The Effectiveness of Interactive Social Media Platform on Fitting Intention: A Case Study on TikTok During COVID-19

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Abstract: Since the outbreak of COVID-19 around the world, people’s lifestyles have changed a lot, who are not able to go to any public place to exercise anymore, such as gyms and parks, etc. As they increasingly realize the importance of health in their lives, people have to work out at home to increase their resistance to the pandemic. The study aims to discuss the effectiveness of interactive social media platforms on people’s fitting intentions during the pandemic. This paper further developed the Theory of Planned Behavior model and used the questionnaire survey method. This research concludes that due to COVID-19 the number of people watching the TikTok platform live fitness has increased. Thus, the spread of the TikTok platform live broadcast is a crucial factor in the increase of people’s fitting intentions. Attitude, subjective norms, and perceived behavioral control promote people’s fitting behavioral intention to participate in National Fitness Campaign during the pandemic.

Keywords: Fitting Intention, COVID-19, TikTok, Theory of Planned Behavior.

1. Introduction

1.1. Research Background

The global economy and people's daily lives have been hit hard since the onset of COVID-19. In particular, people's lives have undergone great changes, which means that people’s fitness has been greatly affected during the pandemic. Health and fitness have become common needs and pursuits of people. Due to the emergence of COVID-19 cases, many people are being asked to stay home to avoid getting sick. In some countries, the activities of fitness centers and other establishments that are usually frequented by individuals are temporarily closed. Being able to self-quarantine can increase stress and negatively affect the mental health of people. It can be helpful to use relaxation techniques and physical activity to help people maintain their well-being. The World Health
Organization recommends that individuals should maintain a moderate to vigorous level of physical activity [1]. Therefore, in the setting of COVID-19, home fitness has become people’s first choice. Due to the rise of media live broadcast platforms, watching fitness-related live broadcasts has become a very popular way to exercise at home. There have been previous studies on mass sports and fitness in the post-pandemic. At present, the COVID-19 prevention and control in China have won a decisive victory under the scientific leadership and command of the Party Central Committee, but the impact of COVID-19 on people’s participation in health campaigns is ongoing. Studying the sports and fitness literacy of the Chinese public in the “post-pandemic” is conducive to improving people's fitness participation [2].

During the Coronavirus outbreak, most companies have adopted flexible working arrangements, some even working from home, which has resulted in more free time for people, as well as an increase in active users of TikTok in China and a growing number of people who watch TikTok live. As the pandemic people cannot gather but exercise at home only to maintain physical and mental health. TikTok have become one of the greatest short-video platforms [3]. TikTok is very famous around China, which means that there will be 400 million daily viewers [4]. According to their respective Singles’ Day events in 2021, TikTok said Livestream views reached 39.5 billion [5]. At present, China is in the process of moving from 4G to 5G. With the improvement of network speed, short video, which is suitable for watching in mobile state and fragmented time, with a short content and high push frequency, is being accepted by more users.

1.2. Research Gap

The prevalence of social media platforms has been linked to the behaviors and living habits of people. Studies have shown that the use of these platforms may have an optimistic effect on the development of the physical activity.

Due to the outbreak, home fitness became the focus of social media attention. Many studies followings the outbreak focused on the macro-level of the communication effect, while others did not consider specific cases or platforms. These studies also did not consider emerging media and new phenomena. TikTok is a new social platform that has the potential to transform the way people engage in-home fitness activities. This study aims to find out what makes TikTok different from other platforms and how it affects people's participation in the COVID-19 National Fitness Campaign.

It is vital to study the influence of social media platforms on the intentions of people during a pandemic

1.3. Fill the Gap

The study utilizes the MRD structure to analyze the various aspects of the research question. It aims to find out what makes TikTok different from other platforms and how it affects people's participation in the COVID-19 National Fitness Campaign. It also explores the theory of planned behavior and reasoned action. To determine the effects of TikTok on the behavior of people, researchers surveyed to gather information about their attitudes and expectations regarding the platform. The survey also asked about the various factors that influence their behavior. Besides the platform’s interactivity, the researchers additionally used the survey to evaluate the people's subjective norms and perceptions of behavioral control. The survey was designed to collect information about the individuals' demographics and attitudes toward the platform. It also asked about the various factors that influence their behavior. The researchers then used the survey to identify the individuals who did not meet the requirements of the study. After completing the survey, the researchers used feedback to improve the design of the survey. They additionally conducted a
test to evaluate the results. After collecting the data, the researchers started the formal investigation stage, which involved validating the questionnaires and conducting a validity analysis. They then concluded that the characteristics of TikTok, such as its interactivity and convenience, are related to the increase in the likelihood of people participating in-home fitness activities.

