



In What Way Will Intrinsic and Extrinsic Motivation Effect One's Change Rate of Decreasing Body Mass Index

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Abstract. According to 2017–2018 data from National Health and Nutrition Examination Survey, nearly 1 in 3 adults are overweight with 30%, more than 2 in 5 adults (42.2%) have obesity and approximately 1 in 11 adults have severe obesity, of 9.2%. In order to promote a healthier life, this work aimed at finding out whether intrinsic or extrinsic motivation that can trigger a higher decline rate of body mass index in a group of people in a gym. The samples are divided into two groups, which are group A with people that have extrinsic motivation, and group B with people that have intrinsic motivation. This project organized experiment every weekends, and last for 4 weeks. Although scheduling participants with the same work out calendar and activities during the experiment time, this project did not impose restrictions to participants' diet and routine during weekdays beyond the experiment. Moreover, this project imposed a follow up interview to all the participants one month after the 4 weeks experiment ended, in order to find out the relationships of one's motivation to their long term resolution in either maintaining a satisfied body mass index, or to keep losing it. In the end, we examine both the internal motivation and external motivation as influential in different aspect.

Keywords: health · intrinsic motivation · extrinsic motivation

1 Introduction

The government encourages rate of multinational gyms offering clients opportunities to strengthen sinewy muscle and building up body figure increases. Despite this, obese patients from districts still ascend dramatically year in and out. Then what is obesity? A person whose weight is higher than what is considered to be normal for specific height is described as having obesity [1]. According to 2017–2018 data from National Health and Nutrition Examination Survey, nearly 1 in 3 adults are overweight with 30%, more than 2 in 5 adults (42.2%) have obesity and approximately 1 in 11 adults have severe

obesity, of 9.2%. Among adolescent group, obesity patients occupies nearly 25.4% of total youngsters [2].

Admittedly, majority of obesity appearing origins from the imbalance between calories consumption and ingestion. Most common health consequences resulting from overweight is increasing risk of heart disease and cancer, as well as hypertension and stroke, which leading to unhealthy situation. To tackle with the issue and prevent more presence of obese invalids, enhancing dwellers' motivation to engage in physical activities is inevitable. Clients going to the gym apparently for training, however, for whom to practice, for what to practice all requires investigation, particular triggers perhaps result in different frequency and amount of exercises with regard to consumers. All incentives will be split into two categories as consideration in this research, either intrinsic motivation or extrinsic motivation. One hand, intrinsic incentives represents internal causes enticing people going to gym, for instance, their own health issue or self-gratification. On other hand, extrinsic motivation represents external simulation enhancing interests to go practice. Financial reward or popularity can all be considered in the category. Therefore, the paper targets at investigating whether intrinsic or extrinsic motivation will encourage more health behavior.

Field experiment adopting in the research is the most appropriate approach. Initially, researchers will gather 100–200 clients registering in a certain gym sharing the same ultimate goal, decreasing obesity and record their body mass index as a measure of alternation in weight. Then, applying a self-report questionnaire to distinguish they come to the gym for training due to whether extrinsic incentives or intrinsic incentives. Using the result collection to divide into two distinct groups, group A consists of extrinsic subjects and group B consists of intrinsic subjects. After 4 weeks, experimenters will gather the targeted participants again to recheck their body mass index and do comparison with previous.

2 Literature Review

According to McTiernan, Exercise leads to considerable weight, BMI, waist, hip, and total body fat reductions in individuals. This study will therefore investigate which motivator is more likely to motivate individuals to exercise to reduce obesity [3]. Intrinsic and extrinsic motives are the two categories that can best describe motivation. There are several possible external and internal motivations for exercisers. The stimulation of conduct by diverse external factors is known as extrinsic motivation [4]. First, people are attracted by the prize. Certain gyms will set up prizes and gifts to encourage people to attend the gym and exercise. Second, people want to please others. Because these people care about their image, afraid of being too fat to be judged by others. Moreover, a few specific occupations require people to be in shape and weight, such as celebrities and models. On the other hand, the need for personal fulfillment or happiness is the source of intrinsic motivation, which is a behavioral trigger [4]. First, it is believed that individuals exercise to gain a sense of accomplishment and satisfaction. Previous research shows that younger, middle-aged, and older persons who engaged in more physical exercise reported feeling happier and more satisfied with their lives [5]. In addition, people exercise to please themselves, they are interested in achieving what they perceive to be the ideal toned or slender body.

