Factors related to coping strategies during Japanese physical therapy students’ clinical practice

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Abstract. [Purpose] This study aimed to identify social skills and support that are related to the coping strategies Japanese physical therapy students use during their clinical practice. [Subjects and Methods] Third-year students who were finished with their clinical practice participated. Self-administered questionnaires were used, including the daily life skill scale, social support scale, and tri-axial coping scale. Spearman’s partial correlation coefficients were calculated between social skills, support of daily living, and coping strategies used during the clinical practice, while controlling for gender. [Results] A total of 56 completed questionnaires (median of age: 21 years; 27 males). Social skills during personal situations—knowledge summarization, self-esteem, and positive thinking—were significantly, positively correlated with planning and affirmative interpreting strategies to approach stressors regarding clinical practice, and negatively related to giving up strategies to avoid stressors. Intimacy, leadership, and empathy (social skills during interpersonal situations) were significantly, positively correlated with the following responses to approach stressors: catharsis, information gathering, and affirmative interpreting. Moreover, emotional/companionship social support was significantly, positively correlated with all avoidant coping strategies. [Conclusion] Japanese physical therapy students who had low personal and interpersonal social skills and excess emotional/companionship support in daily life tend to select avoidance, not approach, coping strategies during clinical practice.

Key words: Coping strategies, Social skills, Social support

INTRODUCTION

A curriculum for health care professions includes clinical practice. While clinical practice has an important value in the discipline of health care professions, clinical practice is stressfull for health care professional students because learning environments for clinical practice and schools differ. In addition, students in physical therapy—a health care profession—are required to participate in clinical practice and, in Japan, often experience stress reactions because of clinical practice1). Studies focused on stress among Japanese physical therapy students (JPTs) during their clinical practice indicate that it is necessary to research ways to minimize stress reactions and prevent burnout among JPTs.

One notable model to address in this area of study is the transactional model of stress2). This model asserts that coping strategies mediate the relation between stressors and stress reactions among JPTs during their clinical practice. This occurs because stress reactions during clinical practice differ in intensity among JPTs. One study reported that JPTs often select affirmative interpreting and planning strategies for stressors relating to clinical practice3). It was also reported that the frequencies of positive problem-solving, help-seeking, and diversion strategies during clinical practice increased among pharmacy students4). These coping strategies, except diversion strategies, were considered as approach coping strategies.
However, buck-passing strategy, an avoidance strategy, was associated with high stress reactions during clinical practice\(^6\). Although suitable and unsuitable coping strategies were identified during clinical practice, there has not been research on coping strategies among JPTSs.

The transactional model of stress underscores that social skills and support are critical factors that influence the selection of coping strategies for stressors\(^2\). Dunn et al.\(^5\) proposed the “coping reservoir,” a coping model that advocates for individuals to fill a reservoir with coping resources, including psychosocial support. According to this model, the volume of the reservoir will vary according to one’s personality.

In sum, the purpose of the present study was to assess the relations between social skills and support during daily living with approach and avoidance coping strategies during JPTSs’ clinical practice. The current study may allow for the identification of individual characteristics that are related to approach or avoidance coping strategies; therefore, the results of this study may provide information to teachers and clinical educators about the identification of JPTSs who are at risk for burnout prior to the start of clinical practice.

**SUBJECTS AND METHODS**

The present study was cross-sectional and used anonymous data. Data were collected from September 2015 to March 2016 in two, four-year Japanese physical therapy schools. Approval was obtained from the Ethics Committee of Takasaki University of Health and Welfare (No. 2834).

Prior to distributing the study materials, the authors assured students that their academic grades would not be affected by student participation. No personal information, except age and gender, was collected in order to conceal the identity of the students. The authors explained that questionnaire completion would be regarded as their consent to participate.

JPTSs who were in their third year and had finished their clinical practice within one week were enrolled in the study. The clinical practice for third-year students lasts between three and five weeks. The aim of clinical practice is to improve the following clinical skills: tests, measurements, interviews, and assessments of patients’ physical and mental conditions. The third-year clinical practice is the first time many JPTSs have contact with patients (i.e., not simulated patients or practice with classmates). In addition, JPTSs primarily receive guidance and support from physical therapists that are working in medical or welfare facilities (i.e., not their teachers in schools).

