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—Original—

## Dramatic experiences in sport and psychological well-being in elite athletes with acquired physical disability

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### Abstract

We examined the association between different aspects of psychological well-being and the level of sport competition in athletes with acquired physical disability. Specifically, we evaluated the associations between psychological well-being and age, duration of sport participation, and number of dramatic sport experiences in this population. Ninety-three elite Japanese athletes with acquired physical disability completed the Psychological Well-Being Scale (PWBS) and the Inventory of Dramatic Experience for Sport (IDES). A correlational analysis demonstrated moderate to weak relationships between all of the PWBS subscales. One-way ANOVAs revealed no differences between paralympians and non-paralympians on every factor. Multiple regression analyses indicated that the duration of sport involvement had a negative effect on purpose in life, personal growth, and environmental mastery, while dramatic sport experiences significantly predicted purpose in life, environmental mastery, positive relations with others, and self-acceptance. Thus, it appears that in some cases, dramatic sport experiences can enhance aspects of psychological well-being.

**Key words:** Paralympian, duration of sport participation, positive psychology

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### 1. Introduction

Approximately 16%–19% of individuals worldwide experience a physical disability<sup>1)</sup>, and there are approximately 3,937,000 individuals with physical disabilities in Japan<sup>2)</sup>. Acquired physical disabilities are impairments that occur as a result of an accident or disease, and result in a loss of physical function and ability. Individuals with acquired physical disabilities often experience a sudden change in their life and social status and feel a sense of loss. Such major losses can have a dramatic impact on the

life of an individual, and may continue to influence emotional, physical, and spiritual well-being across one's lifetime<sup>3), 4)</sup>. Thus, individuals may have difficulty accepting acquired physical disabilities because these experiences can have such a negative impact on psychological well-being. Indeed, research has shown that individuals with acquired physical disabilities face a number of psychosocial obstacles, including negative physical and social self-perception, decreased physical satisfaction, and the tendency to focus on their disability in spite of ability<sup>5), 6), 7)</sup>.

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Psychological well-being is fundamentally related to the way in which individuals negotiate their way through life challenges. Thus, this topic is a worthy research focus<sup>8)</sup>. Furthermore, interest in psychological well-being has increased with the development of positive psychology. Positive psychology focuses primarily on protecting the mental health of individuals<sup>9)</sup> by teaching people to cope with hardships of life and to develop positive qualities<sup>10)</sup>. Positive psychology including psychological well-being might be a useful approach for treating individuals with acquired physical disabilities who struggle with psychological issues.

Ryff<sup>8), 11)</sup> developed a multidimensional model of well-being. She described six dimensions of psychological well-being, conceptualized through an eudaimonic perspective: (1) the extent to which respondents felt their lives had meaning, purpose and direction (purpose in life); (2) whether they viewed themselves to be living in accord with their own personal convictions (autonomy); (3) the extent to which they were making use of their personal talents and potential (personal growth); (4) how well they were managing their life situations (environmental mastery); (5) the depth of connection they had in ties with significant others (positive relations with others), and (6) the knowledge and acceptance they had of themselves, including awareness of personal limitations (self-acceptance). To date, over 350 publications examining psychological well-being have appeared in more than 150 scientific journals<sup>8)</sup>.

In sport and exercise psychology, although it is well known that participation in sports can promote psychological well-being, this is not always the case. For instance, high-level competitive athletes without disability participate in sports under conditions that present considerable physical and psychosocial stressors<sup>12)</sup>. As elite athletes without disability must continually strive for success in a highly competitive and stressful environment, high-level competitive sport can have either a detrimental or beneficial influence on the well-being and health of athletes<sup>13)</sup>. However, the effects of competition level on psychological well-being in athletes with acquired

physical disability is unclear.

Satisfying sports experiences are known to positively affect psychological well-being<sup>12)</sup>. Researchers in Japan have studied the effect of “dramatic experiences in sport”; these refer to episodes that provide athletes with positive psychological development (e.g., enhanced psychological well-being), such as a dramatic “come-from-behind” finish, overcoming injury or failures, or flow experiences<sup>14)</sup>. The number of dramatic experiences in sport has also been found to be more important for the enhancement of positive psychological aspects than the duration of sport participation<sup>15), 16)</sup>. However, no studies have examined the effects of duration of participation or quantity of dramatic experiences in sport on psychological well-being in athletes with acquired physical disability. As individuals with physical disabilities tend to have fewer positive experiences in their lives<sup>17)</sup>, knowledge about whether the duration of sport participation or the number of positive experiences in sport settings are associated with positive psychological well-being in athletes with acquired physical disability might be beneficial to improving quality of life in this population.

