmet needs were more frequently identified using HNA assessment than extraction from EPR, for example: physical and emotional needs were given in 225 survivors (36%). Healthy diet and exercise recommendations were equally given to 30 and 29%, respectively. Alcohol consumption recommendation was only given in 10% of the survivors. In addition, referrals to acupuncture were made in 62 breast cancer survivors (10%), to treat different symptoms, such as hot flushes (9%), fatigue (3%) and pain (3%).

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**Table 1**. (Continued)

| Characteristics               | Unmet needs using HNA form n (%) | Unmet needs using EPR n (%) | Total n (%) | P-value |
|-------------------------------|---------------------------------|-----------------------------|-------------|---------|
| Taxanes                       |                                 |                             |             |         |
| Yes                           | 60 (28)                         | 132 (32)                    | 192 (31)    | $P=0.294$ |
| No                            | 154 (72)                        | 279 (68)                    | 433 (69)    |         |
| Trastuzumab                   |                                 |                             |             |         |
| Yes                           | 20 (9)                          | 50 (12)                     | 70 (11)     | $P=0.289$ |
| No                            | 194 (91)                        | 361 (88)                    | 555 (89)    |         |
| Endocrine treatment           |                                 |                             |             |         |
| Yes                           | 172 (80)                        | 332 (81)                    | 504 (81)    | $P=0.903$ |
| No                            | 42 (20)                         | 79 (19)                     | 121 (19)    |         |
| Type of endocrine treatment   |                                 |                             |             |         |
| Tamoxifen                     | 53 (25)                         | 107 (26)                    | 160 (26)    | $P=0.903$ |
| Aromatase inh                 | 113 (53)                        | 212 (51)                    | 325 (52)    |         |
| Goserelin + Tam               | 3 (1)                           | 11 (3)                      | 14 (2)      |         |
| Goserelin + AI                | 3 (1)                           | 2 (1)                       | 5 (1)       |         |
| No hormonal treatment         | 42 (20)                         | 79 (19)                     | 121 (19)    |         |

Abbreviations: AI = aromatase inhibitors; EPR = Electronic Patient Record; HER2 = human epidermal growth factor receptor 2; HNA = Holistic Needs Assessment; OAFU = Open Access Follow-up.

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**Table 2**. Frequency of unmet needs evaluated using either HNA or EPR

| Unmet needs evaluated using HNA or EPR | Unmet needs evaluated using EPR n (%) | Total n (%) | P-value |
|---------------------------------------|--------------------------------------|-------------|---------|
| Total patients                        | 214                                  | 411         | 625     |
| No needs                              | 34 (16)                              | 208 (51)    | 242 (39)| $P<0.001$ |
| 1–4 needs                             | 72 (34)                              | 199 (48)    | 271 (43)|         |
| $\geq 5$ needs                        | 108 (50)                             | 4 (1)       | 112 (18)|         |

Abbreviations: EPR = Electronic Patient Record; HNA = Holistic Needs Assessment.
Unmet needs in women living beyond early breast cancer

It is well-recognised that cancer survivors may experience long-term or late-effects related to the diagnosis and treatment of their cancer (Kornblith et al, 2003; Hodgkinson et al, 2007; Ganz and Hahn, 2008; Armes et al, 2009; Harrington et al, 2010; Harrison et al, 2011; Valdivieso et al, 2012; Burg et al, 2015). The main aim of this study was to determine the prevalence of unmet needs in women who had had previous treatment (with curative intent) for early stage breast cancer. The impetus to do this came from the changes in model of care in the UK, which mean that in many breast units these women are not being seen for regular follow-up.

Our results showed that over 60% of the survivors had at least one unmet need, and 18% of patients had at least five unmet needs. Needs were coded in three different categories: 0 needs, 1–4 needs and 5 needs to be consistent with previous studies (Armes et al, 2009). Similar studies assessing unmet needs in survivors found...
that 40–60% of survivors of all type of cancer had at least one unmet need (Armes et al, 2009; Harrison et al, 2011; Burg et al, 2015; Hubbard et al, 2015). In a study conducted by Armes et al, in 1425 cancer survivors (including 801 with breast cancer) 34% experienced ≥5 unmet needs (Armes et al, 2009). It is not possible to compare between these studies, as the methods of ascertainment are different; nonetheless, it is clear that a significant proportion of breast cancer survivors have multiple unmet needs. Several studies have also shown that breast cancer survivors reported more unmet needs than other cancer survivors (Harrison et al, 2011; Burg et al, 2015). Women who had had previous chemotherapy or endocrine therapy were most likely to report unmet needs, most likely as a result of the attendant toxicities of these treatments.

