

Use of mobile phone text message and personality among Japanese university students

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Abstract: To evaluate the personality correlates of mobile phone text message use in Japanese youth, university students (N = 232) were distributed a set questionnaires containing the Temperament and Character Inventory and items enquiring their text message use. Greater text messaging was associated with high Novelty Seeking (NS). The results of this study suggest that text message was based on NS.

Keywords: Mobile Phone Text-Messaging, Temperament, Character

1. Introduction

Mobile phones have become an important and widely available communication tool at an astonishingly rapid pace over the last two decades, used routinely for a wide variety of purposes by a large number of people. Japanese adolescents prefer written forms of communication, including short message service (SMS) communication and e-mail via mobile phones, to direct telephone conversation [1, 2]. The exceedingly rapid growth of the mobile communication has been accompanied by questions about its impact, both positive and negative, on consumers and on broader society. One recurring concern involves mobile phone “addicts”, whose use of these technologies has become excessive and out-of-control and severely disrupts their lives. Because text messaging is an asynchronous form of communication, people may pay a significant amount of attention to message replies. Some people may feel neglected or isolated if they do not receive an instant reply to a message they have sent. This may increase their anxiety about being ostracized [1]. In our cross-sectional study [3] examining civil servants, increased use of text messages had

a negative impact on individuals’ psychological well-being (depression and anxiety). Psychological dependency on text messaging is based on actual use of text messaging including frequency and duration of sending messages as well as checking replies. Such behavioral tendency may be associated with personality traits. Yet, the association between text messaging and personality characteristics has been unduly little studied thus far.

The psychobiological model of personality [4] is one of the personality theories that have been extensively studied in terms of its links to a variety of excessive use behaviors. Personality consisted of temperament and character domains. The dimensions of temperament are traits that are moderately heritable and stable throughout life. Temperament refers to individual differences in basic emotional responses. The dimensions of character are weakly heritable and moderately influenced by social learning. Character can mature. It reflects individual’s life goal, value system, and self-conscious emotions. Based on this, Cloninger et al. [5] developed the Temperament and Character Inventory (TCI). Temperament consists of four scales—Novelty Seeking (NS), Harm Avoidance (HA),

Reward Dependence (RD), and Persistence (PS)—whereas character consists of three scales—Self-directedness (SD), Cooperativeness (CO), and Self-transcendence (ST).

Psychological dependency on a variety of substances and behaviours has recently been given a generic term of behavioural addiction [6-8]. These include alcohol, caffeine, drugs, binge eating, starving, gambling, internet and games. Using the TCI, research showed that people with behavioural addiction such as alcohol [9-11], caffeine [12], smoking [12, 13], substances [14], and gambling [15-18] were high in NS. Text message communications might be similar to these behavioural addictions in that the behaviour is a source of excitement. Therefore we expected that greater and more frequent use of text messaging would be linked to high NS.

This is a preliminary study on the links between the mobile phone text messaging and temperament and character dimensions among a Japanese university student population. We focused on Japanese youth because, as noted above, it is young people that prefer written form of communication to direct communication.

2. Methods

2.1. Participants

We solicited participation in a questionnaire study nursing and social welfare university students in Kumamoto, Japan. Questionnaires were distributed to new students in May after they enrolled in college. Surveys were administered throughout the school day at the beginning of each class period. A total of 247 students responded to the survey. However, five students reported they had no mobile phones therefore were excluded from analyses. There were 85 men and 157 women. Their mean (SD) age was 18.3 (0.9) years old. Men and women did not differ in their mean age.

2.2. Measurements

2.2.1. Text Messaging Use

We investigated the following: (1) the age when students

started using mobile phones, (2) the frequency of text messaging per week, (3) the total number of hours spent text messaging per week, (4) monthly fees spent on mobile phone communication, and (5) how often per day students checked for replies to messages they had sent.

2.2.2. Personality

The Japanese version [19] of the TCI [20] was used. There are studies on the internal consistencies and factor structures of the Japanese versions [19, 21, 22]. The internal consistency (Cronbach's alpha) in this study was .773 for NS, .788 for HA, .696 for RD, .592 for PS, .802 for SD, .802 for CO, and .796 for ST.

2.3. Ethical Consideration

This project was approved by the Ethical Committee of Kumamoto University Graduate School of Medical Sciences.

3. Results

The present university students using mobile phones, on average, started using mobile phones at age 15, used text messaging more than 90 times a week, spent two hours and a half a week for text messaging, spent about 8,000 yen for mobile phone fee, and checked text message replies more than 20 times a day (Table 1). A quarter of them started using a mobile phone at age 14, used text messaging more than 100 times a week, spent longer than three hours a week, spent more than 9,000 yen, or checked replies more than 30 times a day.