2. Literature Review

2.1. Theory of Planned Behavior

The idea that the planned action theory was first introduced in 1980 to explain how people can control their actions [6]. It states that the purpose of a person to perform a certain behavior is influenced by the likelihood that it will result in an expected outcome. The behavioral intent component of the theory is related to the subjective estimation of the profits and dangers of the behavior.

The planned action theory has been successfully used to explain various behaviors and intentions, such as drinking, smoking, and substance use. It states that the goal of a behavior depends on both its motivation and ability. The three types of beliefs that make up the Theory of Planned Behavior (TPB) are behavioral, normative, and control.

The idea of manners relates to the extent to which individuals see a particular behavior favorably or unfavorably. It entails taking into account potential results of the acts [6].

The goal of behavior is influenced by the factors that influence its likelihood of being performed. This concept is referred to as behavioral intention [6].

The concept of subjective norms is related to the level to which people have a positively or negatively opinion of certain behavior. It involves a person's opinions of the individuals and groups of people who are needed to engage in the behavior [6].

The perceived control of behavior is referred to as the degree to which people feel that it is easy or difficult to perform the desired behavior. This concept is different from the theory of reasoned action, which states that people have a varying level of control over their actions. This construct of the planned action theory was added later, and it further explained how people can control their actions [6].

The rational action theory (TRA), put forth by Ajzen and Fishbein in 1973 [7], is the precursor of TPB. Ajzen added the variable of Perceptual Behavioral Control (PBC) based on the original and proposed TPB due to the constraints of TRA [7]. The development of TPB can be divided into three stages [7]. In the 1980s, the basic theoretical modules were proposed and tested initially; in the 1990s, the theory was gradually improved and various variables were further clarified and the measurement methods were revised at this stage; the first decade of the 21st century is the comprehensive development stage of theory, TPB has completed the interdisciplinary expansion [7].

2.2. Important Results

Numerous studies have demonstrated the influence of variables other than intention in TPB theory. Attitude will have a great impact on behavioral intentions. Through Zhang and You’s articles, learning the relationship between employees’ innovative behavioral attitudes and innovation intentions in technology-based enterprises. Employee innovation benefit expectations have a significant positive impact on employees’ innovation intentions. Innovation loss expectations have a significant negative effect on employees’ willingness to innovate [8]. However, most theories focus on explanations. For example, high school students belong to a typical sedentary and less active risk group, and it is often necessary to promote the change of healthy behaviors and the development of healthy behaviors in high school students [9]. Research shows that identifying the impact of this problem on physical activity can ensure more effective interventions to increase their healthy
behaviors, suggesting that high school students’ attitudes can have a positive effect on changing healthy behavioral habits. Through the research on the willingness of construction workers to unsafe behavior, the research shows that the implementation of unsafe behavior may affect the smooth progress of on-site safety production, and the occurrence of safety accidents will damage the reputation of the enterprise. Those found can be severely punished, and the field has gradually expanded [10].

Through the research on the influencing factors of employees’ innovation willingness in science and technology enterprises, it is believed that TPB theory has good adaptability to explain the motivation of employees’ innovation behavior in science and technology enterprises in the Chinese context. Another important reason for the significant impact is the behavior pattern of Chinese people’s orientation toward others, that is, Chinese people are easily influenced by others in psychology and behavior, and psychologically hope to leave a good impression in the minds of others, which proves that subjective norms affect behavior. Intent to have a positive impact [8]. And through the research on the unsafe behavior willingness of construction workers, the significant influence of construction industry group factors on individual workers is verified. Subjective norms have a significant positive and indirect impact on unsafe behavior intentions, so safety training is institutionalized and mandatory. After construction workers have solid safety knowledge, they will think more about behavior choices from their perspective, and accordingly subjective norms levels will increase significantly [10]. Through research into the effects of high school students’ physical activity intentions and behaviors, recent attention has focused on how high school students’ execution of physical activity behaviors is consistent with their associated social cognitions if they perceive physical activity behaviors as related to Self-relevant and valuable, will motivate them to form behavioral intentions and will insist on performing regular physical activities [9]. Therefore, intervention in the cognitive decision-making stage is effective.

