

Summary

An overwhelming amount of studies have demonstrated that exercise is beneficial for health. This thesis focusses on exercise (behaviour) which contains planned, structured, repetitive bodily movements with the intention to improve or maintain (physical) fitness or health. The transtheoretical model of behaviour change (TTM) is often used to understand changes in health related behaviour, like exercise. The TTM is an integrative model, combining different theories and constructs. It describes four key variables that are the stages of change, decisional balance, self-efficacy and the processes of change. The applicability of this model to exercise behaviour of the 151 million members in fitness clubs worldwide has never been studied. The purpose of this thesis is to study exercise behaviour of this specific population, applying the framework of the TTM. This thesis and research series are organised by a set of different research questions and hypothesis.

The first stage of this has been a guided and systematic review of what is the quantity and quality of studies on exercise behaviour of members in fitness clubs applying the TTM, and what implications for future research can be determined? The systematic literature review was performed using three kinds of databases. In total 285 studies were found. On these studies, specific inclusion and exclusion criteria were applied. The methodological quality of the studies was reviewed by using the CASP checklist. Applying the inclusion and exclusion criteria yielded 33 studies on exercise behaviour of members in fitness clubs. Only 8 studies were based on one or more constructs of the TTM. The reviewed research demonstrated promising results. In multiple studies exercise behaviour was significantly increased by factors related to self-efficacy, decisional balance and processes of change. The overall quantity of studies is considered low, and the overall quality is limited, because, for example, randomised controlled trails were lacking. It was concluded that research on exercise behaviour of members in fitness clubs using constructs of the TTM is, therefore, limited.

A follow-up study contained the following question of “to what extend do (ex) members of fitness clubs adopt and maintain attendance behaviour within the later stages of change?” The objective of this study is to apply the stages of change to examine patterns of attendance behaviour within this specific population. A retrospective study on existing data was performed to study the later stages of change. Attendance data of members that cancelled their membership in 2012 of two European fitness chains (BasicFit and HealthCity) was collected. In total 259,355 ex-members of 267 separate clubs. A sample of 400 were selected at random for deeper analyses. Overall M_{age} for BasicFit was 32.11 (SD 10.9) and 34.74 (SD 11.0) for HealthCity, of which 64% were males at BasicFit and 51% at HealthCity. Regular attendance behaviour was defined by at least four visits per month. All ex-members had purchased a membership and entered the preparation stage, but 19.5% never attended the club in 24 months. Of the ex-members, 10% demonstrated regular attendance behaviour for six months in a row without relapsing, and 2,3% performed regular attendance for 24 months. 49% did not attend the club for one full month but restarted again. Significant ($p = .01$) positive correlations were found in attendance behaviour between the 6th and 12th month ($r =$

.61), and the 12th and 24th month ($r = .45$), suggesting that ex-members who attended for more than six months will more likely maintain their attendance behaviour.

A preliminary survey study was conducted on fitness professionals to investigate what strategies within the TTM do European fitness professionals currently use to support clients in changing health-related behaviour? An online survey was performed using the European Register for Exercise Professionals (EREPS) (January 2015). Professionals of five countries were surveyed in the first quarter of 2015. The survey was sent out by email to 3,497 fitness professionals. In total 178 fitness professionals participated. European fitness professionals use a mix of strategies to support behaviour change of health-related behaviours. The most addressed type of behaviour was exercise, followed by nutrition. The support mainly focused on clients in the preparation and action stage of the TTM. "Reaching the desired goal" and "too expensive" were the main reasons for relapse with respectively 51.7% and 38.3%. Due to a low response rate (only 5%), this topic needs further study.

A real-life intervention in two parts was guided by another research question "what is the effect of self-set activities and a coaching protocol on self-set goals on self-efficacy and group exercise behaviour of members in fitness clubs in 4, 8, 12, 26 and 52 weeks"? Group exercise behaviour is defined as exercising in the same structured programme in the same environment (group exercise room) with a minimum of two individuals. In total 122 participants ($M_{\text{age}} 42.02$ yr.; $SD 12.29$; 67% females) were recruited and randomly assigned to one control and two experimental groups. The control group was limited to participate in one virtual group exercise programme only (group 1). The first experimental group was able to self-set their activities and participate in multiple group exercise programmes (group 2). The second experimental group received an additional monthly coaching protocol to manage self-set goals (group 3). A validated scale for barrier self-efficacy was used, group exercise sessions were measured, and drop-out rates were registered. An ANOVA indicated that mean amount of sessions of group 1 and 3, and 2 and 3 differed significantly ($p < .05$) in 12 weeks. Descriptive statistics demonstrated mean group exercise sessions over the total of 12 weeks of 2.74 ($SD 4.65$) in the control group; 4.75 ($SD 6.08$) in the first experimental group, and 12.25 ($SD 9.07$) for the second experimental group. Regression analysis indicated that self-efficacy at 8-weeks explained the highest variance in overall group exercise sessions ($R^2 = .18$; $p < .05$). Overall drop-out rates were 88% in group 1, 78% in group 2, and 48% in group 3. The results showed that group exercise behaviour can significantly be improved by a coaching protocol on self-set goals.

A follow-up study was performed testing effects on exercise behaviour over 52 weeks and the longitudinal relationships of all TTM constructs. All 122 participants of the first study were monitored 52-weeks. Measurements were executed at baseline, 4, 8, 12, 26 and 52 weeks, using validated scales for stages of change, self-efficacy, decisional balance and processes of change. Exercise behaviour and drop-outs were registered. A chi-square test indicated significant differences for continuing exercising after the intervention: 7 of group 1; 6 of group 2; 19 of group 3. In total 5 demonstrated regular exercise behaviour at 26 weeks, and 3 at 52 weeks. Self-efficacy, decisional balance, and

processes of change showed limited longitudinal changes over the later stages of change. At all measurements, participants reported more pros than cons and used more behavioural than cognitive processes. Exercise behaviour of members in fitness clubs demonstrated dramatic developments in 52 weeks. The frequencies of sessions were so low that positive health effects will be minimal. The integrative character of the TTM appears to be weak and the data indicated limited relationships. More research is needed to understand exercise behaviour and define optimal strategies to increase exercise attendance and decrease drop-outs in the long term.

This thesis should be understood as the start of a long-term journey with the mission to find strategies to effectively support behaviour and ultimately improve the health and fitness levels of members. This thesis strongly promotes health behavioural support as the core mission of the sector. Individuals can exercise everywhere, at work, at home, in the gym and more, but personalised behaviour coaching is the key to success and should be provided by the sector in the most effective manner.