Comparing Outcomes of Genetic Counseling Options in Breast and Ovarian Cancer: An Integrative Review

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PROBLEM IDENTIFICATION: Genetic counseling is vital in helping people at high risk for hereditary breast and ovarian cancer (HBOC) make informed decisions to undergo *BRCA* testing. Many people, particularly those in rural locations, lack access to these services. This review examines evidence to determine if remotely delivered genetic counseling via telephone or telemedicine is an effective alternative to in-person counseling for people who are at high risk for HBOC.

LITERATURE SEARCH: A literature review was completed by searching PubMed, SCOPUS, and CINAHL® databases.

DATA EVALUATION: 151 articles were identified from the search, and 7 were included in the review.

SYNTHESIS: Patients' *BRCA* knowledge acquisition, cancer-specific distress, anxiety, depression, and satisfaction with mode of counseling delivery were equivalent between in-person and remotely delivered counseling groups. Genetic testing rates were significantly higher in participants receiving in-person counseling. Remotely delivered genetic counseling was more convenient and less expensive. Mixed outcomes existed regarding counselor–patient communication.

IMPLICATIONS FOR PRACTICE: The demand for genetic counseling will grow as advances in cancer genomics reveal genes that may contribute to cancer predisposition. Innovative delivery models are necessary to ensure that all people have access to care.

KEYWORDS genetic counseling; hereditary breast and ovarian cancer; *BRCA*; telegenetics
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When the tumor suppressor genes *BRCA1* and *BRCA2* (*BRCA1/2*) are mutated, they are strongly associated with the development of breast and ovarian cancer (Jacobs et al., 2016). Commercial testing for *BRCA1/2* mutations was first made available in 1996 and is now widely used for those at high risk (Ahn & Port, 2017). Within the United States, an estimated 350,000 women carry a *BRCA1/2* mutation; however, it is likely that only 15% of these cases have been identified (Schwartz et al., 2014). Identification of women with a *BRCA1/2* mutation is of important clinical significance because interventions can help reduce their risk of developing hereditary breast and ovarian cancer (HBOC), including early initiation of breast cancer screening, chemoprevention, and risk-reduction surgery, such as mastectomy or oophorectomy (Schwartz et al., 2014).

The U.S. Preventive Services Task Force supports genetic counseling and risk assessment for women at high risk for these mutations (Mette et al., 2016). Genetic counseling and risk assessment involves analysis of personal and family medical history, education regarding cancer risk and prevention, as well as discussion of genetic testing and interventions for people who test positive for a *BRCA* mutation (Mette et al., 2016). Cancer genetic services have traditionally included in-person counseling with pre- and post-testing counseling provided by a qualified health professional. However, the National Society of Genetic Counselors Service Delivery Model Task Force identifies four distinct methods for delivering genetic counseling services (Bradbury et al., 2016), which include in-person genetic counseling (IPGC), group genetic counseling, telegenetics, and telephone genetic counseling (TGC) (McDonald, Lamb, Grillo, Lucas, & Miesfeldt, 2014). Telegenetics encompasses counseling services provided remotely