The daily life skill scale (DLSS) for college students\(^6\) and the social support scales (SSS) for Japanese college students\(^7\) were used to assess social skills and support, respectively. The 24-item DLSS has eight domains: planning, knowledge summarization, self-esteem, positive thinking, intimacy, leadership, empathy, and interpersonal manners (3 items of each; range: 3–12 points total). The first four domains represent skills used in personal situations, and the latter four domains represent skills used in interpersonal situations. Higher scores indicate greater social skills. The 23-item SSS has the following three domains: appraisal support (10 items; range: 10–40 points), informational/instrumental support (7 items; range: 7–28 points), and emotional/companionship support (6 items: range, 6–24 points). Higher scores indicate more social support.

The tri-axial coping scale (TAC-24)\(^8\) was used. The expository writing of the TAC-24 was partially modified to investigate past use of coping strategies for “stressors associated with clinical practice.” Since the original TAC-24 assesses current behaviors and thoughts about daily stress, a chief developer of the TAC-24 approved the scale used herein. The reliability coefficient of the modified TAC-24 was acceptable (Cronbach’s α=0.73). The TAC-24 has 24 items that results in eight coping strategies: information gathering, affirmative interpreting, planning, catharsis, giving up, evasive thoughts, diversion, and buck-passing (3 items for each strategy; range: 3–15 points). The former four coping strategies are considered as approach strategies, and the latter four strategies are considered as avoidance strategies. Higher scores indicate greater use of coping strategies.

First, descriptive statistics were computed for all variables of interest. Second, Spearman’s partial correlation coefficients were computed between the DLSS, SSS scores, and with the TAC-24 scores, while controlling for gender. Moreover, Spearman’s partial correlation coefficients were conducted between scores on the DLSS and the SSS, while controlling for gender. All statistical analyses were performed using HAD version 15\(^9\). Values of \(p<0.05\) were statistically significant.

**RESULTS**

A total of 65 JPTSs (out of 76) finished the clinical practice during their third-year (response rate, 85.5%); however, nine JPTSs did not complete the questionnaires (valid response rate, 73.7%). The median and quartile deviation for age of participants were 21 and 0.5 years, respectively (range: 21–23 years). Twenty-seven participants were male (48.2%).

The descriptive statistics for the variables of interest are shown in Table 1. Spearman’s partial correlation coefficients between the DLSS scores, SSS scores, and the TAC-24 scores, while controlling for gender, are summarized in Table 2. In addition, Spearman’s partial correlation coefficients among the DLSS scores, while controlling for gender, are summarized in Table 3. Spearman’s partial correlation coefficients among the DLSS scores when controlling for gender are as follows: 0.68 (appraisal vs. informational/instrumental supports, \(p=0.00\)), 0.56 (appraisal vs. emotional/companionship supports, \(p=0.00\)), and 0.41 (informational/instrumental vs. emotional/companionship supports, \(p=0.00\)).
Although there was a low response rate, the median age and distribution of gender for the 56 responders were similar to those of the 76 participants (median of age: 21 years; male-female ratio: 53.9%), including non-responders.

### Table 1. Descriptive statistics for the variables of interest (n=56)

| Items                                                | Median | Quartile deviation | Range |
|------------------------------------------------------|--------|--------------------|-------|
| **Daily life skill scale**                           |        |                    |       |
| Planning (3–12 points)                               | 6      | 1.0                | 3–11  |
| Knowledge summarization (3–12 points)                | 6      | 1.0                | 4–9   |
| Self-esteem (3–12 points)                            | 7      | 1.1                | 3–11  |
| Positive thinking (3–12 points)                      | 7      | 1.5                | 3–12  |
| Intimacy (3–12 points)                               | 9      | 1.5                | 5–12  |
| Leadership (3–12 points)                             | 6      | 1.0                | 3–10  |
| Empathy (3–12 points)                                | 9      | 1                  | 5–12  |
| Interpersonal manner (3–12 points)                   | 10     | 1                  | 5–12  |
| **Social support scales**                             |        |                    |       |
| Appraisal support (10–40 points)                     | 29     | 2.6                | 13–37 |
| Informational/instrumental support (7–28 points)     | 22     | 2.5                | 9–28  |
| Emotional/companionship support (6–24 points)        | 18     | 2.6                | 6–24  |
| **Tri-axial coping scale**                            |        |                    |       |
| Information gathering (3–15 points)                  | 9.5    | 2.1                | 3–13  |
| Affirmative interpreting (3–15 points)                | 9      | 2.1                | 3–15  |
| Planning (3–15 points)                               | 10     | 1.0                | 5–14  |
| Catharsis (3–15 points)                              | 10     | 2.5                | 4–15  |
| Giving up (3–15 points)                              | 5.5    | 1.5                | 3–12  |
| Evasive thoughts (3–15 points)                        | 7      | 1.5                | 3–12  |
| Diversions (3–15 points)                              | 7      | 3.1                | 3–15  |
| Buck passing (3–15 points)                           | 3      | 1.0                | 3–11  |

