Doctoral School of Information and Biomedical Technologies
Polish Academy of Sciences (TIB PAN)

SUBJECT:

Development of an incentive system to support patients with diabetic foot ulcerations

SUPERVISOR:

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DESCRIPTION:

Podiatrists dealing with patients with wounds that are complications of diabetes observe a low level of patient compliance with their recommendations. As a result the high percentage of amputations within the lower limbs is observed, which in turn contributes to high mortality comparable to cancer and cardiovascular diseases [1]. Currently, only about 30% of patients' wounds are closed within 3 months. Such low effectiveness of treatment can be compared with that of placebo. Therefore, a system is needed that, based on the measurement data such as wound surface area, glycemic control (glycemia and glycosylated hemoglobin), body weight, diet and exercise, would make the patient aware that he or she is not following the recommendations and may have a negative effect on the treatment outcome. According to one of the theories of increasing patient compliance by William Marston [2, 3], 86% of patients require feedback on treatment progress. Some patients, for example, would expect praise or rewards for achieving a therapeutic result.

The person developing such an automatic motivation system, which, based on the rate of reduction of the wound surface area and other data, e.g. a reported lifestyle change, would automatically generate messages and sent them to the patient. These messages would take the form of: (a) advice to identify possible factors contributing to insufficient treatment progress, (b) incentives to change the lifestyle, and (c) indicate good wound healing results and praise patients who have achieved good results. After implementing such an incentive system, a randomized study would be conducted to compare the effectiveness of such a system and the classic treatment model without the incentive system.

BIBLIOGRAPHY:

1. Armstrong DG, Swerdlow MA, Armstrong AA et al. Five year mortality and direct costs of care for people with diabetic foot complications are comparable to cancer. J Foot Ankle Res. 2020; 13:16.
2. Marston WM. Emotions of Normal People. K. Paul, Trench, Trubner & Co. Ltd. 1928, pp. 405.
3. Sreenidhi SK, Tay Chinyi H, Shoba AJ. 4cs -inner motivation styles - based on Dr. William Marston's research. IJSRP, Volume 7, Issue 4, April 2017.