There is some evidence to suggest that extrinsic motivations like physical appearance and fitness may be significant in starting exercise programs [6], but they might not be sufficient to keep up exercise activity. Instead, it appears that initial motivations and procedural characteristics more intimately connected with intrinsic motivation, particularly those about enjoyment and competence, are factors that are related to better adherence [7, 8]. Intrinsic motivation can likely motivate people to exercise over a long time. Thus, the Preliminary hypothesis in this study can be summarized as follows: Intrinsic motivation has a higher impact In stimulating people to go to the gym.

3 Method

3.1 Field Experiment

The goal for this experiment is to find out how the independent variables, which will be the extrinsic motivations and the intrinsic motivations, changes the dependent variable, which refers to the health behavior of the subjects, differently. And will be occurring in a natural environment, meaning that researchers will be using the form of a field experiment. In which, doing the operations and observations in a natural setting, without giving any additional control to the subjects. One reason to do this experiment in field is that the results in this experiment have to be fit in to reality, and in order to do so, it has to be happening under natural setting. This means that in this experiment, researchers will not be controlling any subjects or any other factors that could potentially lead to different behaviors, because that these factors will not be able to be controlled in real life settings. Another reason for doing a field experiment is that it could be a more feasible plan. Comparing with a lab experiment, which will required to use a carefully controlled setting and standardized procedure to establish how changes in the independent variable affects the dependent variable, it will be easier to operate. And since the experiment will need to be a long-term experiment that will be taking around several weeks, it is more likely that researchers will not be able to hold this entire experiment in laboratory condition under so many controls.

3.2 Sample

This experiment will be taking 100 clients from one certain gym as the subjects in this field experiment, and the researchers will be measuring the participant's change in body mass index, which is also known as the BMI, instead of directing recording their lose in weight. It will be an assumption that all the clients who do the work out at the same gym all have similar targets and exercises, namely, either to lose their weight or to gain more muscles and make themselves healthier. This is going to make the experiment more convenient, because under this assumption, all clients should have similar level of motivation to lose weight, and all researchers need to do is to send out surveys to these clients, and they could easily identify who are the people with intrinsic motivation or extrinsic motivation to lose weight and make themselves healthier. Another benefit of using clients from the same gym is that it would be easier for researchers to control this experiment. Researchers can discuss the content and time to train that is going to

be suitable for most of these participants with the professional gym staff. This means that all these participants will be receiving the same treatment, referring to the same amount of time and exercises, when they are in gym, but their training process will still be guaranteed to suit their personal conditions.

3.3 Experimental Design

At the beginning of the experiment, the experimenters will gather participants with the same target, which is to decrease BMI (body mass index). In order to examine whether the participants want to decrease their BMI because of intrinsic or extrinsic motivation, they will receive questioners. In this case we would use model provided by CSdT (Center for Self Determination Theory) for reference. Moreover, a set method to evaluate one's intrinsic motivation and extrinsic motivation had been proposed in the article named 'On the Assessment of Situational Intrinsic and Extrinsic Motivation: The Situational Motivation Scale'. (2000 Frédéric Guay, Robert J. Vallerand, and Céline Blanchard). According to the information from the questioners, the experimenters will divide participants into two groups. Treatment group which is group A is consist of people with extrinsic motivation, and control group which is group B is consist of people with intrinsic motivation. The experiment will last 4 weeks, and the behavior outside of the gym will not be recorded. Therefore, there will be no limitations to the behaviors besides the time of scheduled working out lessons every weekends. The hours of working out will be the same for both the treatment and the control group.

3.4 Experimental Design

At the end of four weeks, experimenters are going to gather all participants and record their BMI. By subtracting each individual's BMI after the experiment to the initial BMI at the beginning of the experiment, we are able to calculate the datas into body mass index change rates. Through the comparison between change rates of the treatment group (group A: extrinsic motivation) and control group (group B: intrinsic motivation), we will be able to conclude which of the motivation have a higher impact on the result of reaching the target of decreasing BMI. Two month after the experiment, researchers will be doing a follow up to examine how is people's BMI changing rate doing in the long term for the two groups of people. This follow up is for the sake of two reasons. First, in the beginning of the experiment, the experimenters offered participants questioners which might have an effect of changing the result of the experiment. As the participants might change their behavior once they predict that there is an experiment going on. Second, experimenters would like to tract how is participants' motivation effecting status of accomplishing goals in the long terms.

