

# Has the Transtheoretical Model (Prochaska & DiClemente, 1983) or Social Cognitive Theory (Bandura, 1986) made a greater contribution to predicting changes in physical activity?

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## **Abstract:**

Physical activity is crucial for a healthy lifestyle and offers various health benefits. However, maintaining regular exercise can be challenging for many. This literature review compares the effectiveness of the Transtheoretical Model (TTM) and the Social Cognitive Theory (SCT) in predicting changes in physical activity. While both models are prominent in health behaviour change, SCT is posited to be more effective due to its measurability, comprehensiveness, and support. The article reviews studies assessing the efficacy of both theories and concludes that SCT is a stronger predictor. It emphasises self-efficacy, a critical factor in behaviour change. Bandura's sources of self-efficacy - mastery, vicarious experiences, persuasion, and affective feedback - provide robust predictors. In contrast, TTM focuses on stages of change but lacks the depth to predict behaviour changes accurately. SCT's comprehensive approach, accounting for personal, behavioural, and environmental factors, sets it apart. Empirical support highlights SCT's reliability and applicability in interventions, making it a superior predictor of physical activity changes. The essay underscores SCT's value in tailoring interventions and its potential to foster healthier lifestyles.

**Keywords:** Physical Activity, Transtheoretical Model (TTM), Social Cognitive Theory (SCT), Self-Efficacy, Health Behavior Change

## Comparing TTM and SCT: Theoretical Frameworks and Predictions

Physical activity is considered to be a fundamental component of a healthy lifestyle and has been associated with a myriad of health benefits. However, a significant proportion of individuals experience challenges in maintaining a regular exercise routine. In the realm of health behaviour change, the Transtheoretical Model (TTM) developed by Prochaska and DiClemente (1983) and the Social Cognitive Theory (SCT) proposed by Bandura (1986) are two of the most prominent theoretical frameworks. The objective of this essay is to compare and contrast the effectiveness of these two theories in predicting changes in physical activity. The current article posits that SCT has made greater contributions in forecasting physical activity changes as it is more measurable, comprehensive, and supported. To support this argument, relevant studies that have assessed the efficacy of each theory in predicting changes in physical activity will be reviewed.

## SCT's Superior Predictive Power: A Deeper Dive into Self-Efficacy

The present study aimed to compare the effectiveness of the TTM and the SCT in predicting changes in physical activity. The findings suggest that SCT is a more reliable predictor of behavioural change, as it places greater emphasis on self-efficacy, a critical determinant of health behaviour and behaviour change. Individuals with high self-efficacy for exercise are more likely to engage in regular physical activity, while those with low self-efficacy may feel discouraged and give up quickly. Self-efficacy has been identified as a critical determinant of "health behaviour, future health behaviour and health behaviour change" (Holloway & Watson, 2002). Bandura's (1977, as cited in French, 2015) four sources of self-efficacy - mastery experience, vicarious experience, persuasion, and affective/physiological feedback - can be used to measure the level of self-efficacy in individuals. Firstly, mastery experience, is the extent of success an individual has had in performing a behaviour in the past. In this case, the prediction on change in physical activity can be made based on whether the individual's exercise routine history in their earlier stage of life. The second source of self-efficacy is the vicarious experience, which refers to observing others perform a behaviour and can increase self-efficacy, especially if they share similar barriers to performing the behaviour. Therefore, by observing the number of successful examples around the individual can bring to a more accurate prediction of the individual's personal behavioural change, specifically those who are in simi-

lar age, gender, or the level of activity to the individual. Moreover, persuasion involves messages that attempt to convince an individual that the behaviour is controllable or that they have the capability to perform it successfully. In the case of persuasion, prediction is even more precise by knowing how much positive information that this individual has taken. Lastly, affective/physiological feedback refers to the internal emotional or sensory cues that influence an individual's self-efficacy beliefs. For example, feeling fatigue while working out may lead an individual to believe that this behaviour is out of their control, and they cannot engage in regular exercise. In contrast, TTM focuses on stages of changes, which refers to a person's readiness to change behaviour. According to TTM, there are five stages of change: precontemplation, contemplation, preparation, action, and maintenance. While TTM is a useful framework for understanding the different stages of behaviour change, it does not account for the psychological factors that influence behaviour change, such as self-efficacy. Therefore, TTM may not be as accurate in predicting changes in physical activity as SCT.

