

## ABSTRACT

The incidence of obesity is rising worldwide, and one of the major challenges in its treatment is sufficient motivation to persist in the therapeutic process. The factors determining the success of a reduction attempt are also not entirely clear.

Therefore, the aim of the "Weight Predictor" project is to develop software that predicts weight change over time in response to lifestyle interventions, and the aim of the thesis was to define the factors influencing weight reduction by testing two hypotheses: "Younger patients reduce their weight more easily than older patients." and "A cooperative patient reduces their weight more easily than a non-cooperative patient."

The daily weight, diet, and steps of 29 patients were collected via mobile and web apps, and body composition was measured at regular nutritional consultations. The collected data were processed through exploratory and correlation analysis. Due to insufficient number of records, two patients were excluded from the analysis of daily records and three patients from the analysis of body composition.

First hypothesis was not confirmed, while correlation analysis indicated a higher success rate in older patients, which can be explained by the positive correlation found between age and self-monitoring ( $r = 0.45$ , significant at  $p < 0.05$ ). For the second hypothesis, a significant negative correlation was found between cooperation rate and weight change ( $r = -0.42$ ,  $p < 0.05$ ), which corresponds with results of other studies. Body composition analysis indicated that patients reduced more fat than muscle mass.

The thesis, similar to other research, identified self-monitoring as a significant factor influencing the success of weight reduction and underlined its importance during weight reduction and in the maintenance phase.

**keywords:** Obesity, Telemedicine, Weight prediction, Weight development, Self-monitoring