Numerous research has conclusively shown that behavioral intention is also influenced by perceived behavioral control. For example, through the study of the impact of physical activity intention and behavior in high school students, behavioral intention significantly predicts behavior, and high school students have higher physical activity. Behavioral intentions, and normative pressure from significant others did not improve high school students’ behavioral intentions; high school students’ sense of control and efficacy over physical activity behaviors may be lower [9]. In addition, through the research on the influencing factors of employees’ innovation willingness in technology-based enterprises, it is believed that perceptual behavior control has a significant impact on employees’ innovation willingness and innovation behavior. Among them, for the implementation of innovative behavior, employees have more control over the innovation environment than innovation. Self-efficacy is more influential. After construction workers have solid safety knowledge, they will think more about behavior choices from their perspective, and the level of subjective norms will be significantly improved accordingly [8]. The data research on the shadow line of demographic characteristics on residents’ choice of outbound tourism purposes, it is shown that proved behavior control has a direct effect on the choice behavior of outbound tourism destinations, indicating that even when tourists’ choice behavior intention is given, tourists’ choice behavior is still mainly constrained by hard conditions such as time and cost, and selection is mainly based on the constrained conditions [11]. Collectively these studies outline the critical roles of attitudes, subjective norms, and perceived behavioral control on behavioral intentions.

2.3. Summary
TPB has been widely used in several studies that encompass a variety of study fields and contexts. The ability of TPB to explain and predict human behavior has some limitations, according to numerous research [12]. The Theory of Planned Conduct (TPB) is a causal model that explains
behavior, and it postulates that the structure of attitude has a significant effect on the behavioral intention [13]. Conner and Armitage claimed that numerous model implementations continuously used correlation models [14]. TPB has also been criticized for emphasizing rational thinking and ignoring subliminal, associative, and impulsive variables, feelings, and private norms. It ignores other crucial elements like unconscious motives and spontaneous choices because it is a behavioral theory based on a causal process [15]. Goal-directed behavior is a new model that Perugini and Bagozzi suggested [16]. TPB, in its opinion, does not meet some of the personal decision-making requirements, such as prior conduct and wants that reflect the motivational state of mind [17].

The influence of attitude on behavior may also be constrained by other factors, such as a limited financial resource. Therefore, as a compromise between forecasts of attitude and predictions of conduct, TRA or TPB simply identifies behavioral intent.

3. Methodology

3.1. Research Design

The subject of this research paper is “The effectiveness of interactive social media platform on fitting intention: a case study on TikTok during COVID-19.” When collecting data, this paper adopts the Questionnaire Survey Method to analyse the impact of interactive social media on audiences’ fitness intentions. The respondents of this study are TikTok users aged 18-36.

When dealing with the data, this paper uses quantitative research, which refers to the scientific research method and process that determine the stipulation of the quantity of a certain aspect of things. Its characteristic is using quantity to represent social problems or phenomena, and then using analysis, testing, and interpretation to gain meaning.

3.2. Data Collection

The online survey is constructed by using the online survey platform called So jump. Questionnaires are distributed through the sharing of Wechat friends and circle of friends, and then the questionnaire data is managed by So jump. This survey is expected to collect 150 valid data, and the interviewees are mainly college students and TikTok users. In the questionnaire, in addition to questions about the age of respondents, this survey also included questions about TikTok live broadcast, fitness needs, and home fitness. The data collected at this time point is designed to measure the degree to which the live segment of TikTok has changed users’ willingness and fitness methods during COVID-19, as well as the extent to which the live segment of TikTok has spread nationwide fitness. The previous data was used to assess TikTok’s user growth in the wake of the pandemic and the rise of the Internet. The online survey questions are in the form of multiple-choice questions, which are used to distinguish the degree of the respondents’ agreement with certain opinions.

In this study, methods of data collection used early validated instruments developed. All the constructs involved were measured in a Likert scale which has five points: 1=strongly agree, 5=strongly disagree. Except the perceptual scales created by the authors of this study, the scales used to calculate the constructs of interest were taken from existing studies in the literature, with some appropriate adaptations.