Ryff<sup>18)</sup> and Ryff and Keyes<sup>19)</sup> compared young, midlife, and older adults and reported that environmental mastery and autonomy increased from adolescence to middle adulthood, while purpose in life and personal growth decreased in old age. In Japan, Nishida<sup>20)</sup> demonstrated that older age was associated with environmental mastery and younger age was associated with personal growth, while purpose in life and positive relations with others increased in old age. The age range of athletes with acquired physical disabilities is broad because people can acquire disabilities at any point in their lives<sup>21)</sup>. More research is required to identify the relationships between the psychological characteristics of athletes with acquired physical disability and demographic factors, such as age.

The primary purpose of this study was to examine the association between psychological well-being and the level of competition in athletes with acquired

physical disability. Our secondary aim was to examine whether age, the duration of sport involvement, and the number of dramatic experiences in sport were important predictors of psychological well-being in athletes with acquired physical disability.

## 2. Method

We used a cross-sectional design in which we measured psychological well-being and assessed whether dramatic experiences in sport were important for enhancing psychological well-being in athletes with acquired physical disability.

### 1) Participants

Participants were 68 male and 25 female Japanese elite athletes with acquired physical disability. The mean age was 36.5 years ( $SD = 10.89$ ). Among these athletes, 42 had participated in Paralympic competitions and 51 were non-paralympians who had participated in other international or domestic-level competitions in Japan. The length of sport involvement ranged from 0.7 to 38 years ( $M = 11.2$ ,  $SD = 7.57$ ).

### 2) Measures

Participants completed two instruments to assess psychological well-being and dramatic experiences in sport. These measures have been used in previous studies of athletes with disabilities<sup>16), 22)</sup>.

#### *The Psychological Well-being Scale (PWBS)*

The 43-item PWBS was developed by Nishida<sup>20)</sup> to assess the components of psychological well-being. This scale was based on a number of theory-guided dimensions of psychological well-being<sup>8), 18)</sup> and the shortened version of Ryff's Scales of Psychological Well-being<sup>19)</sup>. The PWBS includes the following six components of psychological functioning: having life goals and the belief that one's life is meaningful (purpose in life; 8 items), a sense of self-determination, independence, and freedom from norms (autonomy; 8 items), being open to new experiences as well as having continued personal growth (personal growth; 8 items), the ability to manage life and one's surroundings (environmental

mastery; 6 items), high quality, satisfying relationships with others (positive relations with others; 6 items), and a positive attitude toward oneself and one's past life (self-acceptance; 7 items). Internal consistency coefficients of the PWBS range from .76 to .90<sup>20)</sup>. The construct validity of the PWBS has been demonstrated according to correlations with other scales of life satisfaction, subjective well-being, mental health, and self-esteem<sup>20)</sup>. Participants are asked to respond to a variety of statements about their psychological well-being using 6-point Likert scales with anchors at 1 (*strongly disagree*) and 6 (*strongly agree*). Scale scores range from 8 to 48 for purpose in life, autonomy, and personal growth; from 6 to 36 for environmental mastery and positive relations with others; and from 7 to 42 for self-acceptance. Higher scores on the subscales of the PWBS indicate greater psychological well-being.

#### *The Inventory of Dramatic Experience for Sport (IDES)*

The IDES (Anan, 2012) is a Japanese scale used to assess dramatic experiences in a sport context. Anan (2012) developed the IDES with a sample that comprised high school and university student members of sports clubs. This scale consists of 26 items for which participants rate their own experiences on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The measure assesses experiences of overcoming injury, encouragement from significant others, self-contribution, overcoming failure, flow, finding solutions as a team, and achievement. Scale scores range from 26 to 130, with higher scores signifying more occurrences of dramatic experiences in sport. Internal consistency coefficients of the IDES range from .71 to .83<sup>21)</sup>. A confirmatory factor analysis model was largely supported by the fit indices ( $GFI = .92$ ,  $AGFI = .90$ , and  $RMSEA = .05$ ) in samples comprising high school and university student members<sup>21)</sup>.

### 3) Procedure

Prior to participant recruitment, we obtained

approval from the research ethics committee of the first author's university. Members of the Japanese Paralympic Committee (JPC) mailed the questionnaire to participants who were representative athletes with a cover letter that explained the purpose of the study and specified that data would remain confidential to athletes. We obtained informed consent for participation from each athlete. The questionnaires took approximately 15 min to complete. Participating athletes returned their questionnaires to the JPC. All data were collected over 4 weeks in August 2014. The data were screened, and there were no missing data.

