

## Design of a Mhealth Therapy Management to Maintain Therapy Outcomes after Bariatric Surgery

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**Abstract :** Background: Conservative treatments of obesity, based only on a proper diet and physical activity, without the support of an interdisciplinary team of specialist does not bring satisfactory bariatric results. Long-term maintenance of a proper metabolic results after rapid weight loss due to bariatric surgery requires engagement from patients. Mobile health tool may offer alternative model that enhance participant engagement in keeping the therapy. Objective: We aimed to assess the influence of constant monitoring and subsequent motivational alerts in perioperative period and on post-operative effects in the bariatric patients. As well as the study was designed to identify factors conducive urge to change lifestyle after surgery. Methods: This prospective clinical control study was based on a usage of a designed prototype of bariatric mHealth system. The prepared application comprises central data management with a comprehensible interface dedicated for patients and data transfer module as a physician's platform. Motivation system of a platform consist of motivational alerts, graphic outcome presentation, and patient communication center. Generated list of patients requiring urgent consultation and possibility of a constant contact with a specialist provide safety zone. 31 patients were enrolled in continuous monitoring program during a 6-month period along with typical follow-up visits. After one year follow-up, all patients were examined. Results: There were 20 active users of the proposed monitoring system during the entire duration of the study. After six months, 24 patients took a part in a control by telephone questionnaires. Among them, 75% confirmed that the application concept was an important element in the treatment. Active users of the application indicated as the most valuable features: motivation to continue treatment (11 users), graphical presentation of weight loss, and other parameters (7 users), the ability to contact a doctor (3 users). The three main drawbacks are technical errors (9 users), tedious questionnaires inside the application (5 users), and time-consuming tasks inside the system (2 users). Conclusions: Constant monitoring and successive motivational alerts to continue treatment is an appropriate tool in the treatment after bariatric surgery, mainly in the early post-operative period. Graphic presentation of data and continuous connection with a clinical staff seemed to be an element of motivation to continue treatment and a sense of security.

**Keywords :** bariatric surgery, mHealth, mobile health tool, obesity

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