

Report 26th October 2010

**Evaluating the experiences and understanding of women prior to,  
during and after using the Breast light**

**Research Team:**

Susanne Cruickshank (CI), Lecturer in Cancer Nursing, Edinburgh Napier University

Professor Catriona Kennedy, Professor of Nursing, Edinburgh Napier University

Diane Willis, Research Fellow, Edinburgh Napier University

Start Date: September 2009

Finish Date: October 2010

	Page
Summary	3
1. Aims and research questions	4
2. Background	4 - 5
3. Overview of the study	5
4. Method	5- 6
I. Ethical approval, sampling and recruitment	
II. Inclusion and exclusion criteria	
III. Data Collection procedure	
IV. Data Analysis	
5. Results	6 - 16
I. Participant demographics	
II. Participants responses pre breast light use	
III. Participant responses post breastlight use	
IV. Responses of participants who completed both pre and post questionnaires (N=36) across two time points	
V. The pattern of breastlight usage over a four month period	
6. Discussion	16 - 17
7. Conclusion	17
8. Future research	18
9. Dissemination	18
10. Financial Statement	18
11. References	19
12. Appendix 1: Questionnaire 1 and 2	20 - 30
13. Appendix 2: Diary entries	31 - 35

## Summary

**Background:** Breast Health is an important area of concern worldwide and breast cancer in particular is on the increase (Parkin 2002). There are natural changes which occur within the breast throughout a woman's life from puberty, through pregnancy and during the menopause. Health education promoting breast awareness plays an important role in providing women with the confidence to recognize any unusual changes and seek further advice as appropriate (McCready, Littlewood & Jenkinson, 2005). One product available to women is called 'breastlight' (the focus of this project) and is marketed as an aid to breast awareness. This is a self screening device which shines a light through the breast and can identify changes which may not be evident with hand examination alone (PWB Health, 2009). The company proposes this appliance has the potential to offer additional reassurance and reinforce key messages about being 'breast aware'.

**Aim:** The overall aim of this project was to evaluate the experience of receiving information and using the breast light device on a woman's breast awareness routine

**Method:** Participants from a University department were invited to take part by email. Questionnaires were completed at two time points: prior to using the breastlight and following a four month period of use. Respondents were asked to provide additional comments in an open section of the questionnaire and to complete a diary.

**Findings:** The breastlight was found by 50% of women who completed the study to be a valuable addition to their breast health routine, and increased their confidence levels when being breast aware. Many of the women, with a few exceptions understood the term 'breast awareness' and were familiar with the actions required if an abnormality in the breast was detected. Its use did not alter this level of knowledge and understanding.

**Conclusion:** There was no evidence that using the breastlight caused significant distress among the participants. Due to the need to actively engage with the device for it to be of any benefit, the choice to use it rested with the individual participant. Over time there was evidence from this small study that some participants felt an increase in confidence when undertaking activities to do with being breast aware when using the breastlight.

## **1. Aims and research questions**

The overall aim of this project was to evaluate the experience of receiving information and using the breast light device on a woman's breast awareness routine

### **Research Questions:**

1. To identify and describe a woman's understanding of breast awareness in relation to their current breast health routines
2. To evaluate a woman's understanding and experiences of breast awareness while using the product.
3. To explore women's experiences and understanding of the Breastlight at two time points.
4. To establish if the use of the Breastlight affects the decisions of respondents to seek health professional advice

## **2. Background:**

Breast Health is an important area of concern worldwide and breast cancer in particular is on the increase (Parkin 2002). There are natural changes which occur within the breast throughout a woman's life from puberty, through pregnancy and during the menopause. Health education promoting breast awareness plays an important role in providing women with the confidence to recognize any unusual changes and seek further advice as appropriate (McCready, Littlewood & Jenkinson, 2005). Indeed, campaigns to promote this activity are widely endorsed by Breakthrough Breast Cancer (2009), Breast Cancer Care and Cancer Research UK (2009).

One product available to women is called 'breastlight' (the focus of this project) and is marketed as an aid to breast awareness. This is a self screening device which shines a light through the breast and can identify changes which may not be evident with hand examination alone (PWB Health, 2009). The company proposes this appliance has the potential to offer additional reassurance and reinforce key messages about being 'breast aware'.

Some health professionals have expressed concerns to PWB Health that the device may provide false reassurance or increase anxiety among this population. It is

therefore important that the reliability of the product, its ease of use and acceptability to women are explored.

PWB Health has previously had the ability of the product to identify changes in the breast evaluated externally. Further independent research commissioned by PWB Health has also indicated that those women who purchase the product find it a valuable addition to their breast awareness routine.

This project was conducted independently in order to describe the experience of receiving information and using the breastlight device on a woman's breast awareness routine.