#### 4) Data Analyses

We first calculated descriptive statistics, coefficient alphas, and correlations for each of the six PWBS subscales and for the total IDES scores. We then used a one-way analysis of variance (ANOVA) to examine differences in PWBS and IDES scores by level of sport participation. We used a multiple regression analysis to examine whether psychological well-being was predicted by age, the duration of sport involvement, or the number of dramatic sport experiences. We performed six separate multiple regression analyses using the six PWBS factors as dependent variables. All analyses used age, the duration of sport involvement, and the number of dramatic experiences in sport as independent variables. We used the forced entry method for all variables. We examined coefficients to assess the

relationship between each dependent variable and the independent variables. Multicollinearity was examined prior to each of the six separate multiple regression analyses. All data analyses were conducted using SPSS Statistics, Version 21 (IBM Corp., Armonk, NY).

### 3. Results

#### 1) Internal Consistency

Cronbach's alpha values for the six PWBS subscales and the total IDES scores were adequate in our sample population: .91 for purpose in life, .75 for autonomy, .87 for personal growth, .85 for environmental mastery, .82 for positive relations with others, .75 for self-acceptance, and .88 for dramatic experiences in sport.

#### 2) Descriptive Statistics and Correlations

Means and standard deviations for the PWBS and total IDES scores are shown in Table 1. Correlations among the PWBS subscales are shown in Table 2. Of the 15 potential correlations, all were significant. There were positive correlations among six PWBS subscales. All correlations were moderate to weak.

#### 3) ANOVA

The one-way ANOVAs indicated no differences between paralympians and non-paralympians for all of the factors associated with psychological well-being,  $F(1, 92) = .03-1.42, p > .05$ . In addition, we found no significant effect of the level of competition

**Table 1. Descriptive Statistics and ANOVA Results for PWBS Subscale and IDES scores**

| Participation                             | Total<br>( <i>N</i> = 93) |           | Paralympian<br>( <i>n</i> = 42) |           | Non-Paralympian<br>( <i>n</i> = 51) |           | <i>F</i> |
|-------------------------------------------|---------------------------|-----------|---------------------------------|-----------|-------------------------------------|-----------|----------|
|                                           | <i>M</i>                  | <i>SD</i> | <i>M</i>                        | <i>SD</i> | <i>M</i>                            | <i>SD</i> |          |
| Purpose in Life                           | 41.4                      | 6.25      | 41.1                            | 6.49      | 41.7                                | 6.09      | 0.17     |
| Autonomy                                  | 34.5                      | 5.58      | 34.6                            | 5.56      | 34.4                                | 5.66      | 0.03     |
| Personal Growth                           | 44.3                      | 4.23      | 44.1                            | 3.94      | 44.5                                | 4.49      | 0.16     |
| Environmental Mastery                     | 26.6                      | 4.42      | 26.9                            | 4.45      | 26.3                                | 4.42      | 0.44     |
| Positive Relations with Others            | 27.5                      | 4.46      | 27.2                            | 4.3       | 27.8                                | 4.61      | 0.41     |
| Self-acceptance                           | 29.5                      | 5.6       | 30.2                            | 5.89      | 28.8                                | 5.33      | 1.42     |
| Quantity of Dramatic Experiences in Sport | 91.2                      | 17.35     | 93.7                            | 17.5      | 89.1                                | 17.08     | 1.67     |

*Note.* PWBS = Psychological Well-being Scale, IDES = Inventory of Dramatic Experience for Sport

**Table 2. Correlations Between Dimensions on the Psychological Well-being Scale**

| Variables                        | 2     | 3     | 4     | 5     | 6     |
|----------------------------------|-------|-------|-------|-------|-------|
| 1 Purpose in Life                | .44** | .67** | .65** | .36** | .53** |
| 2 Autonomy                       |       | .39** | .54** | .37** | .60** |
| 3 Personal Growth                |       |       | .43** | .35** | .27** |
| 4 Environmental Mastery          |       |       |       | .44** | .66** |
| 5 Positive Relations with Others |       |       |       |       | .35** |
| 6 Self-acceptance                |       |       |       |       |       |

