

## RESEARCH ARTICLE

## Changes in flow experience among occupational therapy students: a 1-year longitudinal study

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**Abstract**

**Purpose:** The purpose of this 1-year longitudinal study is to investigate the change in flow experience among occupational therapy students (OTS). **Methods:** In December 2012, we prospectively recruited 97 OTS from the Department of Occupational Therapy, Kibi International University. To assess flow experience in daily life, we used the Flow Experience Checklist. **Results:** The dataset included 87 OTS, of which 75 participated in the assessment at 1 year (follow-up rate, 86.2%). The mean age at baseline of 45 male and 30 female OTS was  $19.59 \pm 1.1$  years (range, 18 to 24 years). A comparison of the 'frequency of flow experience' showed significant differences between baseline values and those after 1 year (December 2013) among male OTS ( $P < 0.05$ ). **Conclusion:** The present results indicate that, for male OTS, the frequency of flow was significantly reduced after 1 year compared with baseline values. This finding suggests the need for further education to increase the frequency of flow among male OTS.

**Key Words:** *Follow-up studies; Longitudinal studies; Occupational therapy; Japan*

### INTRODUCTION

One of purposes of occupational therapy (OT) is to promote the clients' quality of life (QOL). For this purpose, maintaining a constant QOL among OT students (OTS) is important, along with education to facilitate this, because an OTS cannot provide interventions and evaluations for clients while in a negative mental state. In other words, OTS' negative mental states might have a negative influence on clients' QOL. Flow is a psychological state considered to be closely related to QOL [1-3] and represents a positive mental state associated with pleasure and the feeling of devotion [4]. The following descriptions elaborate on the experience of flow: intense and focused concentration on what one is doing in the present moment; merging of action and awareness; loss of reflective self-consciousness; a sense that one can control one's actions; that is, a

sense that one can, in principle, deal with the situation because one knows how to respond to whatever happens next; distortion of temporal experience (typically, a sense that time has passed faster than normal); and experience of the activity as intrinsically rewarding, such that often the end goal is just an excuse for the process [4]. Flow experience correlates positively with a reduction in subjective stress and an increase in mental QOL among OTS [1,5]. Moreover, flow experience correlates negatively with shyness and self-disgust among OTS [6,7].

Because most of the previous studies were cross-sectional, they did not follow the same OTS, and thus did not maintain continuity and stability. Therefore, it is necessary to examine longitudinal changes in flow experience among OTS. However, to the best of our knowledge, no studies exist that examined such longitudinal changes. The purpose of this 1-year longitudinal study is to investigate the change in flow experience among OTS. Currently, OT education is not practiced from the perspective of flow. We performed this study to contribute to OT education by determining the actual state of change of the flow experience of OTS.

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## METHODS

In December 2012, we prospectively recruited 97 OTS from the Department of Occupational Therapy, Kibi International University, Okayama, Japan. We included 87 OTS in the analysis. Participants provided written consent after they were informed about the purpose and procedures of the study. The Institutional Review Board of Kibi International University, Okayama, Japan, approved this study. To assess flow experience in daily life, we used the Flow Experience Checklist (FEC) [8]. The FEC consists of 11 items (7-point Likert scale; range, 1 to 7): 1 item measures the frequency of flow experience in daily life, and 10 items measure the quality of flow experience in daily life. A higher score reflects a higher frequency and quality of flow experience. A version of the FEC was developed for university students in Japan, and the reliability and validity of this scale have been confirmed in another Japanese sample. Furthermore, confirmatory factor analysis revealed the same factor structure in different samples in Japan [8]. The Wilcoxon test was used to compare the FEC at baseline (December 2012) with that 1 year later (December 2013). All analyses were performed using IBM SPSS ver. 19 (IBM Co., Armonk, NY, USA), and the level of significance was defined as 5%.