Firstly, it was used as a measurement of attitude towards the behavioral intention of exercise according to Taylor and others [18, 19]. Subjective norms and perceived behavioral control were calculated using this kind of scale as well, which was derived from Dean and others, and modified to fits the content of exercising during the pandemic [20].
3.3. Data Analysis

Table 1: Questionnaire.

<table>
<thead>
<tr>
<th>Factors</th>
<th>Change Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude (Taylor, 1995)</td>
<td>1. I like the idea of exercising.</td>
</tr>
<tr>
<td></td>
<td>2. Exercising is not a bad idea.</td>
</tr>
<tr>
<td></td>
<td>3. I am positive about doing exercise.</td>
</tr>
<tr>
<td>Subjective Norm (Sparks et al., 1997)</td>
<td>1. People who I cherish mostly believe I’m supposed to exercise during the pandemic.</td>
</tr>
<tr>
<td></td>
<td>2. People who I feel important to me mostly would want me to exercise during the pandemic.</td>
</tr>
<tr>
<td></td>
<td>3. People whose points of view I value encourage me to work out.</td>
</tr>
<tr>
<td></td>
<td>4. My friends’ positive opinions influence my workouts.</td>
</tr>
<tr>
<td>Perceived Behavioural Control (Sparks et al., 1997)</td>
<td>1. I think I can exercise.</td>
</tr>
<tr>
<td></td>
<td>2. I feel confident that I would work out if it were entirely up to me.</td>
</tr>
<tr>
<td></td>
<td>3. I feel that working out is completely under my control.</td>
</tr>
<tr>
<td></td>
<td>4. I have plenty of time, willingness and resources to work out.</td>
</tr>
<tr>
<td></td>
<td>5. Exercise is generally possible for me when I have to do something during a pandemic.</td>
</tr>
<tr>
<td></td>
<td>6. There will probably be plenty of opportunities for me to work out.</td>
</tr>
<tr>
<td>Behavioural Intention (Sofi Aditami, 2016)</td>
<td>1. I think I have the ability to work out in the future.</td>
</tr>
<tr>
<td></td>
<td>2. I will consider exercising.</td>
</tr>
<tr>
<td></td>
<td>3. I will consider switching to exercise.</td>
</tr>
<tr>
<td></td>
<td>4. I decide to spend more on exercise.</td>
</tr>
<tr>
<td></td>
<td>5. If I have to do something I expect to exercise.</td>
</tr>
</tbody>
</table>

Through the first and second questions of the questionnaire, basic screening is carried out to screen out participants meeting the needs of the survey. In addition, when collecting questionnaires, if the respondents choose the same option for all the questions, they will also be regarded as invalid questionnaires. In the end, the study received a total of 209 questionnaires, among which 36.8% (77 questionnaires) are aged outside the survey scope (below 18 years old or above 36 years old). Within the 18-36 age group, there are 13 people who have not watched TikTok fitness live broadcast, accounting for 9.8% of the total users. As shown in Table 2, after screening these two invalid items, the study finally got 119 valid questionnaires.

Table 2: Case Processing Summary.

<table>
<thead>
<tr>
<th>Cases</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>119</td>
<td>56.9</td>
</tr>
<tr>
<td>Excluded</td>
<td>90</td>
<td>43.1</td>
</tr>
<tr>
<td>Total</td>
<td>209</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Statistical Product and Service Solutions (SPSS) is used in this study, which is a statistical analysis program widely used in the social sciences. Main functions include data management, advanced
analysis, multivariate analysis, and so on. Besides, Principal Components Analysis (PCA) is used for statistical analysis and simplification of data sets, which is a common dimension reduction method.

4. Results

This paper analyzes the behavioral intention to exercise of people aged 18 to 36 during COVID-19 by Questionnaire Survey Method. It verifies whether the interactivity and convenience of the live broadcasts on the TikTok platform influence their fitting intentions. In this research, the dependent variable is behavioral intention(Y), while the predictors are attitude(X1), subjective norms(X2), and perceived behavioral control(X3).

Reliability is a characteristic of measurement that involves accuracy, precision and consistency. Reliability analysis is shown in Tables 2 and 3. If CA is bigger than 0.6, the data is reliable, and conversely, if CA is smaller than 0.6, the data is not reliable. Therefore, all of the reliabilities of these variables are accepted.

