

# Factors Leading to Viral Intention on Exercise Posts

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**Abstract.** Exercise report posts generated by mobile exercise apps (i.e., Nike Plus and Endomondo) have shown potential to encourage exercisers (e.g., runners) by providing them a sense of social support from others. From the perspective of support-givers, the motivational factors for engaging in such exercise-related posts are largely underexplored. Under the framework of Self-Determination Theory, this study investigates associations among need satisfaction for relatedness, autonomy, tie-strength, exercise intention and viewers' viral behaviors for exercise posts in social media. Study findings highlight the importance of increasing viewers' relatedness through engaging exercise posts.

**Keywords:** Self-Determination theory · Tie-strength · Exercise · Social media · Viral intention

## 1 Introduction

Exercise-related studies have shown that social support from others motivates and encourages exercisers [19]. With the advances of Internet and mobile computing technology, it is even possible for exercisers to solicit support from others from long distance. Mobile exercise apps, which track and summarize activities of runners, have gained momentum by enabling sharing functions on social media. For example, Nike Plus offers app-generated posts in social media, along with real-time message delivery for readers to send a cheering message to the app owner immediately. A recent study revealed that such a peer-feedback system, which connects runners and friends through social media, enhanced runners' experiences along with their completion rates [23].

Despite the advances in remote exercise supports, made available by new technologies, the motivational factors of viewer's participation in exercise posts (e.g., like, comment and share) are largely underexplored. Under the framework of Self-Determination Theory, this study aims to explore the motivation to support others' exercise activity by participating in exercise posts in social media, in terms of perceived autonomy and relatedness.

## 2 Determinants of Viral Intention on Exercise Posts

### 2.1 Need Satisfaction for Perceived Autonomy and Perceived Relatedness

One of the most common approaches to shed light on motivational factors is the Self-Determination theory (SDT) [3]. It distinguishes motivation as intrinsic and extrinsic motivation, which bring different outcomes. The SDT argues that intrinsic motivation leads to greater enjoyment [15] and greater persistence at activities [7, 20]. There are three essential needs to be fulfilled as to facilitate intrinsic motivation: autonomy, relatedness, and competence [16]. Autonomy, the extent to which individuals feel their own control over tasks, was a significant predictor that creates persistent behaviors [19]. Relatedness, which drives intrinsic motivation by maintaining psychological relatedness with others, was found to be a critical factor for user's engagement in social media [12]. Competence refers to the extent to which individuals feel they can successfully complete tasks [16].

Fulfilling the three needs is important for both original posters and people who view the exercise posts on social media. An experimental study showed that an exercise intervention using social networking sites improved participants' perceived competence and enjoyment [22]. From the exerciser's point of view, posting their exercise achievement on social media would increase their autonomy and relatedness. We expect the same applies to those who view the exercise posts in social media. For instance, a study investigating motivational factors for Facebook use revealed that the need for relatedness is an important factor, rather than an outcome of interacting with people on Facebook [18]. We assume that viral behavior such as commenting, sharing, liking the post would follow as a consequence of self-determination. Post viewers' need satisfaction for autonomy and relatedness should be fulfilled in order to facilitate viewers' viral behavioral intention.

*H1: Need satisfaction for autonomy of the exercise post on Facebook positively influences viral behavioral intention.*

*H2: Need satisfaction for relatedness of the exercise post on Facebook positively influences viral behavioral intention.*

### 2.2 Tie-Strength

The strength of tie is a crucial variable for users' engagement of viral behaviors in social media [5, 13]. As Granovetter states, "the strength of a tie is a (probably linear) combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which characterize the tie" [6]. Chu and Kim [2] found tie-strength as an influential predictor that positively predicts the engagement of viral behavior on social media. Kim [8]'s study on official Facebook brand pages showed that users are more likely to engage into liking, commenting, and sharing brand-related contents when their need satisfaction of relatedness was high. Applying these findings into exercise posts in social media, we expect that as the relationship

between an original poster and a viewer is closer, the viewer would be more willing to show increased viral behavioral intention for the post.

