Factors related to perceived control among graduate students in Japan

○Renaguli Abuliezi[1], Akiko Kondo[1], Kosuke Niitsu[2], Mabel C Ezeonwu[2]

1 Tokyo Medical and Dental University, 2 University of Washington Bothell

【Introduction】

Perceived control is "an individual's subjective beliefs about the amount of control he or she has over the environment or outcome". Previous studies showed that higher perceived control is associated with better health behavior. However, in our previous study that compared perceived control and engagement in preventive health behavior between international and Japanese students, Japanese students engaged more in preventive health behavior even though their perceived control and perceived health competence were lower than international students. Therefore, this study's purpose was to explore the factors related to perceived control in international and Japanese graduate students.

【Method】

A web survey conducted at a medical university in Japan was used to collect demographic data, such as age, sex, annual income, religion, nationality, and perceived control. Perceived control was measured using perceived control and self-efficacy scale, which is a 10-item 5-point Likert scale, with higher score indicating a higher level of perceived control (total score ranges 10-50). The Shapiro–Wilk test indicated the perceived control was not normally distributed; therefore, nonparametric method was used. Factors associated with perceived control in each student group in bivariate analyses ($p<0.05$) as well as other factors such as age, sex, annual income were empirically known to be related to perceived control were forcibly entered into the logistic regression model. Perceived control was sorted into two categories at median (<32 or $32\leqq$). This study was approved by the Medical Research Ethics Committee at the Tokyo Medical and Dental University (Approval number: M2020-171). There is no COI that needs to be disclosed.

【Results】

A total of 121 international and 341 Japanese graduate students responded with an overall response rate of 30.0%. Among all the participants, 44 students belonged to Nursing science program, 309 students belonged to Medical and dental program. Perceived control score was significantly higher in international students than Japanese students (34.0 vs 31.0, $p < 0.001$). Nationality and religion were significantly associated with perceived control. Japanese students had the lowest median score of 31.0, followed by Chinese (32.0), other Asian students (35.0) and non-Asian students (37.0). Higher percentage of international students (53.0%) than Japanese students (24.1%) had religious beliefs ($p<0.001$). International students who practice Christianity had the highest median score of 36.0, followed by Buddhism (35.5), Islam and Hinduism (34.0), and those with no religious beliefs (32.5) ($P=0.007$). Japanese students with no religious beliefs, and Buddhism had the highest score of 31.0, followed by Shintoism (30.0), Christianity (27.0), and Islam (18.0) ($p=0.039$). While religious students

reported higher perceived control among international students (35.0 vs 32.5, $p=0.004$), they reported lower perceived control among Japanese students (31.0 vs 30.0, $p=0.045$), which indicated interaction (Figure 1). Among Chinese students, religious practice, or belief was not significantly related to perceived control. After controlling for age, sex, and annual income, non-Asian students (OR = 5.124, 95% CI: 1.308-20.08) and students from Asian countries excluding China and Japan (OR = 3.747, 95% CI: 1.690-8.357) had significantly higher perceived control compared with Japanese students (Table1).
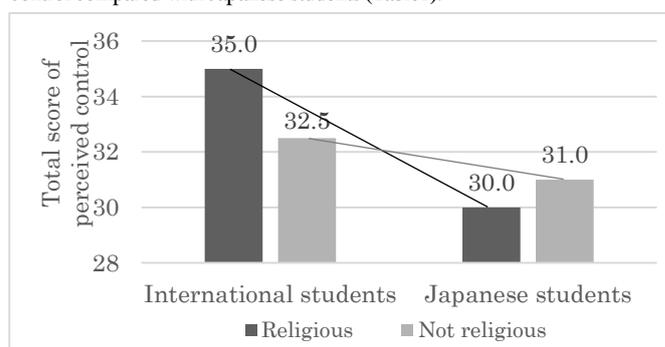

Figure1. Perceived control between international and Japanese students with religious/no religious beliefs

Table1. Factors related to perceived control among graduate students

Factors	B	OR (95%CI)	p
Nationality (Japan is the reference)			
China	0.024	1.025 (0.461-2.277)	0.952
Other Asian countries	1.321	3.747 (1.690-8.357)	0.001
Non-Asian countries	1.634	5.124 (1.308-20.08)	0.019
No religious beliefs	-0.259	0.772 (0.470-1.267)	0.305
Age	-0.004	0.996 (0.960-1.034)	0.852
Female	-0.135	0.874 (0.563-1.356)	0.548
Annual income	0.043	1.044 (0.911-1.197)	0.532

Note: Logistic regression (Enter): Nagelkerke $R^2= 0.083$. Hosmer and Lemeshow test ($\chi2= 7.771$, $p=0.456$).

【Discussion】

This study indicated that nationality and religion are major factors related to the perceived control for graduate students in Japan. Japanese culture treasures harmony rather than control. This may be one reason that Japanese people have lower perceived control. Differences in nationality related to perceived control can include other factors, such as education, social norm, and cultural background. Therefore, further research is needed to explore additional factors associated with perceived control. It is also necessary to investigate why religious beliefs in Japanese students have lower perceived control.