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**The Use of eHealth Strategies for Smoking Cessation among COPD patients**

Smoking is a modifiable behavior that causes morbidity and mortality. Five percent of all deaths globally are attributable to smoking, and fourteen percent of adults above thirty years of age are at risk of premature death as a result of smoking-related probelems such as chronic obstructive pulmonary disease (COPD). The prevalence rate of COPD is high, yet it is a preventable disease that can be mitigated through smoking cessation. The World Health Organization (2019) predicted that the use of tobacco would lead to over 9 million deaths globally annually by 2030 if proper interventions are not implemented. Effective approaches to address the global burden of tobacco use should be implemented to increase the accessibility of cessation programs to all tobacco smokers. Electronic health (eHealth) interventions have been proved to have various benefits, including flexibility, to enhance treatment adherence among COPD patients. The second benefit of eHealth is related to its wider reach to larger populations of tobacco users. Third, the eHealth approach increases efficiency and affordability of delivery, and lastly, eHealth has easy accessibility irrespective of place and time. Therefore, eHealth interventions can be used to improve smoking cessation among COPD patients.

**eHealth’s Wider Reach of the Smoking Population**

eHealth has a broader reach, thus aids the passing of health messages such as prevention and control of smoking as well as access to medication for individuals with COPD. The technology landscape has changed significantly over the past few decades, with the growth of smartphones reaching more than 30% of the global population. There were more than two billion smartphone users in 2016 who had access to over seventy-nine thousand medical apps and seventy thousand health and fitness applications via Google Play Store and Apple App Store (Do et al. 2066). This technology revolution also provides excellent opportunities for clinical interventions and research through the use of mobile health, defined as “the use of mobile and wireless communication technologies to improve healthcare delivery, outcomes, and research” (Singh and Landman 183). Mobile technology provides the potential for delivering health-related interventions to people who would not otherwise be available for in-person health education and promotion and treatment. eHealth is effective in overcoming barriers to using behavioral smoking cessation interventions such as scheduling appointments, travel, time commitments, and cost associated with the treatment of COPD.

The use of mobile technology to send text messages (SMS), which is the most pervasive type of mobile communication has been proved to be a promising approach for reaching out to people and overcome the barriers mentioned above. With the majority of the world’s population owning smartphones, for instance, over 80% of the adults in America own smartphones, most tobacco smokers can be accessed for smoking cessation programs and treatment through mobile technology. A study by Nyberg et al. revealed that mobile counseling for smoking cessation in effective, acceptable and in various occasions the most preferred treatment approach for tobacco users than face-to-face behavioral counseling (73). Therefore, mobile communication technology is efficient in delivering health message programs and information that are key to fostering smoking cessation among COPD patients.

However, although the use of short message reminders for smoking cessation is integral, it presents some challenges. The primary challenge is that peer group chat and users’ behavior and abstinence tracking remain unused. Secondly, eHealth lacks engagement with underserved tobacco users (e.g., low-income families, those with limited access to the internet, remote geographical areas, and low-literacy groups). This makes its use limited to a specific population segment while ignoring a specific group. Therefore, dealing with COPD still presents a significant challenge if the system continues to use eHealth interventions without proper face-to-face follow-up.

**Accessibility and Affordability of Delivery**

Proper healthcare is an unalienable human rights, which is universally acknowledged nationally and internationally. WHO (2017) recognizes the fundamental human rights to equal health care and requires the government to provide affordable, accessible, and timely care of proper quality and also to provide for the basic determinants of health such as health-related information. eHealth supports appointments, case management, and e-administration. Electronic health consolidates the public interest in accessibility, quality, and affordability of medical care. Through an internet connection, smokers can easily access health services and always stay connected to health practitioners to help them quit smoking. This indicates that eHealth promotes self-care, which is an important aspect of dealing with COPD. Self-care is key to improving the quality of life and well-being of individuals suffering from COPD by assisting them to reduce exacerbations (Hallensleben et al. 1681). The use of eHealth in COPD patients has been proved to be effective since the number of smokers who are predisposed to the disorder is increasing, and this places significant pressure on the affordability, accessibility, and quality of in-person care. eHealth helps to reduce COPD care pressure by making the care accessible from homes and affordable through cost reduction while the quality remains high.