### **3. Overview of the project**

All staff and students in a University department were eligible to take part in the study and were invited to do so by email. Initially, 125 women responded to the email and of these, 53 participated. Our initial target recruitment number was 50. Data were collected using a questionnaire at two time points: prior to using the breastlight and then four months later. Respondents were asked to provide additional comments in an open section of the questionnaire and to complete a diary. Data were collected between December 2009 and May 2010.

### **4. Method**

#### **1. Ethical approval, Sampling and recruitment**

This study was approved by Edinburgh Napier University Ethics committee on the 6<sup>th</sup> November 2009.

The convenience sample of 53 participants was drawn from a University Department which included both students and staff. The invitation to participate by email was accompanied by an information sheet. This included a link to PWB Health's website which provides detailed information about the Breastlight device. Once participants agreed to take part a consent form, a questionnaire and details of where to pick up the device were sent.

Initially, 125 women responded to the email and indicated an interest in the study. Due to number of devices at our disposal, the first 75 were invited to collect the device. Of these, 59 agreed to participate and pick up the device but eventually 53

did so. Severe weather conditions from December 2009 January 2010 precluded some women picking up the device. A cut off date to pick up the device was set at the end of January 2010 to allow completion of the study on time.

## **II. Inclusion and exclusion criteria**

Inclusion Criteria: Any woman of any age, able to give consent

Exclusion criteria: Under 18s, unable to give consent

## **III. Data collection procedure**

Participants completed two questionnaires and a diary. The first questionnaire was completed prior to using the breastlight device and the second questionnaire following a period of use, of approximately 4 months. This timescale allowed participants sufficient time to familiarise themselves with the device. In addition, participants were asked to keep a diary during the time they had access to the breastlight. The questionnaires contained closed and open- ended questions and were designed specifically to meet the needs of this evaluation (Appendix 1 and 2).

## **IV. Data Analysis**

The quantitative data were coded and inputted using SPSS ver16. Data were summarised using descriptive statistics and compared using standard non-parametric statistical tests where possible. The written responses were analysed and categorised for reporting.

## **5. Results**

### **I. Participant demographics**

The following represents the type and number of participants who volunteered to participate in the study. The first questionnaire was completed by 53 participants. There were 36 women who filled in the questionnaires at two time points, representing 68% of the overall participants. All age groups except those under 20 years old and those over 60 were represented and evenly distributed across the sample. This is consistent with University working and student populations.

Age	No.	% of all participants	No. Completed study	% of all participants
Under 20	2	4%	1	2%
21-29	13	25%	8	15%
30-39	11	21%	9	17%
40-49	13	25%	8	15%
50-59	12	23%	8	15%
60-69	2	4%	2	4%
Best describes work status	No.			
Full-paid work	17	32%	12	
Part-time work	2	4%	0	
Full-time education	33	62%	22	
Part-time education/work	1	2%	1	
other	0	0	1	

**Table 1: Participant demographics**

## II. Participant's views pre breast light use

The following responses are drawn from the 53 participants who completed the first questionnaire and address research question 1:

***To identify and describe how a woman understands breast awareness in relation to their current breast health routines.***

The responses have been grouped under: current breast health, familiarity with breast awareness and normal breast health routine, anxiety about breast cancer and knowledge of the breastlight device.

- **Current breast health**

The participants were asked if they had experienced breast problems in the past. None reported having had breast cancer although 42% had experienced a range of benign conditions including breast pain, cysts, lumpy breasts, and fibroadenomas. 16% of these participants had experienced more than one benign breast condition.

74% of the participants were pre-menopausal, 8% peri-menopausal and 18% were post menopausal

- **Familiarity with ‘breast awareness’ as a term**

Asked how familiar they were with the term ‘breast awareness’: 85% were familiar and were able to explain it clearly using terms such as ‘feeling for lumps in the breast and surrounding tissue’, ‘looking for changes’ ‘checking breasts for shape, colour, position etc’ and ‘knowing your own body’, 13% were not familiar with this term and 2% gave no response.

When asked where they received breast awareness information from 36% could not recall the exact source. Those who could recall the source cited: NHS Leaflet (11%), Doctor (6%), Nurse (6%), Family (4%), School (4%), Charity (2%) or a combination of sources (6%)

The current breast screening age is 50-73, with women being invited any time after their 50<sup>th</sup> birthday. Of the 13 participants eligible for screening all had undergone a mammogram. This varied in frequency from 6 monthly (1) to every 2 years (1) to every 3 years (4) to once only (7).

- **Normal Breast Health Routine**

The study explored the participants’ normal breast health routine prior to using the breastlight device. Only 14% did not undertake any form of breast self examination. The remaining participants ranged from checking at least once a month (52%) to at least once a year (30%). Even distribution across the age bands was seen. The 14% who did not undertake self examination cited feeling unsure of how to do it and had never been shown.

