

An Interactive Visual Data Acquisition Tool for Multistage Care and Risk Evaluation of Pressure Ulcer Based on REDCap

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1. Introduction

Pressure Ulcer (PU) is a frequently occurring health problem throughout the world both in clinical settings and home care[3]. Nursing skills and a holistic multi-stage (including clinical settings and home care) risk assessment can benefit PU warning, prevention, and individualized treatment.[1]. Our study aims to develop an interactive visual data acquisition tool for multi-stage care and risk evaluation of PU, which may (1) help nurses acquire more accurate information in clinical settings; (2) be convenient and understandable for patients (or their caregivers) to pre-warn the risk of PU prevalence during home care.

2. Method

REDCap is an open-source platform for building and managing online surveys and datasets. It contains central server (works on Windows or Android) electronic tablets such as smartphones. One Chinese version platform was operated and maintained by the School of Public Health Xi'an Jiaotong University.

In this tool, the intensity of pain is evaluated with Face Pain Scale (FPS) [2]. We used Braden Scale and referred to EPUAP practice guidelines [4] to assess the risk and Stage of PU, respectively [5]. We use REDCap external module, Custom Image Map, to visualize Braden Scale. A calculation field and "Branching Logic" function was set to automatically calculate the total risk score and warn the risk of PU.

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3. Results

This interactive visual PU risk evaluation tool can use for multi-stage caring, including clinical settings and home care (scan the QR code (Figure 1G) to get access to the survey). Reference pictures can help nurses get more accurate information on the PU stage and help them get trained and improve skills on category identification (Figure 1D). For home care patients, the risk evaluation includes the location of PU (Figure 1A), pain evaluation (including pain intensity and pain type) (Figure 1B and C), visual Braden Sale (Figure 1E). After self-assessment, they will get a total score and evaluated risk of PU (Figure 1F). Besides, doctors and nurses can also see the dynamic changes of evaluation results through the central server and modify prevention measures or treatment timely



Figure 1. Interactive visual data acquisition tool for multi-stage care and risk evaluation of PU.

4. Conclusions

This interactive and visual tool will help nurse education, PU risk assessment, and take effective interventions timely.

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