Research Article

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

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Running title: Flow experience among occupational therapy students

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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 for 1 year (follow-up rate, 86.2%). The mean age at baseline of 45 male and 30 female OTS was 19.59 ± 1.1 (range, 18–24) 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 showed that the frequency of flow was significantly reduced after 1 year compared with baseline values among male OTS. This finding suggested the need for further education to increase the frequency of flow among male OTS.

**Keywords:** 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 of OT students (OTS) is important, for which education is necessary. The reason is that you cannot provide an intervention and evaluation for the client (follow-up rate, 86.2%). A permits unrestrive mental state. In other words, it may have a negative influence on the client's QOL if OTS have no positive mental state. Flow is considered a psychological state that is closely related to QOL [1-3] and represents a positive mental state associated with pleasure and the feeling of devotion [4]. Moreover, the following descriptions of flow experiences have been provided: “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),” “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 high mental QOL among OTS [1, 5]. Moreover, flow experience correlates negatively with shyness and self-disgust among OTS [6, 7]. Because studies are cross-sectional, they do not follow the same OTS and therefore do not maintain continuity and stability. Therefore, it is necessary to examine longitudinal changes in flow experience among OTS. However, no studies that examined such longitudinal changes exist to the best of our knowledge. The purpose of this 1-year longitudinal study is to investigate the change in flow experience among OTS. OT education is not practiced now from the perspective of the flow. We performed this study to contribute to OT education by grasping the actual situation of the change of the flow experience of OTS.

**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 comprising 1 item (7-point Likert scale; range, 1–7) measures the frequency of flow experience in daily life and that comprising 10 items (7-point Likert scale; range, 1–7) measures the quality of flow experience in daily life. A higher score reflects a higher frequency and quality of flow experience. FEC has been developed for university students in Japan; the reliability and validity of this scale has been confirmed in another sample in Japan; further, confirmatory factor analysis showed the same factor structure in different samples in Japan [8]. Previous studies of OTS used FEC. The Wilcoxon test was used to compare the FEC at baseline (December 2012) with that after 1 year (December 2013). All analyses were performed using SPSS 19, and the level of significance was defined as 5%.

**RESULTS**

The dataset included 87 OTS, of which 75 participated in the assessment for 1 year (follow-up rate, 86.2%). The mean age at baseline of 45 male and 30 female OTS was 19.59 ± 1.1 (range 18–24) years. No significant difference was observed in the comparison of the “frequency of flow experience” and “quality of flow
experience” between baseline values and those after 1 year among all OTS (P = 0.308 and P = 0.547, respectively, Table 1). However, the comparison of the “frequency of flow experience” showed significant differences between baseline values and those after 1 year among male OTS (P = 0.049, Table 2). 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, Table 2). No significant difference was observed in the comparison of the “frequency of flow experience” and “quality of flow experience” between baseline values and those after 1 year among female OTS (P = 0.374 and P = 0.253, respectively, Table 3).

**DISCUSSION**

In the present study, we showed that the frequency of flow was significantly reduced after 1 year compared with the baseline value among male OTS. Flow occurs when a balance is observed between a person with high skill and a high challenge [4]. In contrast, apathy occurs when a person with low skill encounters a situation of low challenge [4]. For example, the flow is likely to occur when studying; apathy is likely to occur when watching TV. Because the frequency of the flow decreases among male OTS, we believe we may have conducted the activities of nonflow among 1-year male OTS (e.g., apathy). The results of previous studies suggested that college students with “student apathy” tended to drop out of academic activities [9]. In particular, it was shown 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 to provide a balance between high skill and high challenge to increase the frequency of flow so that this will reduce apathy among male OTS. In particular, it is necessary to perform an educational intervention from the perspective of the challenge level of the goal to focus on aspects such as spontaneity and motivation intrinsic in each class, to determine whether it is suitable for your individual capacity.

In contrast, our results suggested that the comparison of the “he t the comparison of individual reveal significant differences between baseline values and those after 1 year among OTS. The among OTS offers individual capacity and motivation intrinsic in each class, d serious problems judy. The Institutional Furt he, 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,” and is 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 suggested 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 1 university in Japan, and therefore, the results cannot be generalized. Future studies must 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 flow experience should be continued to be studied to enhance the education of OTS.

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


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

<table>
<thead>
<tr>
<th>Flow Experience Checklist</th>
<th>Baseline</th>
<th>After 1 year</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency of flow experience</td>
<td>4.69 ± 1.13</td>
<td>4.49 ± 1.12</td>
<td>0.308</td>
</tr>
<tr>
<td>Quality of flow experience</td>
<td>46.91 ± 5.98</td>
<td>47.38 ± 7.27</td>
<td>0.547</td>
</tr>
</tbody>
</table>

N = 75.
*P < 0.05.
Table 2. Changes in flow experience among male occupational therapy students

<table>
<thead>
<tr>
<th>Flow Experience Checklist</th>
<th>Baseline</th>
<th>After 1 year</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency of flow experience</td>
<td>4.91 ± 1.00</td>
<td>4.49 ± 1.08</td>
<td>0.049*</td>
</tr>
<tr>
<td>Quality of flow experience</td>
<td>47.00 ± 6.57</td>
<td>47.01 ± 7.33</td>
<td>0.879</td>
</tr>
</tbody>
</table>

N = 45
*P < 0.05.
Table 3. Changes in flow experience among female occupational therapy students

<table>
<thead>
<tr>
<th>Flow Experience Checklist</th>
<th>Baseline</th>
<th>After 1 year</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency of flow experience</td>
<td>4.37 ± 1.25</td>
<td>4.50 ± 1.20</td>
<td>0.374</td>
</tr>
<tr>
<td>Quality of flow experience</td>
<td>46.77 ± 5.07</td>
<td>47.94 ± 7.27</td>
<td>0.253</td>
</tr>
</tbody>
</table>

N = 30
*P < 0.05.