Physical needs were the most commonly reported followed by emotional needs (55 and 24%, respectively), which is consistent with data published by the American Society of Clinical Oncology (ASCO) and other sources which report that 40% survivors experienced at least one physical need and 29% at least one emotional need (Burg et al, 2015). Hewitt et al (2007) reported that cancer survivors often reported that their medical needs are met, but psychological needs remain unaddressed. Likewise, in several studies conducted specifically among breast cancer survivors emotional needs such as fear of recurrence and anxiety were the most commonly frequently reported (Armes et al, 2009; Harrison et al, 2011).

The two most commonly reported unmet needs were: hot flushes (23%) and fatigue (21%). Hot flushes and other menopausal symptoms are a well-recognised problem in breast cancer survivors (Shapiro and Recht, 2001; Murthy and Chamberlain, 2012; Marino et al, 2014). However, it is also well-recognised that a variety of interventions, including behavioural, pharmacological and complementary may ameliorate these symptoms (Mao et al, 2015; Wiśnieswska et al, 2016). Therefore it is important that proactive management of these symptoms be offered and be available to patients who are no longer being seen in secondary care. Fatigue is an unmet challenge in breast cancer survivors, and the results from this analysis are consistent with data published by Bower et al where 25–30% survivors of breast cancer reported cancer-related fatigue (Bower et al, 2014). As for menopausal symptoms, some interventions may help with cancer-related fatigue, and it is important that patients have access to support and advice (Capelan and Kingston, 2016). In our study, recommendations regarding exercise and acupuncture to manage cancer-related fatigue were made in 43 (7%) and 16 (3%), respectively. In addition, general recommendations regarding healthy life styles including exercise, healthy diet and alcohol cessation were given in 225 (36%) of breast cancer survivors. Taking into account the impact that healthy life style changes have in cancer survivors, we are aware that more consistent advice and support should be given in the future (Runowicz et al, 2016).

Unmet needs were more likely to be detected when patients were assessed using the HNA as opposed extraction from EPR. This observation might be explained by the fact that having a formalised checklist that patients can complete at their leisure might lead to higher levels of reporting than in a face-to-face consultation and enable patients to self-reflect on their needs and concerns. In addition, the HNA questionnaire includes spiritual, family and practical needs, such as work and finances, that are not generally assessed by health professionals. This also might be partly explained by the fact that patients having an HNA assessment were more likely to undergo that assessment within 12 months of diagnosis (76 vs 65% for EPR extraction, P = 0.005). Nonetheless all patients undergoing assessment had of course completed their treatment at the time of this assessment, and in univariate analysis of needs vs no needs, there was no difference in the proportion of patients reporting needs between those who were assessed at less than 12 months or more than 12 months. The significance of the higher rate of ascertainment with HNA is unknown. However, evidence suggests that the HNA contributes to a better identification of a cancer survivors’ needs which helps to tailor an individualised care planning and therefore set up early interventions (Richards et al, 2011). An electronic HNA (eHNA) has also been developed and piloted in four sites in UK. The benefits of this are an increase in the number of HNA completed compared to paper-based HNA, more rapid data processing, audit and analysis and the potential ability to share reproducible outcome data sets across cancer units and centres (Macmillan Cancer Support, 2013).

The main limitation of this study is its retrospective nature. There is a risk of bias with those patients completing HNA potentially being selected for those with more needs. Furthermore, some patients (either by HNA or EPR) may under or over-report symptoms. In addition, we were unable to assess the severity of unmet needs and whether they were present before the diagnosis of breast cancer. In the absence of longitudinal data, it is also not clear from this study, to what extent the needs reported may resolve over time.