*H3: Tie-strength between the original poster and viewers of the exercise post on Facebook positively influences viral behavioral intention.*

### **2.3 Exercise Intention**

We expect that viewers of exercise posts would be willing to perform viral behaviors out of their intrinsic motivation, since viral behaviors for someone's exercise posts usually do not offer any monetary incentives or rewards. Building on previous studies as well as our insights on viral behaviors, we expect that people will be more likely to engage in exercise posts when they are willing to engage in their own exercise activities.

*H4: Exercise intention of viewers of the exercise post on Facebook positively influences viral behavioral intention.*

### **2.4 Mediating Role of Perceived Relatedness**

There have been volumes of SDT research, which found the mediating role of need satisfaction for autonomy, competence and relatedness on desirable outcomes in many different contexts [14]. Relatedness, one's psychological connection with people, is an important factor to look at since our study deals with engagement in social media [12]. We expect that need satisfaction for relatedness via exercise post will mediate the relationship between participants' attitude toward the exercise and viral behavioral intention. Similarly, relatedness will mediate the relationship between tie-strength and viral intention.

*H5: Need satisfaction for relatedness mediates the relationship between tie-strength and viral behavioral intention.*

*H6: Need satisfaction for relatedness mediates the relationship between exercise intention and viral behavioral intention.*

## **3 Method**

### **3.1 Participants and Procedures**

A total of 163 participants (81 male, 82 female, M age = 34.6 years; SD = 10.35) were recruited through Amazon Mechanical Turk online survey system. Only people who have seen exercise posts from social media were included in this study. At first, examples of exercise posts using mobile apps were shown. Participants were asked to recall the most recent experience of reading their Facebook friends' exercise posts. Regarding that particular experience, they were asked to answer a questionnaire, which included measures for the need satisfaction for autonomy, relatedness, tie-strength, exercise intention

and viral behavioral intention for the exercise posts. Upon finishing the survey, each of the participants was compensated with 50 cents for their participation.

### 3.2 Measurements

*Viral Behavioral Intention.* Viral Behavioral Intention was measured on a 5-point scale, which was adopted and revised from Alhabash et al. [1]. Participants were asked whether they would like, share and comment on the post. (*Cronbach's*  $\alpha = .82$ ).

*Perceived Autonomy.* To measure the perceived autonomy, 3 items on a 7-point scale were adopted from Mathwick and Ridgon [11]. An example of item would be "I have flexibility in my interaction while reading this exercise post". (*Cronbach's*  $\alpha = .76$ ).

*Perceived Relatedness.* The measure for perceived relatedness was adopted from La Guardia et al. [9] and Sheldon et al. [18] and was adjusted using a 7-point scale. Participants were asked to indicate their feelings while engaging in exercise post on social media: "I felt connected when reading this exercise post." (*Cronbach's*  $\alpha = .70$ ).

*Tie-Strength.* Three items for tie-strength on a 7-point scale were adopted from Frezen and Nakamoto [4] as well as Ryu and Feick [17]. Participants were to answer the questions regarding closeness and intimacy with a person such as "How likely would you be to share personal confidences with this person?"

*Exercise Intention.* To measure participants' exercise intention, a 7-point scale from Lowe, Eves and Carroll [10] was used (*Cronbach's*  $\alpha = .70$ ) (Table 1).

**Table 1.** Detailed items, means and standard deviations for each construct

Constructs	Items	$\alpha$	M	SD
Viral behavioral intention (5-point scale)	I will "like" this message on Facebook. I will "share" this message on Facebook. I will "comment" on this message on Facebook.	.82	3.22	1.12
Need satisfaction for autonomy (7-point scale)	While reading this exercise post, I felt (1) I could make a lot of decision on my own (2) I had a choice to voice my opinion (3) I had a flexibility in my interaction	.76	5.50	1.21
Need satisfaction for relatedness (7-point scale)	While reading this exercise post, I felt (1) appreciated (2) a lot of closeness and intimacy (3) disconnected (R)	.70	4.27	1.51
Tie-strength (7-point scale)	How likely would you be (1) to share personal confidences with this person? (2) to spend free time socializing with this person? (3) to perform a large favor (e.g. lending the person your car, typing a paper for this person because he/she is too ill, etc.) to this person?	.76	5.21	1.37

