



## ORIGINAL RESEARCH – QUANTITATIVE

## Outcome evaluation of an educational program for Japanese midwives to promote breast awareness for women

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## ABSTRACT

**Aim:** The objective of this study was to evaluate educational approaches for midwives to promote breast awareness for postnatal women by measuring the knowledge, attitude and practice of midwives.

**Methods:** A nonequivalent control design comparing two intervention groups and control group was used. Participants were Japanese midwives agreeing to this study. Midwives in the program group attended the program; those in the text group only read the textbook. Midwives in the control group neither attended the program nor learned by textbook. All measurements were administered at baseline, one-month post-program, and three-month post-program.

**Results:** Among 215 participants, 168 midwives (45 program, 62 text, and 61 control) remained until three month follow-up. The knowledge test score was found to have significant mutual interactions between the three groups and time ( $F = 14.2$ ,  $df = 4$ ,  $p < 0.001$ ). However, the attitudes did not differ between the three groups. Implementation rates for midwifery practice incorporating breast awareness education for postpartum women were different at one month and three months between the three groups. Implementation of breast awareness education at three months revealed the following factors: program group (OR 5.4, 95%CI [1.3–21.8]); text group: OR 0.7, 95%CI [0.2–2.7]) and implementation of breast awareness education at the first time measurement (OR 18.6, 95%CI [4.6–73.9]).

**Conclusions:** The results of this study showed that the educational program increased midwives' knowledge and contributed to the continuation implementing breast awareness education for postpartum women about three months after testing.

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## 1. Background

Breast cancer is the most common type of cancer for women. In 2012 there were 1.7 million women newly diagnosed with breast cancer. The breast cancer incidence has increased by more than 20% since 2008.<sup>1</sup> The mortality and incident rates vary worldwide, exhibiting a pattern of increasing incident globally but more so in the developed countries in part due to better surveillance, early identification and more advanced treatments and therefore decreasing mortality.<sup>1</sup> By comparison developing countries also encounter increasing incidences, but have later identification and less effective treatment options leading to higher mortality rates. Incidence rates vary worldwide from 27 per 100,000 women in

Middle Africa and Eastern Asia to 96 per 100,000 women in Western Europe.<sup>2</sup> While the incidence rates remain higher in developed countries, the increase in Asia, Africa and South America means that breast cancer has become a major health issue for women in these regions. The International Agency for Research on Cancer (IARC) posits that the shift to western lifestyles (reproductive, dietary, and hormonal risk factors) may be a cause in the increase of breast cancer incidence.<sup>1</sup>

The IARC notes that 62% of breast cancer deaths occur in the less developed countries.<sup>2</sup> Although mortality due to breast cancer has declined in most Western countries since the 1990s, it actually increased gradually in the developed country of Japan.<sup>3</sup> In 2012, the age-standardized Japanese breast cancer mortality rate was 9.8 per 100,000, and the incidence rate was 52 per 100,000; that incidence rate is the highest in Eastern Asia.<sup>4</sup>

In 2004, in an attempt to reduce mortality, the Japanese government authorized health insurance payments for mammograms once every two years, for women aged 40 or older. However,

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the screening rate has not improved greatly since then which was 24.7% in 2007 to 30.6% in 2010.<sup>5</sup> In addition, as of 2010 around 60% of breast cancer was self-detected.<sup>6</sup> Surveys from Western countries indicate there are many factors that might affect screening behavior. Socioeconomic factors such as low income and lack of health insurance, physician access barriers like lack of physician recommendation and having no primary provider, and concerns about cost safety and pain were reported to be factors associated with mammography utilization.<sup>7</sup> Other determinates of avoiding screening were poor knowledge about breast cancer screening, self-efficacy and breast cancer fear.<sup>8</sup> In Japan a survey of more than 1000 women about avoiding screening behavior found that nearly 70% of women had a fear of breast cancer, and approximately 40% were worried that something wrong would be detected by a mammogram.<sup>9</sup> In addition, more than 60% of respondents worried about pain during the mammography.<sup>9</sup> Effective strategies are needed for Japanese women to accomplish early screening and treatment.

In order to increase participation in breast cancer screening, various interventions have been examined for their effectiveness. A systematic review indicated that not only a population-based one-on-one education but also interventions directed at healthcare providers were effective for increasing the uptake of breast cancer screening.<sup>10</sup> Concerning effective strategies for community breast cancer screening, combinations of educational interventions plus invitation activity such as invitation letters were effective for inviting women into community screening services.<sup>11</sup> However, in Japan although invitation letters have been adopted in many communities with some promising outcomes<sup>12</sup> group and one-to-one educational efforts have been minimal.