### Table 2. Spearman’s partial correlation coefficients of the scores of the daily life skill scale and the social support scale with the scores of the tri-axial coping scale controlling for gender (n=56)

| Daily life skill scale                          | IG   | AI   | PL   | CA | GU   | ET   | DI   | BP   |
|------------------------------------------------|------|------|------|----|------|------|------|------|
| Planning                                       | −0.07| 0.00 | 0.04 | 0.13| −0.21| 0.14 | 0.12 | −0.04|
| Knowledge summarization                         | 0.22 | 0.21 | 0.31*| 0.16| −0.33*| 0.15 | 0.23 | −0.20|
| Self-esteem                                     | 0.19 | 0.41*| 0.14 | 0.01| −0.28*| 0.05 | 0.13 | −0.18|
| Positive thinking                               | 0.17 | 0.39**| 0.19| −0.06| −0.25| −0.01| 0.04 | −0.21|
| Intimacy                                        | 0.29*| 0.28*| 0.19 | 0.40**| −0.04| 0.11 | 0.31*| −0.16|
| Leadership                                      | 0.07 | 0.13 | 0.19 | 0.27*| −0.17| −0.05| 0.18 | −0.24|
| Empathy                                         | 0.20 | 0.21 | 0.12 | 0.27*| 0.03 | 0.12 | 0.19 | 0.05 |
| Interpersonal manner                            | 0.02 | −0.03| 0.14 | 0.16| −0.15| 0.05 | 0.10 | −0.19|

**IG:** information gathering; **AI:** affirmative interpreting; **PL:** planning; **CA:** catharsis; **GU:** giving up; **ET:** evasive thoughts; **DI:** diversion; **BP:** buck-passing. *p<0.05; **p<0.01

**DISCUSSION**

Although there was a low response rate, the median age and distribution of gender for the 56 responders were similar to those of the 76 participants (median of age: 21 years; male-female ratio: 53.9%), including non-responders. In addition,
considering the median TAC-24 scores, responders frequently selected information gathering, affirmative interpreting, planning, and catharsis strategies; however, buck-passing strategy was selected the least. This tendency was also observed in another cohort of JPTSs. Thus, it appears that the responders in the present study generally represent typical third-year JPTSs at institutions included in this investigation.

The majority of the median scores for interpersonal situations on the DLSS were higher than the scores for personal situations. In addition, all of the median scores on the SSS were more than 70% of maximum scores on the SSS. Thus, in the current study, JPTSs tended to rate their social skills in interpersonal situations higher than those in personal situations. Moreover, they reported that their social support needs were moderately fulfilled. However, the range of the scores on the DLSS and the SSS were wide; therefore, the level of social skills and the amount of social support varied by student.

Overall, higher social skills were positively associated with approach coping strategies and negatively associated with avoidance coping strategies, which was consistent with our hypothesis. However, higher social support was positively associated with higher report of approach and avoidance coping strategies.

The following DLSS scales, knowledge summarization, self-esteem, and positive thinking, were significantly, positively correlated with planning strategies on the TAC-24; moreover, they were negatively correlated with giving up strategy on the TAC-24. JPTSs who were low on social skills for personal situations did not use approach coping strategies to solve problems about their clinical practice. These findings suggest that lower levels of summarizing knowledge, maintaining self-esteem, and positive interpretation in daily life were risk factors for quitting clinical practice. Surprisingly, social skill planning was not associated with planning strategies during their clinical practice; however, informational/instrumental support was associated with planning strategies. JPTSs whose subjective planning skills were high in daily life did not always select planning strategies during clinical practice. Therefore, it seems that it is preferred to distribute meaningful advice rather than subjective planning skills to JPTSs when they are developing plans to deal with assignments and problems during clinical practice.