The age when they started using mobile phone and the frequency they check the reply messages per day showed no significant correlation with any of the TCI dimensions (Table 2). The frequency of mobile phone text message communication per week, whole hours they spent for text message communication per week, and monthly fee they spent for mobile phone communication were significantly associated with high NS. Only the monthly fee they spent for mobile phone communication was associated with low SD.

Table 1. Mobile phone text messaging use and temperament and character dimensions

| | Min | Max | Mean | SD |
|--|-----|--------|-------|-------|
| Age when they started using mobile phone | 10 | 20 | 14.9 | 1.4 |
| Frequency of mobile phone text message communication per week | 2 | 980 | 98 | 123 |
| Whole hours they spent for text message communication per week | 0 | 30 | 2.61 | 4.0 |
| Monthly fee they spent for mobile phone communication (yen) | 10 | 30,000 | 8,029 | 3,034 |
| Frequency they check the reply messages per day | 1 | 500 | 23 | 43 |
| NS | 7 | 53 | 26.9 | 7.3 |
| HA | 5 | 53 | 34.3 | 7.6 |
| RD | 7 | 45 | 31.6 | 5.9 |
| PS | 5 | 28 | 16.5 | 3.7 |
| SD | 18 | 67 | 38.8 | 8.7 |
| CO | 32 | 66 | 50.2 | 7.8 |
| ST | 1 | 34 | 17.3 | 6.5 |

NS, Novelty Seeking; HA, Harm Avoidance; RD, Reward Dependence; PS, Persistence; SD, Self-Directedness; CO, Co-operativeness; ST, Self-Transcendence

Table 2. Intercorrelations between the mobile phone text messaging variables and the TCI dimensions ($N = 226 - 240$)

| | NS | HA | RD | PS | SD | CO | ST |
|--|---------|------|--------|------|---------|------|------|
| Age when they started using mobile phone | -.02 | .08 | -.11 | -.03 | -.03 | -.11 | -.08 |
| Frequency of mobile phone text message communication per week | .16 * | -.08 | .09 | .02 | -.01 | .04 | .12 |
| Whole hours they spent for text message communication per week | .16 * | -.08 | .06 | -.11 | -.01 | -.01 | .07 |
| Monthly fee they spent for mobile phone communication (yen) | .31 *** | -.01 | .17 ** | -.07 | -.18 ** | .10 | .05 |
| Frequency they check the reply messages per day | .12 | -.08 | .08 | -.10 | -.01 | -.04 | .05 |

NS: Novelty Seeking; HA: Harm Avoidance; RD: Reward Dependence; P: Persistence; SD: Self-Directedness; C: Co-operativeness; ST: Self-Transcendence

* $p < .05$; ** $p < .01$; *** $p < .001$

4. Discussion

Like alcohol and tobacco consumption, drugs, caffeine, smoking, and pathological gambling, text messaging was correlated with high NS. People high in NS are described as exploratory, impulsive, extravagant, and enthusiastic but disorderly [5]. Hence such people are more likely to be interested in something new, in this case communication technology, and be absorbed in it. Some studies demonstrated low SD and CO among people with alcohol and substance use disorders and pathological gambling. Our study did not find a association between text messaging and low SD or CO. This may be because possibly most of our participants were out of the pathological range of text message use.

We presume that most of our students are healthy users of text messaging. It may be only a portion of them who develop psychological dependency on it. Those who may be categorized as pathological may, however, be heavy user of text messaging. That NS is associated greater use of text messaging may be a basis of such text message 'addiction'. Future studies should pay attention to psychological aspect of heavy use of text messaging.

There are some clinical implications of this report. First, heavy use of text messaging among youngsters is growing concerns. Our results suggest that people high in NS are likely to develop problematic use of text messaging. Preventative measures should, therefore, target such people. We presume that excessive use of text messaging may be ameliorated by psychological intervention focusing NS traits. Like other non-substance addiction including gambling, text messaging may be viewed as a type of addiction. This needs further studies.

Limitations of this study should be noted. We relied on participants' personal reports for details about text message communication and personality. Thus, this study is subject to shared observer bias. Our participants were weighed on women because we solicited nursing university students for participation. Another drawback of this study is that all the participants had already started using a mobile phone. Prospective studies may commence even before students

begin using a mobile phone, probably when they are in junior high school.

Taking into consideration these methodological drawbacks, the present study showed that text messaging was correlated with high NS.

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