Despite a high level of breast self examination among the participants, the confidence level of participants to undertake this varied. Few participants were very confident (2%) or quite confident (26%). The majority were unsure or not very confident (71%)

Opportunities for additional comments reflected the personal preferences/ experiences of different aspects of their breast health routine. Participants could be divided into those who actively engaged on a regular basis, those who did it when they remembered and others who were often prompted by real events relating to cancer.

The following extracts were additional comments in the open section of questionnaire no.1. They have been grouped to illustrate the diversity of the participants in their self examination practices and understanding of breast awareness

- **Actively engaged:**

*'check breast weekly in the bath'*

*'check monthly for changes in the shower, arm above head using opposite hand in circular motion'*

*'examination visual and palpation every 4 weeks'*

- **Ad hoc basis:**

*'nothing specific'*

*'occasionally have a feel'*

*'don't have a routine breast health check, once in a blue moon I may check for lumps or abnormalities'*

- **Prompted by events**

*'I irregularly check for changes in the breast. If prompted by stories of others who have been diagnosed, I am more likely to check'*

- **Anxiety about breast Cancer**

A range of concerns about breast cancer were expressed. 52% were concerned although 48% were only slightly or not at all concerned. The age distribution of those concerned compared to numbers of participants in the study was 31% (20-29 age group), 72% (30-39 age group), 62% (40-49 age group), 42% (50-59 age group), and 50% (60-69 age group).

Participants were asked what they would do in the event of suspecting a breast cancer. None of the participants said they would ignore it completely although 11% said they would monitor any change, discuss with a friend or get it seen next time they were in the surgery. Therefore 89% would take some action with almost all seeking advice from the GP or other Health Professional.

- **Knowledge of the breastlight device**

The majority of participants (90%) had no prior knowledge or experience of the breastlight device.

Participants were asked how they felt prior to using it. They reported being interested (48%), curious (22%), excited (2%) or a combination of these emotions (24%). Only 1 participant expressed none of these.

Eight of the participant's elaborated further when describing how they felt. They included feelings of uncertainty and apprehension:

*'I am hoping it will give me some reassurance'*

*'slightly apprehensive about the possibility of finding any kind of abnormality'  
'hoping I use it correctly'*

These feelings were mixed with an interest in its potential:

*'seems a good idea and I am keen to be part of something worthwhile'*

*'I am very interested if the breastlight will make me keep a regular routine and a more thorough job'*

*'I am very interested in this, especially having never heard of the device'  
'pleased to have the opportunity'*

*'I feel quite positive about the idea of an aid to examination'*

All the participants (100%) commented on what they saw as perceived benefits prior to using the breastlight. These could be divided into four groups: Increased breast awareness, Identifying changes, reassurance alongside current breast health routine and not sure of the benefits.

Increased breast awareness:

*'Apart from hopefully being useful to the project, I would imagine that this will change my routine/attitude toward being more regular in my examination'*

*'This will be a way of improving my breast awareness'*

Identifying changes

*'it could be a way of checking my breasts are in good health'*

*'a different way of checking your breasts and it could also be more effective'*

Reassurance alongside current breast health routine

*'I am not confident about self examination so this will make me feel much better about efficiently checking my breasts'*

*'give me confidence when doing self checks'*

Conversely, 57% of participants responded to some perceived disadvantages.

These comments were more diverse and included:

*'What if I find something?'*

*'Over reacting and seeking advice for anything unusual'*

*'It may give a false positive feeling of being unaware and not knowing how to use it'*

### **III. Participant's views post breastlight use**

The following responses are from the 36 participants who completed the 2<sup>nd</sup> questionnaire and address research questions 2 and 3

***To evaluate a woman's understanding and experiences of breast awareness while using the product.***

***To explore women's experiences and understanding of the Breastlight at two time points***

36 (68%) participants completed the study period and the second questionnaire.

Participants cited reasons for non completion: as unknown, family crisis or time.

- **Use of supporting information**

Participants were given the breastlight device unopened which mirrors how it is sold. Information about how to use it accompanies the device in the form of a leaflet, a DVD and the website details. Some participants looked at all the information sources. The results are divided into: 1. Leaflet, 2. DVD, 3. Website.

1. 94% looked at the leaflet, with 6% leaving this blank. The majority found it very easy (64%) or quite easy (33%) to understand.

2. 36% watched the DVD, with the majority of these (90%) finding it very or quite useful.

3. 31% accessed the website. More participants commented on the website than stated they had looked at it. Due to the discrepancy, no conclusions can be made.

- **Experiences of using the breastlight**

Most participants found the device OK to use (30%), quite easy to use (44%) or very easy to use (17%). 8% found the device difficult to use. Age was not an indicator for ease of use.