(Continued)

**Table 1.** (Continued)

Constructs	Items	$\alpha$	M	SD
Exercise Intention (7-point scale)	Exercising in my leisure time over the next 6 months would be (1) extremely boring/interesting (2) extremely unenjoyable/enjoyable (3) extremely harmful/beneficial (4) extremely unhealthy/healthy	.70	5.56	1.05

## 4 Results

Structural Equation Modeling using AMOS 22.0 was performed to test the hypotheses on need satisfaction for autonomy, relatedness, tie-strength, exercise intention on viral behavioral intention. The results of maximum likelihood analysis using the bootstrapping method revealed that the proposed model demonstrated to be a poor fit for the data,  $\chi^2 = 314.12$ ,  $df = 94$ ,  $p = .00$ , CFI = .80; TLI = .75; RMSEA = .12. Modification indices indicated that misfit was associated with correlation between two items on exercise intention, which made theoretical sense. The addition of this correlation had a significant effect on fit,  $\chi^2 = 189.04$ ,  $df = 93$ ,  $p = .00$ , CFI = .91; TLI = .89; RMSEA = .08. In support of H1 and H2, the model showed that participants' perceived autonomy and relatedness positively predicted their intention to like, share, comment on others' exercise posts. Analysis showed that viral behavioral intention is positively influenced by 'relatedness' ( $\beta = .58$ ,  $p < .05$ ) and 'autonomy' ( $\beta = .12$ ,  $p = .058$ ). However, 'tie-strength' ( $\beta = .30$ ,  $p > .05$ ) and 'exercise intention' ( $\beta = .02$ ,  $p > .05$ ) did not show significant relationships on viral behavioral intention, disconfirming H3 and H4.

Next, indirect effects were tested. The indirect effect of tie-strength on viral behavioral intention through perceived relatedness was not significant,  $\beta = .18$ , 95 % CI = [-.01, .41]. Thus, H5 was not supported. However, the indirect effect of exercise intention on viral behavioral intention through perceived relatedness was significant and positive,  $\beta = .36$ , 95 % CI = [.206, .589]. 9.4 % of variances in viral behavioral intention were accounted for exercise intention through perceived relatedness. Therefore, H6 was supported. The findings are discussed with regard to enhancing viral intentions for the exercise posts.

## 5 Discussion and Implications

Though advancement of technologies has enabled real-time interaction between original posters of the exercise post and viewers, there has been only some attention given to this new invention. In this study, we aimed to find a way to motivate people on social media to give real-time social support to original posters of exercise posts, by exploring the relationship between motivational factors and viral behavioral intention.

Building our study on the constructs of SDT, we found significant path between the need satisfaction for relatedness and autonomy on intention to like, comment and share. Findings highlight the importance of elements of exercise posts, which in turn satisfy viewers' need for relatedness and autonomy. For instance, by explicitly stating that one's liking or commenting would be influential on posters' exercise activity would help by increasing the sense of autonomy of the viewers.

It was interesting that we did not find a direct effect between exercise intention and viral behavioral intention, but only the indirect effect through relatedness. This result indicates that exercise intention would increase the viewers' need satisfaction for relatedness, which in turn leads to viral behavioral intention. In this regard, practitioners could think of designing the exercise activity post that highlights the viewer's role, which heightens their feeling of being appreciated and connected. For instance, adding function to exercise posts such as explicit request for feedbacks from the original poster of the exercise posts would increase the feeling of connection for viewers.

Our disconfirmed hypotheses for the relationship between tie-strength and viral behavioral intention explain that viewers' engagement cannot be achieved by relying on existing relationship between the original posters and viewers. This result highlights the importance of satisfaction for relatedness through exercise posts once again.

This study also provides some further implications. While contributing on theory building by applying SDT in the context of exercise posts, this study has practical implications for exercise application designers. In this study, we could not incorporate the need satisfaction for competence; however, future research will investigate the effect of competence as well.

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