## RESULTS

The dataset included 87 OTS, of which 75 participated in the assessment after 1 year (follow-up rate, 86.2%). The mean age at baseline of these 45 male and 30 female OTS was 19.59 ± 1.1 years (range, 18 to 24 years). No significant difference was observed in the comparison of the ‘frequency of flow experience’ and ‘quality of flow experience’ values measured at baseline and after 1 year among all OTS ( $P=0.308$  and  $P=0.547$ , respectively). However, the comparison of the ‘frequency of flow experience’ revealed significant differences between baseline values and those after 1 year among male OTS ( $P=0.049$ ). No significant difference was observed in the comparison of the ‘quality of flow experience’ between baseline values and those after 1 year among male OTS ( $P=0.879$ ). In addition, no significant differences were observed in the comparison of the ‘frequency of flow experience’ and ‘quality of flow experience’ values measured at baseline and after 1 year among female OTS ( $P=0.374$  and  $P=0.253$ , respectively) (Table 1).

## DISCUSSION

In the present study, we demonstrated that the frequency of flow was significantly reduced after 1 year compared with the baseline value among male OTS. Flow occurs in situations where there is a balance between a person with high skill and

**Table 1.** Changes in flow experience among occupational therapy students

Flow experience checklist	Baseline	After 1 year	P-value
All students (n = 75)			
Frequency of flow experience	4.69 ± 1.13	4.49 ± 1.12	0.308
Quality of flow experience	46.91 ± 5.98	47.38 ± 7.27	0.547
Male students (n = 45)			
Frequency of flow experience	4.91 ± 1.00	4.49 ± 1.08	0.049
Quality of flow experience	47.00 ± 6.57	47.01 ± 7.33	0.879
Female students (n = 30)			
Frequency of flow experience	4.37 ± 1.25	4.50 ± 1.20	0.374
Quality of flow experience	46.77 ± 5.07	47.94 ± 7.27	0.253

$P < 0.05$ .

a high degree of challenge [4]. In contrast, apathy occurs when a person with low skill encounters a situation of low challenge [4]. For example, flow is likely to occur when studying; apathy is likely to occur when watching TV. Because the frequency of flow decreased among male OTS, we believe that the activities of first year male OTS may not be conducive to flow (i.e., they might lead to apathy). The results of previous studies suggest that “apathetic” college students tended to drop out of academic activities [9]. In particular, one study demonstrated that male university students studying science encountered serious problems [9]. Further, Japanese college students were significantly more apathetic compared with those in the United States [10]. The same may hold true for male OTS. Therefore, further education is required to prevent apathy among male OTS. It is important to provide education that facilitates a balance between high skill and high challenge to increase the frequency of flow and reduce apathy among male OTS. In particular, it is necessary to address the challenge level of each class, focusing on aspects such as spontaneity and intrinsic motivation, to ensure that it is suitable for each individual OTS.

In contrast, our results suggest that the comparison of the ‘quality of flow experience’ did not reveal significant differences between baseline values and those after 1 year among OTS. The ‘quality of flow experience’ in the FEC measures the extent to which the characteristics of flow experience can apply [8]. Further, the quality of flow experience is represented by scores obtained by the simple addition of 10 items. Therefore, the quality of flow experience in the FEC does not directly depict a balance of ‘challenge and skill,’ a prerequisite for the occurrence of flow. For this reason, no significant difference was observed in the quality of flow experience between baseline values and those after 1 year. The results of a previous study suggest that the ‘quality of flow experience’ was not significantly related to health-related QOL [1]. In contrast, a significant positive correlation was observed between the ‘frequency of flow experience’ and health-related QOL [1].

This study had some limitations. First, participants in this study attended a single university in Japan, and thus the results cannot be generalized. Future studies should include OTS attending several universities. Second, we measured only flow experience. It will be necessary to measure multiple factors related to flow experience in the future. Third, this was an observational study. In the future, it will be necessary to perform an educational intervention using a control group to demonstrate a causal relationship. The limitations of the present study indicate that further studies of flow experience should be conducted to enhance the education of OTS.

In conclusion, the results of the present study indicate that the frequency of flow was significantly reduced after 1 year, compared with the baseline value, among male OTS. This finding suggests the need for further education to increase the frequency of flow for male OTS.

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### CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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### SUPPLEMENTARY MATERIAL

Audio recording of the abstract.

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