3.5 Experiment Outcome

By the way, just to remind, the choices made by treatment group (group A: extrinsic motivation) about how many times they would like to go to the gym is affected by the published gymnastic record, and the control group (group B: intrinsic) makes choices

based on their appreciation towards healthiness. Then after 4-week experiment, the Body Mass Index (BMI) will be counted for each of the participants to see how it changes during this period. Our group has brought out two predicted outcomes. First, intrinsic motivation may lead to higher impact on decrease in BMI. Second, extrinsic motivation may lead to higher impact on decrease in BMI.

The first predicted outcome is the people from group B may choose to go to the gym more times as they take importance on their social image. People with extrinsic motivation set their social character setting as the most important thing rather than healthy body. As they may want their photo and the attendance record shown online to give viewers better impression, and also they lay emphasis on their beauty and clothing. One of the reasons that motivates them to go to gym to do the exercises may be one size clothing shop. From Steff Hansen's words, when she tried on the clothing, she felt self-conscious of whether she had gained or lost weight. She ended up having anorexia [9]. Another example is the owner of Rock Solid, Laura Ash, sees through her work that some of her clients had panic attack when they got stuck in the clothing in the changing room. There are also some clients felt great when the clothing fit them but being mortified about their "large size" on the label [9]. These reflect the heavy panic pressure applied on people's mental stage by one size clothes. In order to make themselves fit in, they may choose the gym. In comparison, group B may more likely have better self-control than group A. Group B may have larger decrease in Body Mass Index than group A.

The second predicted outcome is the people from group A may choose to go to the gym more times as they take importance on their health. People with intrinsic motivation may choose to go to gym more frequently as they want to be healthier and they may be more self-discipline by going to the gym. For example, they may have a plan that they may go to gym every day. This is planned as part of their daily routine so they may not easily delay this activity. People affected by extrinsic motivation may not relatively have the healthy daily routine, so they may not go to the gym that often and may have low change in body mass index. Moreover, as two groups of people may not have any limit or control on their diet after fitness exercises and people who aims to be healthy may be more likely to have a healthier and more regular dietary habit, this may play an important role in their losing weight process, as the diet is more important than the exercise. Therefore, group A may have large decrease in their BMI after the process.

Extrinsic motivation has stronger effect compared to intrinsic motivation. Extrinsic motivation can't be durable. In the reality, we believe that this motivation is unreliable and trustless to achieve goals [10]. Group A although take importance on their social image, if others get used to their initial body shape, it would be unnecessary to change their social image just for a short while. Extrinsic motivation can't change their unhealthy diet or help maintain their self-discipline. The root cause is not solved. Therefore, intrinsic motivation may have larger effect, and group B may have larger fall in their Body Mass Index (BMI). Intrinsic motivation does place a more important and effective role than extrinsic motivation as it sends a person engagement and responsibility. Listen from your heart, you may be more likely to achieve your goal as you truly know what you want and what you aim for. The responsibility that your heart sends to your brain is hard to be destroyed easily with the help of your self-regulation. You will even be more motivated to experience the preparation towards the goal because you are more likely to

trust yourself than anyone else. Intrinsic motivation may again be considered more effective than extrinsic motivation.

4 Conclusion

Nowadays, people place health as a more and more important thing. More food and drinks become sugar-free. In China, there appear many new brands for healthy drinks, such as zero calorie tea, juice with no sugar, and sugar-free fizzy drinks. Also you can buy probiotic drink, barley green juice and enzyme jelly in live videos on social media. Pilates is introduced in China these years and become more popular than fitness club. Waistband is also used by women more frequently as they want to have a better waist shape and be slimmer. Our purpose in this experiment is no matter people go to gym because of intrinsic motivation or extrinsic motivation, no matter people go to gym because they want to have a better shape or they just want to be healthy, we want to appeal to the public about the importance of health. The problems of obesity, smoking, cervical spondylosis are pretty serious now, and people may easily be sick with these problems. Our purpose is to encourage people to do more exercise or have a fitness habit so that they can have a healthier body.

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