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The Japanese Version of the General Procrastination Scale: Factor Structure Differences in an Asian Population

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Abstract: The purpose of this study was to assess the Japanese version of *General Procrastination Scale* (*J-GPS*) previously created by Hayashi (2007), with a large, varied sample of Japanese adults. The paper-and-pencil surveys were distributed to Japanese people who lived in the large-, medium-, and small-sized cities who lived in Japan. Participants were recruited by the first author during a two-month period. The final sample was 2,564 Japanese citizens: 1,048 (40.9%) men and 1,516 (59.1%) women with a mean age of 44.3 years old (*SD* = 1.91). Participants reported demographic information including age, gender, marital status, married years, number of children, educational status, occupational types, worked years, living areas, whether considering themselves as procrastinator, and whether others considering them as procrastinator. Results showed that a two-factor solution was the best fit, duplicating studies with Turkish, Italian, and Greek populations, but in contrast to a uni-dimensional structure suggested originally by Lay (1986) or adapted in Spanish sample. Moreover, we investigated rates of self-reported procrastination in relation to a collective culture, which has mixed individualistic tendencies. Participants with strong individualistic tendencies were not significantly different on *J-GPS* scores, compared to those with little tendencies on individualistic characteristics. Our results added significant evidence to previous studies of General Procrastination. Future research in non-English speaking countries, especially in Asian countries, using a general procrastination measure might be helpful for further comparison to ascertain cultural differences in task delay perception.

Keywords: General Procrastination Scale, Japanese, Delay, Procrastination Domains, Individualism and Collectivism

1. Introduction

Procrastination is an intentional delay of necessary action or delaying a decision needing action [8]. Although everyone procrastinates from time to time, it does not mean everyone is a procrastinator [5]. The *General Procrastination* Scale (*GP* Scale; 20 items) [18, 8]. measures slow behavior across different situations and is related to personality variables, such as low self-control, rebelliousness, and extraversion [8, 11]. After eliminating seven items through factor analysis, Hayashi (2007) developed the Japanese version of *GP* scale, which he called *J-GPS* (13 items) [14]. Hayashi determined the *J-GP s*cale's factor structure, but his study focused only on young adults (university or vocational college students), living solely in the Tokyo metropolitan region. The present study replicated the use of the *J-GPS* but explored the factorial structure of *J-GPS* with a large sample of greatly varying ages residing in different areas across Japan. We also examined the relationship of the *J-GPS* with a person's perception of individualism or collectivism, a concept relevant to individuals residing in different cultural settings [28].

In addition, we assessed social desirability tendencies, which have not evaluated in the original scale development. Social desirability is a tendency to present favorable social images of themselves to others [22]. Typically, social desirability bias (SDR bias) occurs when one responds to socially sensitive questions [17]. Many studies such as sexual practices, domestic violence, and dietary intake have been related to SDR bias [29].

Besides traditionally sensitive topics, SDR bias may also have an impact on one's responses for rather less sensitive

topics. For instance, Ferrari and colleagues found that there were significant relationships between social desirability and perceptions of institutional values, goal orientation, value commitment, major satisfaction, and self-reported gains with undergraduate students [6, 9]. Since procrastination is a sensitive topic to some persons, SDR bias was assessed in the present study.

2. Method

2.1. Participants

Participants in the present study were Japanese adults residing across Japan, yielding a total of 2,610 adults. Because 39 individuals did not respond to demographic questions and seven persons were eliminated because they were under 20 years of age, the final sample was 2,564 Japanese citizens: 1,048 (40.9%) men and 1,516 (59.1%) women with a mean age of 44.3 years old (*SD* = 1.91).

2.2. Psychometric Scales

Each participant reported demographic information including age, gender, marital status, (if married) married years, number of children, educational status, occupational types, worked years, living areas, whether considering themselves as procrastinator, and whether others considering them as procrastinator. Participants also completed both the following scales (in counterbalanced order).

Japanese version of General Procrastination Scale (J-GPS)[14]. Lay's *General Procrastination* Scale (GP)[18] has 20 items [8]. Hayashi (2007) developed the 13-item *J-GPS*, Japanese *GP*, a translation from Lay's scale eliminating 7-items after a factor analysis was conducted with a small sample of students. We used this shorter *GP* scale (*J-GPS*), rating items on a 5-point scale (1 = *strongly disagre*e to 5 = *strongly agree*) and designed to assess slow behavior across different situations. Studies using the *GP* scale found scores related to personality variables such as low self-control, rebelliousness, and extraversion [5, 11]. Sample items include: "I am continually saying I'll do it tomorrow" and "When preparing to go out, I am seldom caught doing something at the last minute." Cronbach's alpha for the *GP* scale with a European sample [19] was 0.84 (*M* = 44.47, *SD* = 10.66, and for the *J-GPS* [14] was 0.87 (*M* = 40.95, *SD* = 15.73). Hayashi (2007) concluded that *J-GPS* had sufficient reliability and validity. With the present sample, Cronbach's alpha for the *J-GPS* was 0.83 (*M* = 34.92, *SD* = 7.5), indicating strong internal consistency for of this scale.