Asked how confident they felt in using the device, 6% were very confident or quite confident (19%). The majority felt not sure (50%), not very confident (19%) or not at all confident (5%). These were consistent with low confidence levels associated with self examination prior to its use.

In relation to any changes in their confidence to self examine following use of the breastlight, 28% found it did not change their confidence levels, 22% found it helped a little, 11% found it neither helped nor hindered, 22% found it helped quite a bit and 17% found it helped a lot.

When asked if using the breastlight impacted on their overall confidence in relation to breast health awareness; 58% found it increased their overall confidence while 42% felt their confidence levels were the same. Participants did not cite a decrease in confidence.

- **Understanding of breast awareness**

Participants were asked if their understanding of the term 'breast awareness' had changed after using the breastlight. Responses varied from not at all (28%), a little (17%), same (28%), quite a bit (25%), to very much (3%). Of the 25% who noted a change; 33% were 21-29 and 44% were 40-49. The group who experienced no change or the same were those participants aged 30-39. They were also the group who expressed the most anxiety about breast cancer at the outset.

It was important to establish if using the breastlight changed breast health routines. Participants were asked if they would continue to check their breasts for abnormalities after using the breastlight; 72% said they would, 14% said they

wouldn't and the remaining left the question blank. Those who said no made up almost 40% of the 50-59 age groups.

However, 72% of those noting a change in their behaviour indicated the frequency of their breast health routine would increase, and they would check at least monthly. This compared to 52% pre-breastlight use.

- **Anxiety about breast Cancer**

It was important to understand if the breastlight had altered the participants' fears of breast cancer. 41% were very or quite anxious about breast cancer even after its use. However, this represented an 11% reduction among the pre-use group of participants.

Asked if the breastlight reassured participants when used 14% responded not at all, 36% a little, 11% quite a bit, 31% very much and 8% did not respond.

Overall, the breastlight was viewed positively by the participants with 81% expressing it met their expectations, 14% finding it did not and 6% did not respond. Asked if they would purchase the device, 53% said they would, with 8% unsure. The remainder would choose not to purchase.

#### **IV. Responses of participants who completed both pre and post questionnaires (N=36) across two time points**

Changes in the pattern of checking breasts: 44% of participants said they would increase the frequency they check their breasts following use of the breastlight, 36% would not alter their pattern and 19% would decrease their pattern. Three of the participants who would increase their pattern of checking never checked prior to using the breastlight and were in the 21-39 age groups.

Changes in confidence levels associated with detecting an abnormality: 50% of participants reported an increased confidence level following use of the breastlight, 22% reported no change, 22% reported a decrease in confidence levels and the rest did not report.

Changes in concern about breast cancer over time: The complexity of the reasons participants were concerned about breast cancer was not explored in detail. Therefore interpretation of these results needs to be undertaken with caution.

However 44% reported they were less anxious about breast cancer than prior to using the breastlight, 28% were more anxious and the remainder noted no change. All participants continued to recognise the necessity to attend the GP/Nurse if any abnormality was found.

#### **V. The pattern of breastlight usage over a four month period**

Thirty five participants completed the diary at some point over the four month study period, representing 97% of those completing the second questionnaire. Three of the participants commenced later and some data is presented for month five. The participants were asked to record: the technique they used, whether it was the breastlight, their usual breast health routine or both, what they observed, and their reaction.

Overall there were 370 entries giving an average 11 entries per person for the entire study period. The entries are reported. (Appendix 3)

The entries indicate that there were very few concerns. It is though the comments alongside the diary entries which provide an account of the process women went through when using the breastlight.

- **Additional comments with the diaries**

Twenty participants provided additional comments while using the breastlight. A selection of the comments is illustrated in four groupings. Some participants kept a record and added to it in subsequent months seen as entry 1, 2 etc. These entries describe the period of adjustment to using the breastlight and changing emotions.

- a. Participants who found the breastlight easy to use straight away
- b. Participants who took time to adjust to using the breastlight
- c. Participants who were not impressed with it
- d. Participants who used the diary to keep a record of changes they saw.

#### **a. Participants who found the breastlight easy to use straight away**

This participant found the breastlight easy to use and followed up her initial thoughts with a comment to reaffirm this.

*Entry 1: I find the breast light very easy to use and can see a lot of blood vessels in my breast, even though I have 'c' cup the light is strong enough to shine through it.*

*Entry 2: I now use the breast light as part of my breast exam routine it is very easy to use*

*Entry 1: used the breast light for first time and was really fascinated by the light and how it worked. Felt apprehensive looking for dark patches yet hoping not to find any. It really heightened my awareness of my breast health and very reassuring to have it there. Used it 3 times when I first got it probably because of the novelty factor! Now it's just reassuring to know it's there if I was to use it – will use it about every 3 months*

#### **b. Participants who took time to adjust to using the breastlight**

This participant described the process of getting used to the breastlight. It required an element of perseverance on her part.