Figure 2. Top ten most frequent unmet needs among 625 survivors of BC (frequency ≥10%).
Irrespective it is clear that a significant proportion of women with a previous diagnosis of early breast cancer have a number of unmet needs as they move from hospital follow-up to patient-self management in an Open Access Follow-up programme. Those women at particular risk are those who have had chemotherapy or are receiving endocrine therapy, as reported in other studies (Armes et al., 2009). It is vitally important, that women coming to the end of their hospital-based routine follow-up have their needs assessed, ideally with a structured tool such as the HNA or eHNA. It is equally important that where unmet needs are found, women are empowered to access help and expertise and resources should be available to help them.

| Variable                  | Total | Number ≥1 need | % | OR | OR 95% CI | P-value | OR | OR 95% CI | P-value |
|---------------------------|-------|----------------|---|----|-----------|---------|----|-----------|---------|
| Age                       |       |                |   |    |           |         |    |           |         |
| <50                       | 114   | 67             | 59 | 1.14 | 0.75–1.72 | 0.543   | NA | NA        | NA      |
| ≥50                       | 551   | 316            | 62 |     |           |         |    |           |         |
| Married                   |       |                |   |    |           |         |    |           |         |
| N                         | 171   | 100            | 58 | 1.13 | 0.78–1.64 | 0.532   | NA | NA        | NA      |
| Y                         | 334   | 211            | 61 |     |           |         |    |           |         |
| Working                   |       |                |   |    |           |         |    |           |         |
| N                         | 265   | 151            | 57 | 1.33 | 0.94–1.88 | 0.110   | NA | NA        | NA      |
| Y                         | 265   | 169            | 64 |     |           |         |    |           |         |
| Living alone              |       |                |   |    |           |         |    |           |         |
| N                         | 413   | 245            | 59 | 1.20 | 0.82–1.76 | 0.350   | NA | NA        | NA      |
| Y                         | 154   | 98             | 64 |     |           |         |    |           |         |
| Comorbidities             |       |                |   |    |           |         |    |           |         |
| N                         | 540   | 330            | 61 | 0.95 | 0.59–1.52 | 0.827   | NA | NA        | NA      |
| Y                         | 85    | 53             | 62 |     |           |         |    |           |         |
| Antidepressants           |       |                |   |    |           |         |    |           |         |
| N                         | 579   | 350            | 60 | 0.60 | 0.31–1.17 | 0.134   | NA | NA        | NA      |
| Y                         | 46    | 33             | 72 |     |           |         |    |           |         |
| Menopause status          |       |                |   |    |           |         |    |           |         |
| Pre                       | 178   | 115            | 65 | 0.82 | 0.57–1.18 | 0.282   | NA | NA        | NA      |
| Post                      | 447   | 268            | 60 |     |           |         |    |           |         |
| Mastectomy                |       |                |   |    |           |         |    |           |         |
| N                         | 432   | 257            | 59 | 1.28 | 0.90–1.82 | 0.170   | NA | NA        | NA      |
| Y                         | 193   | 126            | 65 |     |           |         |    |           |         |
| Axillary clearance        |       |                |   |    |           |         |    |           |         |
| N                         | 482   | 293            | 61 | 1.18 | 0.80–1.76 | 0.407   | NA | NA        | NA      |
| Y                         | 136   | 88             | 65 |     |           |         |    |           |         |
| Chemotherapy              |       |                |   |    |           |         |    |           |         |
| N                         | 364   | 205            | 56 | 0.60 | 0.43–0.84 | 0.003   | 0.50 | 0.35–0.71 | P<0.001 |
| Y                         | 261   | 178            | 68 |     |           |         |    |           |         |
| Endocrine treatment alone |       |                |   |    |           |         |    |           |         |
| N                         | 121   | 60             | 50 | 0.55 | 0.37–0.82 | 0.004   | 0.44 | 0.29–0.67 | P<0.001 |
| Y                         | 504   | 323            | 64 |     |           |         |    |           |         |
| Radiotherapy              |       |                |   |    |           |         |    |           |         |
| N                         | 105   | 61             | 58 | 0.85 | 0.56–1.31 | 0.463   | NA | NA        | NA      |
| Y                         | 520   | 322            | 62 |     |           |         |    |           |         |
| Time from diagnosis to OAFU|     |              |   |    |           |         |    |           |         |
| <12 months                | 428   | 264            | 62 | 0.95 | 0.67–1.34 | 0.761   | NA | NA        | NA      |
| ≥12 months                | 197   | 119            | 60 |     |           |         |    |           |         |

Abbreviations: CI = confidence interval; OAFU = Open Access Follow-Up; OR = odds ratio.

The authors declare no conflict of interest.

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