



# Improving Cancer Literacy for the Deaf Using Deaf-Tailored Educational Interventions: a Review of the Literature

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**Abstract** To date, there have been many strategies, including educational interventions, for cancer prevention and control, but most of them are not deaf-tailored ones. This narrative review aimed to examine cancer educational programs to improve the deaf individuals' knowledge and attitude toward cancer. The design of this study is a narrative review. We searched ISI Web of Science, Scopus, Science Direct, and MEDLINE/PubMed using the following search strategy: ("cancer education" AND "deaf") OR ("cancer" AND "deaf" AND literacy). Publication years ranged from 1983 to 2016 for studies on cancer educational interventions for the deaf. Included studies were analyzed regarding research methodologies, types of intervention, and major findings. In total, 12 included studies were classified into three research methodologies. Although short-term and long-term knowledge improvement has been reported, since there is limited evidence on the types of cancer-related educational interventions and there are insufficient studies, longterm effectiveness of educational interventions in improving cancer knowledge of the deaf has to be reported cautiously. Current deaf-tailored education interventions are limited, but included functional features which facilitate communicating cancer health information to the deaf community. In fact, cancer literacy might improve considering deaf community preferences such as using a short open caption, sign language, and plain language in educational interventions, but further research is recommended.

**Keywords** Deaf persons · Cancer · Health literacy · Education · Knowledge · Sign language

## Introduction

Cancers are the leading cause of morbidity and mortality in the world, so that in 2012 approximately 1.14 million people were diagnosed with one of the cancer types and 2.8 million people died from cancer [1]. One of the practical solutions for prevention and control of cancer is implementing educational interventions at the community level, which can increase citizens' health knowledge. Such intervention can modify the people's behavior according to the scientific evidence and thus reduces the rate of morbidity and mortality caused by cancer [2]. So far, various educational interventions have been provided in different ways to improve knowledge of cancer and the performance of people including radio education [3], face to face training [4], PowerPoint presentation, and written educational resources and sharing it with other centers through videoconferencing [5].

Although accurate statistics of the incidence and prevalence of cancer have not been published in the deaf community, this group of people like others is at risk of this disease [6]. In general, knowledge of the disease and related health services play an important role in the survival of patients with cancer [7]; nevertheless, the deaf people unlike hearing people have limited access to information and health services [7–10].

Communication barriers in health settings cause the difference between knowledge, beliefs, attitudes, and behavior of deaf people toward prevention of the diseases [9]. McKee et al. showed that the level of health literacy in the deaf community is sevenfold lower than that in hearing people [10] because the scope of vocabulary in deaf people due to the lower level of reading skills and auditory-based language impairment is extremely limited [11]. On the other hand, deaf

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