This corresponded with research with people with alcohol use disorders who attended self-help groups; specifically, a previous study indicated that an increased use of approach coping strategies was related to more social support from friends. Moreover, social skills used during interpersonal situations—intimacy, leadership, and empathy—were significantly, positively correlated with catharsis strategy. Catharsis is considered an approach strategy to release emotion, feel better, and facilitate other positive coping strategies, similar to information gathering and affirmative interpreting strategies. In addition, catharsis was frequently selected in stressful situations where an individual has little control. Therefore, it is suggested that JPTSs with low social skills during interpersonal situations are at risk for distress during their clinical practice because they do not use catharsis strategies during stressful situations. However, previous work suggests that catharsis was not an effective coping strategy for oncology nurses’ management of work-related stressors. Catharsis may have both favorable and unfavorable effects according to the context of stressful situations. Therefore, additional research is needed to investigate effects of catharsis in various stressful situations.

Informational/instrumental support on the SSS was significantly, positively correlated with information gathering and planning strategies, which are approach coping strategies on the TAC-24; however, emotional/companionship support was significantly, positively correlated with all avoidance coping strategies, including buck-passing strategies. Importantly, buck-passing has been identified as a risk factor for severe stress reactions during clinical practice. Moreover, there are relations between avoidance coping strategies and poor health; furthermore, there are relations between avoidance coping strategies and decreased motivation for learning. Thus, excessive emotional/companionship support may be a risk factor for escaping problems during JPTSs’ clinical practice. However, there may be some instances where the temporal use of avoidance coping strategies are effective in reviving or revitalizing an individual.

| Items        | PL  | KS  | SE  | PT  | IN  | LE  | EM  | IM  |
|--------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Personal situations |
| PL           |     |     |     |     |     |     |     |     |
| KS           | 0.53** |     |     |     |     |     |     |     |
| SE           | 0.26 | 0.56** |     |     |     |     |     |     |
| PT           | 0.22 | 0.49** | 0.94** |     |     |     |     |     |
| Interpersonal situations |
| IN           | 0.17 | 0.24 | 0.22 | 0.21 |     |     |     |     |
| LE           | 0.20 | 0.53** | 0.36** | 0.31* | 0.45** |     |     |     |
| EM           | 0.00 | 0.11 | –0.05 | –0.07 | 0.36** | 0.21 |     |     |
| IM           | 0.16 | 0.07 | 0.16 | 0.13 | 0.41** | 0.16 | 0.27* |     |

**PL:** planning; **KS:** knowledge summarization; **SE:** self-esteem; **PT:** positive thinking; **IN:** intimacy; **LE:** leadership; **EM:** empathy; **IM:** interpersonal manner. *p<0.01; **p<0.001
Taken together, the current research suggests that lower social skills in personal and interpersonal situations, as well as a large amount of emotional/companionship social support in daily living, are risk factors for burnout during JPTSs’ clinical practice. Educational programs focused on facilitating social skills for personal and interpersonal situations should be implemented before clinical practice in order to minimize the aforementioned risks. These programs would promote use of approach coping strategies and reduce use of avoidance coping strategies for problems associated with students’ clinical practice. Programs for personal and interpersonal social skills should be separately designed since the correlations between these types of social skills were rarely statistically significant. In addition, it is recommended that JPTSs have more informational/instrumental support than emotional/companionship support, to succeed during clinical practice. Better put, persons or facilities that provide a variety of information and advice about problem solving are necessary. Importantly, research indicates that medical students use information support less frequently early in their training. Therefore, we believe that it is important to provide informational/instrumental support, and how to utilize that support, to JPTSs during their early years of schooling.

The current study had two major methodological limitations. First, the present study was cross-sectional; thus, social skills and support in daily living were investigated concurrently with coping strategies used during clinical practice; these were measured after students’ clinical practice was complete. Future research should investigate social skills and support in daily living before students’ clinical practice. This will allow for a longitudinal assessment of the prognostic value individual characteristics have on coping strategies during clinical practice. Second, it is unclear if the perceived level of social skills and the amount of social support are an accurate reflection of students’ social skills and social support as there may be an over- or under-reporting bias. Specifically, it may be is difficult for individuals to report that they do not have social skills or social support; however, while we used a set of self-administered questionnaires, personal information was not collected and individual participants could not be identified. In sum, the findings of the present study should be interpreted based on the aforementioned methodological limitations.

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