By accessing health information about the effects of smoking and cessation strategies, tobacco smokers improve insight into their health. A personal digitized health care environment provides patients with more intuition into their health. If they wish, they can also share part or all of their data with informal caregivers or health professionals so that they do not have to relate their whole medical history repeatedly. This ensures that the providers of care work more effectively by determining the right counseling and treatment procedures for smoking cessation and COPD, respectively. COPD patients will gain more control over their own health when they gain a deeper understanding of their health situations.

**eHealth Improves Adherence to Counseling Recommendations and COPD Medications**

Effective pharmacological smoking cessation interventions approved by the Food and Drugs Administration are available; however, poor adherence to such medications usually limits the overall impacts of interventions. Non-adherence to medication is not only a significant challenge in quitting smoking, but also in clinical practice as a whole. For smokers with COPD, adherence should start on the first day of counseling to the process of taking COPD medication. However, research indicates that more than twenty percent of tobacco users with COPD who receive counseling and smoking cessation prescription medications never fulfill cessation counseling recommendations and drug prescriptions (Pacek et al. 2). Research also indicates that although COPD treatment has been advanced, medication regimens’ non-adherence presents a significant barrier to optimal disease management. Improper use, overuse, and underuse continue to be the most critical cause of poor therapy adherence rates. An average of 60% of COPD patients adhere to prescribed regimens. Therapy adherence is multifactorial and involves both the primary care provider and the patient. eHealth fosters greater patient empowerment and adherence to medication by encouraging COPD patients to perform to monitor their health every time. eHealth can also remind patients to take their medications and adhere to counseling recommendations. Further, eHealth appointment reminders help smokers and COPD patients to seek medical advice when necessary.

**eHealth improves Care Quality**

The care for individuals with chronic conditions requires patient-centered and integrated care, which adequately meets the patient’s specific needs. eHealth encompasses a recognized driver of innovations and improvements in offering innovative and tailored care services to individuals with complex needs of care. Ossebaard and Van Gemert-Pijnen conducted a study on the effectiveness of eHealth in improving quality care and concluded that eHealth can possibly enhance the quality and safety of care delivery. They argue that eHealth can improve patients’ outcomes because it effectively engages end-users to take charge of their own health. eHealth can effectively identify critical public health priorities for tobacco smokers and COPD patients and support the scaling up of remote monitoring, consultation, and care services. Moreover, eHealth promotes health outcomes among COPD patients by fostering risk analysis and proactive interventions since it has a risk stratification information system that helps in monitoring and predicting health risks in a population. Through monitoring, it is easy to know the population at risk of COPD; as a result, smoking and recommend effective strategies for behavior change and treatment of the disease.

Electronic Health Records (HER), the core competence of eHealth is also a crucial intervention of smoking cessation and COPD treatment. Various governments are currently investing in information technology to automate health records of patients. The most important benefit of EHR is the fact that it can be utilized as a reminder to physicians and other healthcare practitioners to record smoking, to provide smoking cessation counsel, to prescribe COPD treatments, and to make a referral to tobacco smokers to smoking counseling (Boyle et al. 3). EHR also helps to refer patients and smokers to these services and can be used to gauge the effectiveness of healthcare. Electronic medical records help in making delivery of COPD treatment standards by offering e-referrals for additional services, for instance, referrals to telephone smoking quit lines.

EHR has been proved to be effective in smoking cessation in the healthcare environment because tobacco use treatment first requires a comprehensive assessment of smoking and the willingness of the patient to quit tobacco use. The advice from the health care professionals involves a small impact on quitting, contributing to about 3%-6% of smokers stopping tobacco use. Nonetheless, a higher cessation rate can be accomplished when a coordinated system within the hospital environment fosters evidence-based actions, including quitting counseling and adherence to quitting medications. EHR provides performance measure information that health providers need for quality improvement. eHealth promotes the circulation of medical records from one hospital to the other to ensure that COPD patients access quality medical services. Therefore, eHealth provides systematic mechanisms for improving the fidelity of adhering to the clinical practice guidelines.

In conclusion, the use of eHealth approaches as an intervention to smoking cessation and COPD treatment has a potential impact on increasing cessation and moderating the effects of COPD. eHealth achieves higher cessation rates and COPD treatment because it stratifies patients based on the severity of the habit and disease. Educational programs on the effects of smoking can be tailored through mobile communication technology such as SMS. Patients can also access tobacco smoking information from the internet. However, the use of eHealth presents a significant challenge that needs to be addressed. The use of technology in disseminating health information must be accompanied by face-to-face follow-up to determine changes in smoking habits and whether the patient adhered to COPD medications.

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