*Entry 1: I found it quite difficult to use the breast light despite reading the instructions. It took me sometime to work out how to use it so I could actually 'see' the breast tissue as I had to try looking at my breasts and at the mirror*

*Entry 2: I had another attempt – this time I felt I managed better but it was still a challenge to actually manage to 'see' my breast tissue. I found it easier to look in the mirror.*

*Entry 3: I managed better this time – still a little unsure what I am seeing but does appear to be 'healthy' breast as pic of the booklet. It is not easy to see 'under arm'*

*Entry 4: felt more confident when using the breast light*

*March and April felt much more confident and as if I knew what I was looking for*

*Entry 1: At first I didn't use the lubricant and found it a bit uncomfortable to move round once I started to use the lubricant it was much easier*

#### **c. Participants who were not impressed with it**

*Entry 1: I used the breast light twice – I don't think I saw much below the surface of the skin and therefore I found less useful than palpating my breasts for tissue changes – I also found it fussy to use and didn't like it.*

*Entry 1: I saw just a few blood vessels showed up in right breast. Nothing showed up on left breast not even blood vessels found thus apparatus a waste of time as did not work for me*

*Entry 1: found that using lubricant made positioning very difficult also found it difficult to see as indicated from instruction book*

#### **d. Participants who used the diary to keep a record of changes they saw.**

*Entry 1: possible feel a small pea sized bump on R breast*

*Entry 2: rechecked using breast light but nothing seen will monitor*

*Entry 1: Not sure if I see a shadow or not around L nipple area. I will keep an eye on it.*

*Entry 2: as above no change in size or shape*

- **Summary of diary findings**

During the study period only one participant identified an abnormality and they sought Health professional advice. All participants used the breastlight on at least two occasions. The diaries indicated that few of the women in the study noticed changes which were of concern to them. When this was the case, they reported that they either rechecked or sought health professional advice. It is important to acknowledge that the period of the study was relatively short.

## **6. Discussion**

The breastlight was positively received by all the participants at the outset. For some it was curiosity that being breast aware could include using a device, while others had personal reasons for participating.

The findings suggest that the majority of women in this study, across all age groups, are familiar with the concept of 'breast awareness'. However confidence levels to undertake the mechanistic process of self examination to detect an abnormality were relatively low.

The common language among health professionals has altered over the years from 'self examination' to being 'breast aware'. However, women in this study described a process of self examination as a process to aid detection of abnormalities. More than half of the participants actively engaged in a routine to monitor their breast health monthly. The concern is those who understood the concept but actively chose not to act. The introduction of the breastlight device increased breast health monitoring by a third, with a minority making a major shift from no monitoring to some.

Women did report concerns about breast cancer. With the current statistics indicating incidence will raise further (Cancer Research UK, 2009) this is not surprising. The study did not explore in depth the reasons for this concern but it did

not appear to hinder their ability to undertake a breast health routine, use the breastlight, act on any suspicious areas and change their breast health routine following use of the breastlight. This is consistent with a study by Hay, McCaul & Magnan (2006) which reviewed whether worry about breast cancer predicts screening behaviour. They found there was no empirical evidence to support the hypothesis that cancer worry inhibits breast screening and that 'the scenario of frightened, screening avoidant women is unfounded' pg 406.

It was clear from the responses that participants either liked or disliked using the breastlight. Those participants, who did not like it, made the decision to stop using it and handed it back. Conversely, those who liked it found it a positive addition to their breast health routine and chose to keep it. This was evenly split. A women's individual choice was the key influencing factor along with her willingness to persevere until she was familiar with the device. This is crucial when using any device for the first time. Although offered, none of the participants sought additional clarification during the study.

There was no evidence that using the breastlight caused significant distress and the choice to use it rested with the individual participant. Over time there was evidence from this small study that some participants felt an increase in confidence when undertaking activities to do with being breast aware when using the breastlight.

## **7. Conclusion**

- The breastlight was found by 50% of women who completed the study to be a valuable addition to their breast health routine
- Many of the women, with a few exceptions understood the term 'breast awareness' and were familiar with the actions required if an abnormality in the breast was detected.
- Using the breastlight increased the confidence levels of 50% of the women to be breast aware
- Women reported an increase (44%) in undertaking a breast health routine following use of the breastlight.

## **8. Implications for further research**

- Longitudinal studies of women using the breastlight to understand changing behaviour over time
- Studies in conjunction with clinical areas

## **9. Dissemination**

It is anticipated that the findings will be reported by Sue Cruickshank (Chief Investigator) at a conference which is still to be identified. A publication will be submitted to the European Journal of Cancer Nursing. However, we plan to submit to the Nursing Times this year. The editor has been contacted and we are actively developing this.