Individualism and Collectivism Scales (IC) [27]. While Hofstede (1980) considered individualism and collectivism opposite constructs [16], Triandis (1995) pointed out that it is not easily dividable [28]. People may be high or low on both, or high in one and low in the other. For instance, U.S. individualism is not the same as Swedish individualism [27]. In both individualist and collectivist cultures, inequality is acceptable, and rank has its privileges in the vertical dimension. On the other hand, people are expected to be similar on most attributes, especially on status in the horizontal dimension [28].

Markus and Kitayama (1991b) identified different types of self [20]. For instance, they used the term *individualism parallel* as an independent and separate construal of the self. Likewise, they used the term *collective parallel* as holistic, connected, and interdependent construal of the self. In referring to their terms, Triandis (1995) described that there are four kinds of self: independent or interdependent and same or different [28]. The self was also identified to more than 60 culture-specific attributes which Triandis (1995) categorized into four main constructs of culture [25]. They are *Horizontal Individualism* (HI: independent/same), and *Vertical Individualism* (VI: independent/different), *Horizontal Collectivism* (HC: interdependent/same), and *Vertical Collectivism* (VC: interdependent/different).

Singelis, Triandis, Bhawuk, and Gelfand (1995) modified the original scale to 32-items assessed on a 7-point Likert scale (1 = *strongly disagree*; 7 = *strongly agree*) [26]. Each HI, VI, HC, and VC variable contains 4-items. For example, HI includes "My personal identity, independent of others, is very important to me," and "I rely on myself most of the time." VI includes "When another person does better than I do, I get tense and aroused," and "Competition is the law of nature." HC includes "The well-being of my coworkers is important to me" and "If a co-worker gets a prize I would feel proud." Lastly, VC includes "It is important to me that I respect the decisions made by my groups" and "Family members should stick together, no matter what sacrifices are required." With the present study, the Cronbach's alpha for the overall IC scale was 0.71 (*M* = 4.64, *SD* = 1.34), reflecting adequate internal consistency. All items were translated from English to Japanese, and then back translated into Japanese.

A short version of the *Marlowe-Crown Social Desirability Scale* (*MCSD*; 13 items) [22, 24]. Social desirability is a tendency that one presents a favorable social image of themselves [27]. The original *Marlowe-Crown Social Desirability Scale* has 33 items (*r* =.88 - 0.91) with a set of socially desirable with improbable statements [17]. The short version of *MCSD*, by Reynolds (1982), is a 13-item. It is a true or false questionnaire with acceptable reliability (*r* = 0.74 - 0.87) correlating with the original scale [23, 29]. Sample items include "I have never been irked when people expressed ideas very different from my own" and "I have never deliberately said something that hurt someone's feelings." A higher score indicates socially desirable responses. In the present sample, reliability coefficient on the *MCSD* (13 items) was 0.69.

2.3. Procedure

Our survey was administered either online (through Qualtrics, distributed through social networking - Facebook) or in paper-and-pencil formats. Utilizing these combined methods seemed to relieve disadvantages to recruit various people including those who were not easily accessible. On Facebook, the survey was posted on the first author's wall.

To alleviate disadvantage through Facebook posting (such as differences in age, income, and education for access), a snowball sampling technique was used. It provided the participant recruiting information at the end of the survey to invite at least two other people who might potentially participate in the study.

In addition, paper-and-pencil version of our surveys were randomly distributed to people who lived in the large-, medium-, and small-sized cities. Participants were recruited by the first author during a two-month period from universities, corporations, and local companies from the three cities. Most participants (n = 1,418, 57.1%) reported they lived in suburban settings or urban cities (n = 887, 35.7%), and 178 (7.2%) reported they lived in rural areas. We again used a snowballing sample technique, such that participants who filled out the survey then recruited other persons from among their acquaintances. Therefore, participants for the current study were from 28 out of 47 prefectures, nearly 60% across the country of Japan. Consequently, we believe that we have reached "hidden populations," areas from north to south sections of the country, including 7 out of 8 regions in Japan.

3. Results

An initial *one-way ANOVA* was conducted on *J-GPS* scores to compare the effect of demographic variables (participants' age, gender, living areas, marital status, married years, whether having children, number of children, educational status, occupational types, and worked years), whether considering themselves as procrastinator, whether others considering them as procrastinator, and four kinds of self with *IC* scales. Results showed that no significant differences on *J-GPS* scores for gender, living area, educational status, worked years, number of children, and IC scales.

