

Influence of a Patient Education Multi-Modal Digital Platform for Self-Administrated Subcutaneous Injection for DVT Prevention, on Acquiring Knowledge, Self-Efficacy, and Patient's Satisfaction / Yakov Zhitomirsky

ABSTRACT

Patient guidance, instruction and education are important therapeutic interfaces in which information is made accessible to patients regarding their health and treatment plan. These interfaces encourage active patient involvement in the therapeutic process which is based on the principles of patient empowerment and patient centered care. Due to the increase in life expectancy and the complexity of diseases and hospitalized patients care - certain aspects of the treatment interface such as patient guidance and education may be compromised. At the same time another process is taking place - the digital revolution. This revolution has influenced the way information is consumed by patients and the way people communicate interpersonally. The involvement of digital-based applications in many dimensions also has triggered the healthcare system to examine the virtues inherent in these applications. In addition, there is a growing understanding that there are many effective ways of learning. This assumption leads to the development of many theories and approaches concerning different learning styles and ways of accessing information.

One of the most common tools in health research is the VARK which is used for diagnosing a preferred learning style. The tool is based on exposure to four modalities for accessing information - visual, audio, written and kinesthetic. A combination of several modes is called a 'multi-modal strategy'.

In the hospital based surgical ward setting, one of the most common instructions given to patients is subcutaneous injection of Clexane for preventing deep vein thrombosis (DVT) injected post discharge at home. The current study, conducted in three hospital based surgical wards in Hadassah Ein Kerem Medical Center, sought to examine the impact of a digital training tool. This tool is based on a multi-modal learning approach, exploring the level of knowledge acquired among patients, their satisfaction and sense of self-efficacy.

All patients enrolled in this study planned to perform a home injection of Clexane after discharge from hospital. The study was designed in two parts: the first included data collection from the control group (n = 40) whose participants completed a questionnaire before receiving instructions from a staff nurse, and another questionnaire after the learning procedure. The questionnaire included knowledge, general self-efficacy and satisfaction questions regarding the learning process (in the second questionnaire only). The second part of the study included data collection from the intervention group. For the benefit of this study, a training tool was built that contains four modalities of training components, inspired by the VARK tools: (1) written guidance, (2) recorded guidance, (3) training video and (4) learning activities. The participants had free access to choose which components to use and how many times to do so. The study tool was built as a web page based on the WIX platform for building websites. The tool contained a lobby page, which explained to the subjects that they were welcome to use any training component they choose without any restriction. Links to the four learning modalities were placed in the lobby page for easy access. The intervention group are patients who had used the multi-modal digital tool - and did not receive any nurse instruction during the study. These patients completed questions that were identical to those of the control group and included knowledge questions, general self-efficacy questions, and satisfaction questions with the learning process (in the second questionnaire only).

The results of this study clearly show that the use of a digital application that has been built for the benefit of patients' self-injection training to prevent DVT - is very effective in achieving the required knowledge. In fact, the findings of this study undoubtedly show that this type of tool is more effective in acquiring knowledge among patients compared to standard of care currently performed. Additional findings show that older patients also benefit from this type of tool. Therefore, any assumption that a patient might be incapable of using a digital tool only because of his age should be avoided.

This study showed that the self-efficacy level of patient who were instructed via the digital tool is not inferior to the level of those who are instructed by a nurse. This study found that there is high level of satisfaction among patients who have used the digital training tool. These patients have indicated in their responses that they were interested in seeing the assimilation of similar tools in the hospital setting. However, the results demonstrated higher satisfaction within the control group. This leads to the conclusion that

the need for the human attention (from a nurse) has significant influence on patients' satisfaction.

The implications of this study can be summarized by the notion that digital applications in various healthcare settings may be very effective in achieving certain goals and can be a helpful resource for caregivers. Yet, these applications are not a substitute for attention provided by professionals which is also valued by patients. In addition, the results of the study showed that 70% of the subjects (n = 28) in the study group used at least two components of the training component in the digital tool and in fact used a bi-modal or multi-modal learning strategy. Only 30% of patients used a single training component.

Following these findings, further studies should be conducted examining factors influencing patient satisfaction with in-hospital training processes, emphasizing examination of the relationship between acquired knowledge and patient satisfaction. Another research issue may be examination of the benefits of digital tools not reflected in this study. One of the most notable is the ability to use this tool in home care setting and consume reliable, accurate information in a variety of modalities. Due to the importance of staff acceptance of new technologies in realizing their potential, further studies should investigate the use of such applications and their potential implementation within professional staff perspective

MMS Number: 9926771210005776