A more comprehensive approach to encouraging breast cancer screening is to educate women about breast health through a program that includes breast awareness.<sup>13</sup> Breast awareness teaches women how their breasts develop and change over time, what to look for, what to feel and about breast screening. It is important that women in their mid-twenties and onwards learn about breast awareness which includes the importance of breast cancer screening.<sup>14,15</sup> Because the average age of women having a first baby is 30 years old and that age is increasing,<sup>16</sup> they are still before the age of 50–55 years when the incidence of breast cancer is at its highest.<sup>5</sup> Hence, women in the postnatal period could be highly motivated to learn breast awareness and the importance of breast cancer screening. In addition, in Japan about 90% of mothers nurse their infants for at least one month after delivery.<sup>17</sup> This means they look at and touch their breast more than usual. This provides an opportunity to learn about the function and structure of their breasts, and what is normal and abnormal, which is the basis of breast awareness and critical for participating in breast cancer screening.

Midwives in Japan are educated to support women who breastfeed. Under the Act on Public Health Nurses, Midwives and Nurses, 'midwife' refers to a woman licensed by the Minister of Health, Labour and Welfare, who practices midwifery or provides health care to pregnant women, women in the postpartum period, and newborn infants.<sup>18</sup> Midwives, especially community midwives, provide ongoing support to breastfeeding mothers and their baby until termination of breastfeeding. During this period, midwives have enough time to educate and consult with women about breastfeeding, breast awareness and breast cancer screening. Even though midwives have opportunities to promote women's breast awareness and breast cancer screening, they are not expected to have detailed knowledge about breast awareness and breast cancer. Although the International Confederation of Midwives (ICM) includes the skill to perform clinical breast examination as an essential competency for basic practice,<sup>19</sup> the core competencies for Japanese midwives do not include the

content of breast cancer and clinical breast examination.<sup>20</sup> Skills in breast awareness education would deepen Japanese midwives practice while aligning with the ICM competencies.

Therefore, we developed a face-to-face educational program for midwives so they could prepare breast awareness education for prenatal women.<sup>21</sup> The objectives of this program were (1) to increase midwives' basic knowledge of breast cancer and the concept of breast awareness, (2) to positively change midwives' attitudes toward breast awareness and (3) to encourage midwives to implement the practice of educating women about breast awareness in the postnatal period. According to the results of the process evaluation, this educational program received positive feedback from participants. However, some aspects of the program needed revising, specifically the time schedule, which was shortened from 5 h and 20 min to 3 h and 20 min; the DVD for breast self-examination (BSE) and text book were also amended based on respondent comments such as increasing explanations.<sup>21,22</sup> Our revised educational program required an outcome evaluation using a control group and a comparison group method to examine its effectiveness. Midwives who have busy practices and or who are in remote areas may be able to acquire the same knowledge base through text-learning as those who have face-to-face learning. Therefore, we chose a text-learning group as the comparison group because learning using a textbook was our second option to establish program goals.

The purpose of the current research was to evaluate the revised educational program on breast awareness for midwives to educate women by measuring the knowledge, attitude and practice of midwives among three groups: a Program Group (ProG), a Text Group (TxtG) and a Control Group (ConG). In addition we clarified factors in midwifery practice that affected the continued implementation of promoting breast awareness to women.

## 2. Methods

### 2.1. Study design and participants

Study design was a nonequivalent control design comparing two intervention groups and a control group with all receiving the pretest and posttest that provided longitudinal data. Convenience sampling was used. The Midwives' Association supported and cooperated with recruitment for participation in the educational program by including information about the research in their quarterly journal reaching about 3000 midwives. Interested midwives contacted the researcher to declare their interest. The ProG consisted of midwives who wanted to participate in the on-site educational program on breast awareness. The TxtG and ConG consisted of the remaining midwives who elected to participate in either the TxtG or ConG. The ProG received the full educational program including a 14-page breast education textbook. Midwives in the TxtG received the same textbook as the ProG. Midwives in the ConG did not receive the textbook or participate in the program.

### 2.2. Educational program on breast awareness for midwives

The aim of the educational program for midwives was to ensure acquisition of adequate knowledge and attitudes and to take action on breast awareness education for women engaged in childrearing. The program development was the result of a collaboration of researchers and experts in the field of breast cancer. The details of the program are shown in Table 1. The 14-page textbook was also revised to follow the content of the program that included: overview of the breast cancer, concept of the breast awareness, breast self-examination, breast cancer screening depending on

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