## **10. Financial Statement**

A final report will be submitted to the 2KT Innovation department and the costs will be released to Edinburgh Napier University.

All devices have been returned to PWB Health.

## 11. References

Breastlight (2009) available at <http://www.breastlight.co.uk> {accessed Oct 2009}

Breakthrough breast cancer, (2009). Available at: <http://breakthrough.org.uk/>  
{Accessed Oct 2009}

Breast Cancer Care., (2009). Available at  
<http://www.breastcancercare.org.uk/server/show/nav.1> {accessed Sept 2009}

Cancer Research UK., (2009). Available at <http://www.cancerresearchuk.org/>  
{Accessed Oct 2009}

Hay, J, L., McCaul, K, D., Magnan, R, E., (2006). Does worry about cancer predict screening behaviours? A meta- analysis of the prospective evidence, *Preventive Medicine*. **42**, pp. 401 – 408.

McCready ,T., Littlewood,D.,& Jenkinson,J.,(2005). Breast self examination and breast awareness: a literature review, *Journal of Clinical Nursing*. **14**, pp.570-578.

Parkin, D,M., Bray, F., Ferlay, J., Pissani, P., (2002).Global Statistics available at  
<http://caonline.amcancersoc.org/cgi/content/full/55/2/74> {Accessed Sept 2009}

Appendix 1: Questionnaire 1 – pre- Breastlight use

**Title of study**

**Evaluating the experiences and understanding of women prior, during and after using the Breastlight**

We are interested in some things about you and your breast health. Please answer all of the questions yourself by circling the number that best applies to you or writing your response. There are no "right" or "wrong" answers. The information that you provide will remain strictly confidential.

Please fill in:

Today's date (Day, Month, Year):

Your date of birth (Day, Month, Year):

1. Which age group are you in?

- |              |           |
|--------------|-----------|
| (1) Under 20 | (4) 21-29 |
| (2) 30-39    | (5) 40-49 |
| (3) 50-59    | (6) 60-69 |

2. Which of the following best describes you?

- (1) Work full-time in paid employment
- (2) Work part-time in paid employment
- (3) In full-time education
- (4) In part-time education and work
- (5) Other

3. Have you ever had a mammogram?

- |                    |                   |
|--------------------|-------------------|
| (1) Yes (go to q4) | (2) no (go to q5) |
|--------------------|-------------------|

4. How frequently have you had a mammogram?

(1) once every 6 months

(2) once a year

(3) once every 2 years

(4) once every 3 years

(5) once only

5. Have you ever declined to have a mammogram?

(1) Yes

(2) no

If you circled yes, please give your reason.

6. Are you:

(1) pre menopausal

(2) going through the menopause

(3) post menopausal

(4) prefer not to answer

7. **The following question asks about your current breast health.** Do you have or have you ever suffered from:

**Please circle all that apply**

(1) breast cancer

(2) breast cysts

(3) fibroadenomas

(4) lumpy breasts

(5) breast pain

(6) implants

(7) prefer not to answer

8. Are you familiar with the term 'breast awareness?'

(1) Yes (go to q9)

(2) no (go to q11)

9. If you are familiar with the term 'breast awareness' Can you describe what it means to you?

10. Where did you receive information about being 'breast aware'  
**Please circle all that apply**

- (1) Leaflet from a charity
- (2) Doctor
- (3) Leaflet from NHS
- (4) Nurse
- (5) Friend
- (6) Family
- (7) Not sure
- (8) did not receive any information

11. What breast health routine do you normally undertake?  
Please describe

12. If you check your breasts for abnormalities. How frequently to you undertake this activity?

- (1) More than once a week
- (2) Once a week
- (3) Every two weeks
- (4) Once a month
- (5) Once every 2-3 months
- (6) About twice a year
- (7) Less often than once a year
- (8) Never (go to q13)

13. If you answered **never** to the above question which of the following best describes your reason for this, otherwise please continue to question 14.  
**Please circle all that apply**

- (1) Anxious about breast cancer
- (2) Unsure what to do
- (3) Not very confident in the technique
- (4) Never been shown how to do it
- (5) Think it's a waste of time
- (6) Other----- Please specify

14. How confident are you with self examination for detecting abnormalities

- (1) Very confident
- (2) quite confident
- (3) not really sure
- (4) not very confident
- (5) not at all confident

15. How concerned are you about breast cancer?

- (1) very concerned
- (2) concerned
- (3) neither concerned or unconcerned
- (4) slightly concerned
- (5) Totally unconcerned

16. What is your likely action if you detected an abnormality?

- (1) See GP as soon as possible
- (2) See GP next time you were in the surgery
- (3) Arrange to see a practice nurse in the surgery
- (4) Monitor the abnormality yourself
- (5) Discuss with a friend/partner
- (6) Go onto the internet for further information
- (7) Ignore it completely

17. Have you seen the breastlight before?

If so, please specify

18. How do you feel before using the breastlight?

- (1) Interested
- (2) Curious
- (3) Excited
- (4) Scared
- (5) Nervous

Please include any other feelings you may have:

19. What do you see are the benefits to you of using the breastlight?

20. What do you see as the disadvantages to you of using the breastlight?

**Thank you for taking the time to fill in this questionnaire**

Appendix 2: Questionnaire 2: After breastlight use.

