



Mammography usage with relevant factors among women with mental disabilities in Taiwan: A nationwide population-based study



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ARTICLE INFO

Article history:

Received 26 October 2014

Accepted 29 October 2014

Available online 5 December 2014

Keywords:

Mental disability
Mammography screening
Access and utilization
Preventive care

ABSTRACT

Women with mental illness are at increased risk of developing and dying from breast cancer and are thus in urgent need of breast cancer preventive care. This study examined the use of screening mammography by Taiwanese women with mental disabilities and analyzed factors affecting this use. 17,243 Taiwanese women with mental disabilities aged 50–69 years were retrospectively included as study subjects. Linked patient data were obtained from three national databases in Taiwan (the 2008 database of physically and mentally disabled persons, the Health Promotion Administration's 2007–2008 mammography screening data, and claims data from the National Health Insurance Research Database). Besides descriptive statistics and bivariate analysis, logistic regression analysis was also performed to examine factors affecting screening mammography use. The 2007–2008 mammography screening rate for Taiwanese women with mental disabilities was 8.79% ($n = 1515$). Variables that significantly influenced screening use were income, education, presence of catastrophic illness/injury, severity of mental disability, and usage of other preventive care services. Screening was positively correlated with income and education. Those with catastrophic illness/injury were more likely to be screened (odds ratio [OR], 1.40; 95% CI = 1.15–1.72). Severity of disability was negatively correlated with screening, with very severe, severe, and moderate disability being associated with 0.34–0.69 times the odds of screening as mild disability. In Taiwan, women with mental disabilities receive far less mammography screening than women in general.

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1. Introduction

The incidence of breast cancer varies widely across regions of the world, with the age-standardized incidence in 2008 being highest in Western Europe at 89.7 per 100,000 and lowest in Eastern Africa at 19.3 per 100,000 (International Agency for Research on Cancer, 2010). Breast cancer is the leading cause of cancer death in women worldwide (Organization, 2008).

Abbreviations: CI, confidence interval; NT\$, New Taiwan Dollar; OR, odds ratio; SAS, Statistics Analysis System.

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<http://dx.doi.org/10.1016/j.ridd.2014.10.052>

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In Taiwan, breast cancer is the fourth leading cause of cancer death in women, with the mortality rate from breast cancer nearly doubled over the past 30 years, from 6.0 per 100,000 in 1981 to 11.6 per 100,000 in 2012 (Ministry of Health and Welfare, 2013).

Mammography is an important method for the early diagnosis of breast cancer, and regular mammography screening has been shown by many researchers to reduce breast cancer mortality (Hanson, Montgomery, Bakker, & Conlon, 2009; Humphrey, Helfand, Chan, & Woolf, 2002; Kalager, Zelen, Langmark, & Adami, 2010). Humphrey et al. (2002) found that screening mammography reduced breast cancer mortality by 15–20% in women aged 40–49 years and by 16–35% in women aged 50–59 years. In Taiwan, women 50–69 years of age are eligible to receive free mammography screening once every 2 years beginning in 2004 (Chang, Kuo, & Wang, 2008). Even with this national screening program, the breast cancer mortality rate has continued to rise, and improving the early detection of breast cancer has become a top public health issue in Taiwan. A previous study showed that the use of mammographic breast cancer screening by women with disabilities was affected by factors including age, income, health status, and area of residence, marital status, education level, and severity of disability (Kung, Tsai, & Chiou, 2012). Among all women in the recommended age range for screening in Taiwan, the proportion that had received mammography screening within the past 2 years increased from 12% in 2008 to 29.3% in 2011 (Health Promotion Administration, 2009, 2012).

Compared with those without mental illness, individuals with mental illness were found to have more medical comorbidities (Cole, 2007; Daumit, Pratt, Crum, Powe, & Ford, 2002), incur greater health care burden (Carney & Jones, 2006b; Insel, 2008) and have 30% higher cancer-related mortality (Chang et al., 2010; Kisely, Crowe, & Lawrence, 2013); they were also less likely to undergo mammography screening (Pirraglia, Sanyal, Singer, & Ferris, 2004; Steiner et al., 1998; Vigod, Kurdyak, Stewart, Gnam, & Goering, 2011; Werneke et al., 2006; Yee et al., 2011). Masterson, Hopenhayn, and Christian (2010) showed a possible correlation between poor mental health status, such as having feelings of depression and anxiety, and decreased use of regular mammography screening. Results from past studies have not been entirely consistent with respect to the use of screening mammography among individuals with mental illness. Research conducted by Koroukian, Bakaki, Golchin, Tyler, and Loue (2012) in Ohio State, United States, showed a higher rate of mammographic breast cancer screening for women with than without mental illness (38.1% vs. 31.7%). Another study in New Mexico State by Yee et al. (2011) found that women with mental illness were less likely than those without such illness (odds ratio [OR], 0.79) to undergo breast cancer screening. Alarming, psychiatric patients were shown to have not only a 9.5-fold higher incidence of breast cancer (Halbreich, Shen, & Panaro, 1996) but also a higher risk of breast cancer mortality (rate ratio, 1.27) (Kisely, Crowe, & Lawrence, 2013) than the general population. Thus, individuals with mental illness as a group are in urgent need of more breast cancer preventive care services.

Little research has focused on screening mammography use by Asian women with mental illness. In Taiwan, 0.51% of the populations (totaling 119,514) were living with mental disabilities in 2012. The aim of this study was to examine the use of mammography screening by Taiwanese women with mental disabilities and analyze factors that affected this use.

2. Materials and methods

2.1. Data source and participants

The study subjects were 17,243 Taiwanese women with mental disabilities aged 50–69 years. Mental disabilities included delusional disorders, affective disorders, schizophrenia, childhood-onset mental disorders, senile and presenile mental disorders, other organic mental disorders, and other nonorganic mental disorders.

A retrospective cohort analysis was conducted using the latest data from the following combination of national databases in Taiwan: the Ministry of the Interior's 2008 database of physically and mentally disabled persons, the Health Promotion Administration's 2007–2008 mammography screening data, and claims data from the National Health Insurance Research Database. At the Statistics Center of the Taiwan Ministry of Health and Welfare, patient data from the three databases were linked through patients' national identification card numbers and then stripped of unique personal identifiers and encrypted in order to protect patient privacy. This study was approved by the institutional review board of China Medical University and Hospital (IRB No. CMU-REC-101-012).

2.2. Definition and description of variables

The independent variables analyzed included the following: (i) basic characteristics: age, marital status, and education level; (ii) economic status: premium-based monthly salary, which was categorized into five levels plus the dependent population category; (iii) health status: presence or absence of catastrophic illness/injury, cancer, or diabetes; (iv) neighborhood environment: urbanization level of area of residence, ranging from the most urbanized, or level 1, to the least, or level 8; (v) level of mental disability: classified as very severe, severe, moderate, or mild; and (vi) past usage of other preventive care services: use of the Pap smear test and of adult preventive health care. The dependent variable studied was use of screening mammography during 2007–2008.

The severity of mental disability was categorized as very severe (completely dependent on caretakers or requiring close supervision), severe (requiring supervision), moderate (capable of self-care and other activities of daily living with partial

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