Validity is a characteristic of measurement that relates to how well a test measures what one wishes to measure. If KMO is bigger than 0.7, it conveys that the relationship between X1, X2, and X3 planned when designing the questionnaire and the questionnaire is valid. If the significant is smaller than 0.001, it means that the questionnaire is eligible for factor analysis. Validity analysis is given in Table 4, and it is obvious that the validity of these variables is accepted. (KMO=0.796, Sig<0.01)

The correlation coefficient reflects whether the correlation coefficient between X1, X2, X3 and Y is high or not. If significant is below 0.05, the questionnaire is valid, and if significant is above 0.05, the questionnaire is not valid. Therefore, as given in Table 5, the correlations between the three independent variables are all positive. The correlation efficiency of the variable is significant.
correlation at the significant level and the questionnaire is valid because statistically significant < 0.05.

R-squared represents the level of explanation of the dependent variable by the predictors. The less the difference between R-squared and the adjusted R-squared, the more stable the data will be. According to the results of regression given in Table 6, the R square is 0.891, so independent variables have a high explanatory capacity for dependent variables. And adjusted R square is 0.889, which is very close to the R square, so the data is stable. Besides, one of the functions of ANOVA is to test the hypothesis that A does not affect B. If the significant is less than 0.05, it indicates that the regression equation is meaningful.

Therefore, the significance of the three predictors is less than 0.05, which represents that there is a positive effect of them on the dependent variable. TPB variables will facilitate one’s intention to work out during the pandemic. To be detailed, since the size of the coefficient proves the strength of their influence, it demonstrates that perceived behavioral control has the greatest effect on fitting intention, while that attitude has the least effect.

In conclusion, the results find clear support for the hypothesis that live broadcasts on the TikTok platform are crucial factors in the increase of the behavioral intention to exercise of people aged 18 to 36 during the pandemic.

5. Discussion

Preliminary research on TikTok live shows that the emerging social platform has unique communication capabilities that traditional media do not have. The new social platform represented by TikTok can meet the needs of the audience and increase the willingness of young people to exercise, which has played an important role in driving the popularity of fitness activities.

Previous studies on the impact of media on fitness intention tend to focus on the macro level rather than specific cases. Research on the TikTok platform has once again verified the positive impact of social media on people's fitness activities, and the role of emerging media is particularly significant. On this basis, the research on the new phenomenon generated by the new social media shows its special communication effect and mode of action.

According to the data obtained from the questionnaire, it can be found that the majority of respondents who follow TikTok workouts agree that TikTok with this influence broadcasts them
live. Therefore, this paper can prove that the use of the TikTok platform can increase people's willingness to exercise, and has a clear driving effect on the family fitness activities of young groups.

Finally, the method of questionnaire survey has certain limitations. Due to the subjectivity and randomness of the respondents, the questionnaire survey cannot guarantee the complete accuracy of the results. At the same time, it is difficult to obtain detailed information on the relevant population through a simple multiple-choice survey, and it is also difficult to understand the problem in depth.

However, basic research on new social media represented by TikTok in the new situation will help generate more new hypotheses and methods. New communication characteristics of new social media are constantly emerging, which deserve further study.

6. Conclusion

In the context of the pandemic, this article studies whether the new social media represented by TikTok will increase the fitness willingness of viewers watching TikTok live broadcasts, and explores the effect of its spread.

First, TPB theory is used to analyze the attitudes, subjective norms and perceived behavioral control of viewers watching fitness live broadcasts on the TikTok platform. Then a questionnaire survey was used. The online questionnaire is constructed using the online questionnaire platform So jump. The survey is expected to collect 150 valid data, and the respondents are mainly college students and TikTok APP users. Data analysis of the survey was performed using SPSS. The above methods were used to study the views and attitudes of the audience watching the live fitness broadcast on the Tiktok platform.

The conclusion from the analysis is that due to the pandemic and people's emphasis on health, people are willing to invest time and energy in fitness, and are willing to watch live broadcasts on the TikTok platform for home fitness. With the increase in the number of people watching fitness live broadcasts on the TikTok platform increases, home fitness has gradually become a trend. The use of emerging social platforms has a positive effect on the increase in people's willingness to exercise. The interactivity and convenience of the live broadcast on the TikTok platform greatly boost people's willingness to exercise during the pandemic.

The research on new social media represented by TikTok will help generate more new hypotheses and methods. The new communication functions of new social media are constantly emerging. Whether the behavior of TikTok bloggers during the live broadcast can inspire users to exercise is worthy of further study.

References