## Limitations of TTM and Strengths of SCT

SCT provides a more comprehensive explanation of the factors that influence behaviour change compared to the TTM. SCT emphasises the role of not only the individual, but also the behaviour and the environment itself in shaping behaviour change. While TTM proposes that individuals progress through a series of stages, it does not account for the fact that individuals may have different motivations, personalities, or preferences that can impact their behaviour change process. This can limit the effectiveness of TTM-based interventions, as they may not be tailored to meet the unique needs and characteristics of each individual. Bandura (1986, as cited in French, 2015) brought up the "reciprocal determinism" theory which proposes the three major classes of determinants: personal factors, behavioural factors, and environmental factors "all influence each other" (Bandura, 1986, as cited in French, 2015). With that being said, changes in lifestyle is unlikely to occur if an individual with high self-efficacy however has absolutely no alter in the environment. As an example, a college student wants to eat a healthier diet but faces environmental barriers such as lack of healthy food options in his dormitory and unhealthy food cues from his roommates. Despite his high self-efficacy, it is unlikely that he will be able to make healthier food choices without changes in his environment. As in the behaviour factors, the term "outcome expectancy" refers to an individual's beliefs about the outcomes or consequences of their

behaviour. It is the belief that engaging in a particular behaviour will lead to a certain outcome or consequence. One of Bandura's most significant experiments, the "Bobo doll" study has demonstrated how important outcome expectancy is in behaviour changing. In the experiment, pre-school children were invited to observe aggressive behaviour of the adult towards the Bobo doll. Study resulting in the extent of reward for the adults was found to influence whether the children copied this behaviour. Such findings suggest that children imitate behaviour from what they expect the outcome to be (outcome expectancy). Again, TTM focuses mainly on the stages of change an individual goes through in the process of behaviour change, without accounting for the broader contextual factors that can influence behaviour. SCT recognises that behaviour change is a complex process that involves multiple factors, including external environmental factors (social support/barriers), and behavioural factors (outcome expectations). By accounting for the personal, environmental, and behavioural factors that influence behaviour change, SCT provides a more accurate and holistic prediction of changes in physical activity.

## Empirical Evidence and Interventions

The difference in empirical support for SCT and TTM is particularly evident in the context of physical activity interventions. Several systematic reviews and meta-analyses have examined the effectiveness of interventions based on SCT and TTM. As an example, two systematic studies conducted by Liyana (2018, as cited in Warner & French, 2020) and Wittkowski (2016, as cited in Warner & French, 2020) investigated the potential for enhancing parenting and breastfeeding self-efficacy given the challenge of parenthood. Both studies conclude that interventions informed by SCT are more effective than purely educational interventions. Moreover, an experiment designed to investigate pedometer-based interventions as it relates to changes in physical activity across time (Lutes & Steinbaugh, 2010). The purpose of this analysis is to provide insights into the various theoretical constructs, intervention strategies, and contributions of pedometers that have been found to impact walking behaviour. According to the research, SCT highlights the importance of self-monitoring, feedback, and goal-setting in interventions. All these examples explain that while the TTM has also been extensively studied, the SCT has been tested in a wider range of populations and settings. This research has consistently demonstrated that self-efficacy, observational learning, and outcome expectations are strong predictors of physical activity behaviour. SCT is a better theoretical model than TTM for predicting changes in physical activity because it

has been supported by a larger body of empirical research. SCT's emphasis on self-efficacy, social support, and observational learning has been consistently supported by research findings, and SCT has been successfully applied in the development of physical activity interventions. While TTM provides valuable insights into the process of behaviour change, the mixed findings regarding its effectiveness in predicting physical activity behaviour suggest that it may be less useful in this specific context.

## Conclusion: Implications for Interventions and Future Research

Physical activity is a vital aspect of a healthy lifestyle that offers numerous health benefits. The Transtheoretical Model and the Social Cognitive Theory are two prominent theoretical models that aim to predict changes in physical activity. Based on the evidence presented in this essay, it can be concluded that SCT is a better predictor of changes in physical activity than TTM. SCT is more measurable as it puts more emphasis on self-efficacy, which is identified as a critical determinant of health behaviour change. SCT also provides a more comprehensive framework for explaining the factors that influence behaviour change. It emphasises the role of personal, behavioural, and environmental factors in shaping behaviour change, while TTM primarily focuses on the stages of change. Moreover, SCT has gained extensive empirical evidence supporting its effectiveness in predicting changes in physical activity. Therefore, by using SCT in interventions, tailored plans can be designed that are more accurate in predicting and facilitating changes in physical activity for individuals. The importance of physical activity and understanding the factors that influence behaviour change should continue to be a focus of research, so that effective strategies can be developed for promoting and maintaining a healthy lifestyle.

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