**Title of study**

**Evaluating the experiences and understanding of women prior, during and after using the Breastlight**

We are interested in your experiences and understanding of using the breastlight. Please answer all of the questions yourself by circling the number that best applies to you or writing in your response. There are no "right" or "wrong" answers. The information that you provide will remain strictly confidential.

Please fill in:

Today's date (Day, Month, Year):

Your date of birth (Day, Month, Year):

1. Did you look at all the information about using the breastlight device?

(1) Leaflet: (1) yes (go to q2)

(2) no

(2) Breastlight website (1) yes (go to q3)

(2) no

(3) DVD (1) yes (go to q4)

(2) no

2. If you read the leaflet how easy was it to understand?

(1) very easy

(2) quite easy

(3) not sure

(4) not easy

(5) not very easy

Do you have additional comments?

3. If you visited the breastlight website, how easy was it to get around and understand?

(1) very easy

(2) quite easy

(3) not sure

(4) not easy

(5)not very easy

Do you have additional comments?

4. If you watched the DVD, how easy was it to understand?

(1) very easy

(2) quite easy

(3) not sure

(4) not easy

(5)not very easy

Do you have additional comments?

5. How easy was the breastlight to use?

(1) very easy

(2) quite easy

(3) it was OK

(4) quite difficult

(5) very difficult

Do you have additional comments?

6. How confident did you feel the first time you used the breastlight?

- (1) very confident
- (2) quite confident
- (3) not really sure
- (4) not very confident
- (5) not at all confident

Do you have additional comments?

7. Did the breastlight affect your confidence to self examine your breasts?

- (1) not at all
- (2) a little
- (3) neither
- (4) quite a bit
- (5) quite a lot

Do you have additional comments?

8. Did using the breastlight?

- (1) increase confidence
- (2) decrease confidence
- (3) confidence has remained the same

9. How has your understanding of the term 'breast aware' changed since using the breastlight?

- (2) Not at all
- (3) A little
- (4) Same as before
- (5) Quite a bit
- (6) Very much

Do you have additional comments?

10. Will your breast health routine change following use of the breastlight?

11. Will you check your breasts for abnormalities as a result of using the breastlight?

(1) yes (go to q11)

(2) no (go to q12)

12. How frequently will you undertake breast checking?

- (9) More than once a week
- (10) Once a week
- (11) Every two weeks
- (12) Once a month
- (13) Once every 2-3 months
- (14) About twice a year
- (15) Less often than once a year
- (16) Never (GO TO QUESTION 13)

13. If you answered **never** to the above question which of the following best describes your reason for this?

**Please circle all that apply**

- (7) Anxious about breast cancer
- (8) Unsure what to do
- (9) Not very confident in the technique
- (10) Never been shown how to do it
- (11) Think it's a waste of time
- (12) Other----- Please specify

14. Has your confidence changed when detecting abnormalities in the breast following the use of the breastlight

- (3) Very confident
- (4) quite confident
- (3) no more or less confident
  
- (4) not very confident
  
- (5) not at all confident

15. How concerned are you about breast cancer?

- (1) very concerned
- (2) concerned
- (3) neither concerned or unconcerned
- (4) slightly concerned
- (5) Totally unconcerned

16. Did you detect an abnormality when using the breastlight?

- (1) yes (GO TO Q17)
- (2) no
- (3) n/a

17. What did you do?

- (1) Went to GP as soon as possible
- (2) Went to GP next time you were in the surgery
- (3) Arranged to see a practice nurse in the surgery
- (4) Monitor the abnormality yourself
- (5) Discuss with a friend/partner
- (6) Go onto the internet for further information
- (7) Ignore it complete

18. Did you find using the breastlight offered you reassurance

- (1) not at all
- (2) a little
- (3) quite a bit
- (4) very much

19. Did the breastlight meet your expectations?

- (1) yes
- (2) no

Please can you comment on your responses

20. What do you see are the benefits of using the breastlight?

21. What do you see are the disadvantages with using the breastlight?

22. Would you purchase a breastlight?

- (1) yes
- (2) no

If you said no, please give your reasons.