There was a significant difference of *J-GPS* scores, however, between age groups, F (2, 2,459) = 77.165, p =.000. More specifically, a *post-hoc Tukey's HSD* test showed that younger people scored significantly higher on *J-GPS* scores (20-35 yrs; n = 865, M = 40.47, SD = 8.22) than middle-aged group (36-59 yrs; n = 987, M = 37.23, SD = 7.93). Middle-aged people scored significantly higher on *J-GPS* than older age group (60-100 yrs; n = 610, M = 35.48, SD = 7.54). Also, with regard to current occupation, a *post-hoc Tukey's HSD* test revealed that there were significant differences between students and all other groups (full-time worker, part-time worker, company executives, houseworker, self-employed, and unemployed persons), F (7, 2,422) = 12.793, p =.000. Students reported the highest *J-GPS* scorers (n = 388, M = 41.05, SD = 8.22) whereas company executives scored the lowest scores (n = 87, M = 35.86, SD = 8.86).

In addition, considering marital status, people who were single at the time of data collection scored much higher on *J-GPS* (n = 771, M = 40.34, SD = 8.03) than those who were married (n = 1,618, M = 36.71, SD = 8.03), F (1, 2,387) = 104.767, p =.000. People married for 25 years or less (n = 697, M = 37.58, SD = 8.19) scored higher than those persons married 26 years or longer (n = 648, M = 35.86, SD = 7.41), F (1, 1,343) = 16.239, p =.000. Moreover, people with no children scored higher (n = 1,062, M = 39.92, SD = 8.21) than those having children (n = 1,433, M = 36.46, SD = 7.86) on *J-GPS*, F (1, 2,493) = 113.927, p =.000.

Regarding procrastination awareness, people considering themselves as procrastinator scored higher (n =1,029, M = 43.04, SD = 6.86) on *J-GPS* than did not (n = 1,390, M = 34.01, SD = 6.90), F (1, 2,417) = 1010.157, p =.000. People considering others think them as procrastinator also scored higher on *J-GPS* (n = 608, M = 43.85, SD = 7.10) than did not (n =1,729, M = 35.71, SD = 7.47), F (1, 2,335) = 546.354, p =.000.

Correlations between *IC* scores and *J-GPS*, using a medium-split, was conducted to people above the median as "high scores" on two dimensions of *IC* scale, which was also used in Triandis et al. [26]. The medium scores of HI, VI, and VC were 17, and HC was 18. Participants who scored 17 or above on HI and VI were categorized into "strong individualists." Those who scores 17 or above on VC and 18 or above on HC were categorized into "strong collectivists."

An *ANCOVA* revealed that there was no significant mean difference between strong individualists (M = 41.21, SD = 8.54) and strong collectivists (M = 40.08, SD = 7.49) while controlling for MCSD scale (M = 39.95), SD = 8.44), F (1, 1,322), p = 0.411.

Next, a factor structure of the 13-item *J-GPS*, using a maximum likelihood method (ML) with varimax rotation, was conducted across the entire sample size of 2,383 Japanese adults. The Kaiser-Meyer-Olkin measures the sampling was adequate for analysis, KMO = 0.884, within the range of being great according to Field [12]. All KMO values for individual items were > 0.78, well above the acceptance limit of 0.5. Moreover, Bartlett's Test of Sphericity, χ^2 (78) = 8852.339, p =.001 indicated that correlations between items were sufficiently large for ML.

We determined the factor structure with our adult sample using several criteria [13]. First, Kaiser's criterion retained only factors with eigenvalues greater than 1. The items loading on the three factors represented that the three-factor structure is a good fit for the Japanese data.

Second, a scree plot and the interpretability of the factors indicated that a two-factor solution was a better fit than a three-factor solution. Thus, a factor analysis was performed again specifying two factors. Results showed that before rotation, factor one accounted for 34.856%, and factor two accounted for 10.795%, of the total variance. After varimax rotation, the first factor accounted for 27.208%, and the second factor accounted for 18.443% of the total variance. As shown in Table 1, items loading highly on Factor 1 were Q1, 3, 4, 5, 7, 9, 10, and 12 representing "*Delay*" (sample item: "I generally delay before starting on work I have to do". Items loading highly on Factor 2 were Q2, 6, 8, 11, and 13, suggesting "*Procrastination Domains*" (sample item: "When preparing to go out, I am seldom caught having to do something at the last minute").

