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Factors influencing the mammography utilization among Taiwanese women with intellectual disabilities, a nationwide population-based study

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ABSTRACT

Women with intellectual disabilities (ID) have cognitive impairment and communication difficulties; for both caregivers and clinical personnel, discovering the early symptoms of breast cancer among women with ID is challenging. The mammography utilization rate of women with ID was significantly lower than that of women in the general population. This study employed a 2008 database of people with disabilities in Taiwan as a research target and analyzed the mammography utilization rate of women with ID aged 50–69 years. In addition, relevant factors influencing mammography utilization among women with ID were also investigated. A total of 4370 participants were recruited and the majority were illiterate or had elementary-level educations (82.27%). The majority of the participants had ID that was more severe than mild (83.80%). The mammography utilization rate of women with ID was 4.32%, which was significantly lower than that of women in the general population (12%). The mammography utilization rate among women with ID who were married, had higher education levels, and had been diagnosed with cancer, diabetes, or mild ID was significantly higher. However, the mammography utilization rate among women with ID, who had elementary-level educations or were illiterate, was only 4.03%. The utilization rate among women with profound ID was only 2.65%. Women with ID who had undergone pap smears or had utilized adult preventive health services demonstrated a significantly higher mammography utilization rate. This study identified that education level, a diagnosis of diabetes, and the application of pap smears or adult preventive health services were primary factors that influenced the mammography utilization rate among women with ID. This study also observed that in Taiwan, the mammography utilization rate of women with ID was lower than that of pap smears and adult preventive health services, and was only half of that of people with disabilities. An unequal situation existed in regard to the acceptance of breast cancer screening among women with ID, and a different form of strategic planning must be adopted in public health policy. Because ID differs from other disabilities and most women with ID are illiterate, tailored courses are required to train primary caregivers and clinical personnel in providing knowledge and services. The objectives are to diagnose breast cancer at an early stage to decrease the risk of mortality and ensure their rights to health.

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1. Introduction

In 2000, approximately 1.8% of women died of breast cancer worldwide (Sullivan et al., 2003). Advancements in medicine have prolonged the life expectancies of women with ID; thus, the risk of breast cancer has also increased (Davies & Duff, 2001; Hanna, Taggart, & Cousins, 2011; Sullivan et al., 2003; Taggart, Truesdale-Kennedy, & McIlfatrick, 2011). Approximately 50% of women with ID live up to 70 years; thus, the participants, aged 50–69 years, were in an age group subject to the highest risks of breast cancer (Sullivan et al., 2003; Taggart et al., 2011). Factors that have contributed to the onset of breast cancer among women with ID include lifestyle sedentarism (McGuire, Daly, & Smyth, 2007), low levels of exercise (Temple & Walkley, 2003), nulliparity, which increased the risk by four times (Davies & Duff, 2001; Judkins & Akins, 2001; Sullivan et al., 2003), and sexual inactivity and loss of menstruation with low estrogen levels and a shorter menstrual cycle (Patja, Eero, & Livanainen, 2001). In addition, long-term usage of hormone-based contraception (McPherson, Steel, & Dixon, 2000; Sullivan et al., 2003) and the consumption of a high-fat diet and obesity are also contributing factors (Ewing, McDermott, Thomas-Koger, Whitner, & Pierce, 2004; Sullivan et al., 2003; Willett, 2001). Breast cancer incidence and mortality can be reduced by performing effective breast cancer screening (Blanks, Moss, McGahan, Quinn, & Babb, 2000; Sullivan et al., 2003). Because of cognitive impairment and communication difficulties among women with ID, discovering breast cancer symptoms early is a challenge for both caregivers and clinical personnel. Furthermore, women with ID must rely on caregivers' assistance during breast cancer screening (Hanna et al., 2011; Taggart et al., 2011). Women with ID do not understand why they need mammography and how it is performed; thus, they experience more fears and anxieties than women in the general population (Sullivan et al., 2003; Wilkinson, Deis, Bowen, & Bokhour, 2011). In Taiwan, the population with ID is approximately 100,363, or 0.46% of the total population, and 43% are women (Ministry of the Interior, 2012). Breast cancer is the cancer with the highest incidence among Taiwanese women (2006 standardized incidence rate = 50 per 100,000 person-years). Furthermore, the age of breast cancer incidence was earlier than in the US and Europe, ranging from approximately 45–64 years, and breast cancer is the fourth most common fatal cancer among women (2006 standardized mortality rate = 11 per 100,000 person-years) (Health Promotion Administration, 2012). Beginning in 2004, the Taiwan Health Promotion Administration has been providing free mammography screening once every 2 years for women aged 50–69 years. In 2007 and 2008, the ratio of women aged 50–69 years that had received mammography screening within the preceding 2 years was 12% (Health Promotion Administration, 2012).

An Australian study reported that women with ID had a lower incidence of breast cancer (64.0 per 100,000 person-years) compared with women in the general population (146.7 per 100,000 person-years). This may have resulted from the shorter life expectancy or lower mammography utilization rate among women with ID. In the Australia, the utilization rate of women with ID was 34.7%, which was lower than that of women in the general population (54.6%) (Sullivan et al., 2003). A study conducted in Ontario, Canada, indicated the number of women with ID that did not undergo mammography screening was 1.5 times that of women in the general population (Cobigo et al., 2013). In the US the utilization rate of women with ID was 53%, compared with 85% of general population (Parish, Swaine, Son, & Luken, 2013; Wilkinson, Lauer, Freund, & Rosen, 2011). Davis also found that 30% of women with ID had never been invited to receive mammography. This study analyzed the mammography utilization rate of women with ID and relevant factors. The objective of this study was to draw the attention of public health policymakers, increase the mammography utilization rate among women with ID, and decrease the incidence and mortality rate of breast cancer.

2. Methods

2.1. Data sources and processing

This study analyzed a 2008 database of people with disabilities who registered with the Ministry of the Interior in Taiwan; by also referencing the National Health Insurance Research Database of the National Health Insurance Administration, we analyzed the mammography utilization rate among women with ID aged 50–69 years. The Andersen model was employed to analyze the mammography utilization of women with ID and the independent variables were as follows: (a) the predisposing component included demographics (i.e., gender, age, marital status, and aboriginal status), social status (i.e., education) and health beliefs (i.e., utilization of pap smears and adult preventive health services); (b) the enabling component included personal and family resources (i.e., monthly salary) and community resources (i.e., urbanization, the first level had the highest urbanization and the eighth level had the lowest urbanization); and (c) the need component included diagnoses of catastrophic illness, cancer, and diabetes, and ID severity, which was divided into four levels—mild was defined as having an intelligence quotient of at 55–69, moderate (40–54), severe (25–39), and profound (<24). The dependent variable was the utilization of mammography.

2.2. Statistical analysis

SAS version 9.1 was used to perform data analysis. Univariate analysis was employed to calculate descriptive statistics and determine the numbers of people and percentage. Subsequently, the times and percentages of mammography utilization among women with ID were analyzed; the results are shown in Table 1. In bivariate analysis, the *t*-test, one-way