If you have any further comments about this product please provide details below

**Thank you for taking the time to fill in this questionnaire.**

**Appendix 3: Diary entries of the  
First Month**

33 participants recorded an entry in the diary. One participant in the 40s and 50s age groups did not fill in the diary for this month.

Technique (average entry 3.7)

Response	Total entries	No's filling in entries	Average entry per person	Range of diary entries
Breast light used	77	29	2.7	0-26
Usual breast light awareness routine	26	12	2.2	0-5
Used both	19	12	1.6	0-3

Observed (average entry 3.8)

Response	Total entries	No's filling in entries	Average entry per person	Range of diary entries
Nothing seen	123	31	4	0-29
Something seen unconcerned	1	1	1	0-1
Something seen concerned	1	1	1	0-1

Reaction (average entry 3.7)

Response	Total entries	No's filling in entries	Average entry per person	Range of diary entries
Satisfied	120	31	3.9	0-29
Unsatisfied: will recheck	2	2	1	0-1
Attended GP practice	0	0	-	0

**Month two**

34 filled in the diary. Overall there were 384 entries giving an average 11.3 entries per person for the entire month. One participant in the 40s age group did not fill in the diary for this month.

Technique (average entry 3.6)

Response	Total entries	No's filling in entries	Average entry per person	Range of diary entries
Breast light used	60	25	2.4	0-20
Usual breast awareness routine	24	9	2.7	0-7
Used both	38	16	2.4	0-9

Observed (average entry 3.4)

Response	Total entries	No's filling in entries	Average entry per person	Range of diary entries
Nothing seen	110	33	3.3	0-28
Something seen unconcerned	3	3	1	0-1
Something seen concerned	1	1	1	0-1

Reaction (average entry 3.3)

Response	Total entries	No's filling in entries	Average entry per person	Range of diary entries
Satisfied	107	31	3.5	0-28
Unsatisfied: will recheck	4	3	1.3	0-2
Attended GP practice	1*	1	1	0-1

## Month Three

31 filled in the diary. Overall there were 271 entries giving an average 8.7 entries per person for the entire month. Two participant in their 20s, 1 in their 40s and 1 in their 50s age groups did not fill in the diary for this month.

Technique (average entry 3.5)

Response	Total entries	No's filling in entries	Average entry per person	Range of diary entries
Breast light used	53	21	2.5	0-20
Usual breast awareness routine	17	9	1.9	0-1
Used both	19	12	1.6	0

Observed (average entry 2.9)

Response	Total entries	No's filling in entries	Average entry per person	Range of diary entries
Nothing seen	88	30	2.9	0-20
Something seen unconcerned	2	2	1	0-1
Something seen concerned	0	0	-	0

Reaction (average entry 3.2)

Response	Total entries	No's filling in entries	Average entry per person	Range of diary entries
Satisfied	90	26	3.5	0-20
Unsatisfied: will recheck	2	2	1	0-1
Attended GP practice	0	0	-	0

## Month Four

31 filled in the diary. Overall there were 279 entries giving an average 9 entries per person for the entire month. One participant in their 30s, one in their 60s and two in their 40s age groups did not fill in the diary for this month.

Technique (average entry 3)

Response	Total entries	No's filling in entries	Average entry per person	Range of diary entries
Breast light used	54	23	2.3	0-19
Usual breast awareness routine	17	8	2.1	0-4
Used both	22	17	1.3	0-4

Observed (average entry 3)

Response	Total entries	No's filling in entries	Average entry per person	Range of diary entries
Nothing seen	93	31	2.9	0-23
Something seen unconcerned	0	0	-	0
Something seen concerned	0	0	-	0

Reaction (average entry 2.7)

Response	Total entries	No's filling in entries	Average entry per person	Range of diary entries
Satisfied	82	31	2.6	0-23
Unsatisfied: will recheck	1	1	1	0-1
Attended GP practice	0	0	-	-

## Month Five

The following participants (3) did not start their diaries until February and therefore account for these late diary entries. Overall there were 9 entries giving an average 3 entries per person for the entire month. Those who filled them in were one in their 20's, 40's and 50's.

Technique (average entry 1)

Response	Total entries	No's filling in entries	Average entry per person	Range of diary entries
Breast light used	2	2	1	0-1
Usual breast awareness routine	0	0	-	-
Used both	1	1	1	0-1

Observed (average entry 1)

Response	Total entries	No's filling in entries	Average entry per person	Range of diary entries
Nothing seen	3	3	1	1
Something seen unconcerned	0	0	0	0
Something seen concerned	0	0	0	0

Reaction (average entry 1)

Response	Total entries	No's filling in entries	Average entry per person	Range of diary entries
Satisfied	3	3	1	1
Unsatisfied: will recheck	0	0	0	0
Attended GP practice	0	0	0	0