Table 1. *The factorial structure of the Japanese General Procrastination scale (J-GPS, 13 items, Hayashi, 2007).*

	Item	Factor 1:	Factor 2:
4	I generally delay before starting on work I have to do.	.70	
10	I usually buy even an essential item at the last minute.	.69	
7	In preparing for some deadline, I often waste time by doing other things.	.67	
1	I often find myself performing tasks that I had intended to do days before.	.64	
3	Even with jobs that require little else except sitting down and doing them, I find they seldom get done for days.	.62	
9	I always seem to end up shopping for birthday or Christmas gifts at the last minute.	.59	
12	I am continually saying "I'll do it tomorrow".	.59	
5	When traveling, I usually have to rush in preparing to arrive at the airport or station at the appropriate time.	.56	
13	I usually take care of all the tasks I have to do before I settle down and relax for the evening.		.72
11	I usually accomplish all the things I plan to do in a day.		.70
8	I often have a task finished sooner than necessary.		.68
6	When preparing to go out, I am seldom caught having to do something at the last minute.		.60
2	A letter may sit for days after I write it before I mail it.		.54

Note. Factor 1 = Delay, Factor 2 = Procrastination Domains.

4. Discussion

The present study extended the use of the J-GPS measure to Japanese adults other than just students and explored personal variables that might affected procrastination behavior of Japanese adults. Younger adults procrastinated much more than middle aged and then older adults. In relationship between employment status and procrastination behavior, students reported stronger procrastination tendencies, whereas company executives were the weakest procrastinator than any other groups. Students may have more flexible time schedule compared with company executives who were bound by tight schedules with a lot of social responsibilities. Moreover, people who were currently single or having no children claimed to delay in doing tasks than those who did not. In recent years, almost half Japanese people who were in 20-30s found no interest in marriage [21]. Younger people may want to stay single so that they can avoid a variety of restrains from housekeeping work and childcare. People who had been marrying over quarter century also were likely to postpone in doing tasks than younger married couples.

Regarding awareness of procrastination, self-reports and actual scores highly matched. Our findings indicated that awareness of Japanese adults was quite accurate with how they saw themselves and how others saw themselves. Finally, cultural comparison of *J-GPS* scores indicated that Japanese culture may be shifting from collectivism to individualism. Japanese people used to work for groups with a sense of duty, but now they choose to work more for themselves.

Furthermore, persons who had stronger individualistic tendencies were not significantly different on Japanese general procrastination scores, compared to those who had little tendencies on individualistic characteristics and vice versa. Brew, Hesketh and Taylor (2001) noted that people in Japan consider social obligations, honoring trust, and harmonious relations more carefully when making decisions, which may or may not affect one's procrastination tendencies [2]. Thus, the process is longer to reach the final decision [15]. Participants in the current study might have acted as a Japanese person on the basis of their normative understanding of how such a Japanese person should be profiled. Consequently, they did not act as an individual who were more individualistic or more collectivistic.

More importantly, the present study explored the factor structure of the Japanese version of General Procrastination scale [14] with a large, varied sample of adults. A two-factor solution was found, replicating Turkish [9], Italian [19], and Greek [1] versions. We did not confirm a uni-dimensional structure suggested by Lay (1986) [18]. One similarity of countries where a two-factor solution emerged (Turkey, Italy, Greece, Spain, and now Japan) is related to their cultures. In his book, Hofstede (1994) conducted the six dimensions of national culture [16]. One dimension was *uncertainty avoidance*, which is a society members' tolerance for uncertainty and ambiguity. People with high uncertainty avoidance tend to keep away from unusual and unknown circumstance by implementing rules, laws and regulations. The five countries noted above scored high on the uncertainty avoidance dimension [16], while the United States had low uncertainty avoidance. These cultural differences may have affected their factor structure. Our results added to previous studies, suggesting a two-factor solution with an Asian culture. Future research in non-English speaking countries, especially in other Asian countries, might be useful in assessing delay tendencies and task domains across cultures.

5. Conclusion

One purpose of the present study was to perform factor analysis on Japanese version of *General Procrastination Scale* created by Hayashi [14] with a large sample of Japanese adults in varying demographics. A person who is younger, a student, a single, or having no children, had a tendency to be a strong procrastinator, whereas an older person or a company executive seemed to be the weakest one. The result indicated that various factors are complexly intertwined before putting off doing things at work, school, home, and in relationships.

In terms of the factor structure of the 13-item *J-GPS*, correlations between items were sufficiently large for

maximum likelihood method. Furthermore, compared to a three-factor solution, a two-factor solution was a better fit for the Japanese data, replicating the studies that have done in non-English speaking countries.

The present study contributed to the previous knowledge about relations between demographic characteristics and procrastination behavior. Clearly, further psychological research on Asian societies is needed to investigate how adults living in this culture with its lifestyle might influence delay tendencies.

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