\*\*  
 $p < .01$ **Table 3. Predictors of the Components of Psychological Well-Being**

| Variables                                 | Beta Coefficients                                         |                                               |                                                        |                                                                    |                                                                             |                                                        | MBT | VIF  |
|-------------------------------------------|-----------------------------------------------------------|-----------------------------------------------|--------------------------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------------|--------------------------------------------------------|-----|------|
|                                           | Purpose in Life<br>( $F = 5.23^{**}$ )<br>( $R^2 = .12$ ) | Autonomy<br>( $F = 1.15$ )<br>( $R^2 = .01$ ) | Personal Growth<br>( $F = 4.02^*$ )<br>( $R^2 = .09$ ) | Environmental<br>Mastery<br>( $F = 6.32^{**}$ )<br>( $R^2 = .15$ ) | Positive Relations<br>with Others<br>( $F = 4.07^{**}$ )<br>( $R^2 = .09$ ) | Self-acceptance<br>( $F = 3.37^*$ )<br>( $R^2 = .07$ ) |     |      |
| Age                                       | .12                                                       | .19                                           | -.08                                                   | .19                                                                | -.13                                                                        | .20                                                    | .86 | 1.16 |
| Duration of Sport Participation           | -.27*                                                     | -.14                                          | -.27*                                                  | -.28**                                                             | -.08                                                                        | -.02                                                   | .86 | 1.17 |
| Quantity of Dramatic Experiences in Sport | .31**                                                     | .04                                           | .20                                                    | .33**                                                              | .32**                                                                       | .24*                                                   | .99 | 1.02 |

Note . MBT = Multicollinearity between tolerance, VIF = Variance inflation factor.

\* $p < .05$ , \*\* $p < .01$ .

on the number of dramatic experiences in sport,  $F(1, 92) = 1.67$   $p > .05$ .

#### 4) Multiple Regression Analysis

Age correlated positively with the duration of sport involvement ( $r = .37$ ,  $p < .01$ ), however, IDES scores had no correlation with age ( $r = .09$ ,  $p > .05$ ) or the duration of sport involvement ( $r = .11$ ,  $p > .05$ ). Tests of tolerance (values = .86–.99) and variance inflation factor (values = 1.02–1.17) indicated no multicollinearity in the data.  $F$  values demonstrated that the multiple regression model was valid for purpose in life ( $F = 5.23$ ,  $p < .01$ ), personal growth ( $F = 4.02$ ,  $p < .05$ ), environmental mastery ( $F = 6.32$ ,  $p < .01$ ), positive relations with others ( $F = 4.07$ ,  $p < .01$ ), and self-acceptance ( $F = 3.37$ ,  $p < .05$ ), but not for autonomy ( $F = 1.15$ ,  $p > .05$ ).

Multiple regression analyses (see Table 3) indicated that the number of dramatic experiences in sport significantly predicted purpose in life ( $\beta = .31$ ,  $p < .01$ ), environmental mastery ( $\beta = .33$ ,  $p < .01$ ), positive relations with others ( $\beta = .32$ ,  $p < .01$ ), and self-acceptance ( $\beta = .24$ ,  $p < .05$ ), but not autonomy ( $\beta = .04$ ,  $p > .05$ ) or personal growth ( $\beta = .20$ ,  $p > .05$ ). Furthermore, the duration of sport involvement negatively predicted purpose in life ( $\beta = -.27$ ,  $p < .05$ ), personal growth ( $\beta = -.27$ ,  $p < .05$ ), and environmental

mastery ( $\beta = -.28$ ,  $p < .01$ ). Age had no significant standard partial regression coefficient.

#### 4. Discussion

In this study, we sought to examine the association between psychological well-being and level of competition in athletes with acquired physical disability. Specifically, we were interested in whether psychological well-being was related to age, the duration of sport involvement, and dramatic sport experiences in this population.

Measures to improve psychological well-being are important, particularly in individuals who may be at risk for low quality of life<sup>16</sup>. Dramatic experiences in sport predicted various components of psychological well-being, such as purpose in life, environmental mastery, positive relations with others, and self-acceptance, but this was not the case for age. Conversely, the duration of sport participation negatively predicted purpose in life, personal growth, and environmental mastery.

The results of this study indicate that the duration of sport involvement was negatively related to psychological well-being in our participants. Indeed, the identification of oneself as an athlete has been found to increase the risk of psychological adjustment difficulties when athletes experience events that

threaten their involvement in sport (e.g. sport career termination<sup>22)</sup>). Athletes with long periods of sports involvement might plan for their retirement from athletics or sense a decline in their performance over time. In addition, athletes who have participated in a competitive sport for a long time may experience high levels of consistent physical and psychosocial stress. Bartholomew et al.<sup>13)</sup> highlighted the need for research examining whether high-level competitive sports have a detrimental or beneficial influence on the well-being and health of athletes. Although our data showed no significant differences in the six PWBS subscales according to level of competition, our findings did indicate that the duration of sports involvement appears to have a negative effect on psychological well-being in elite athletes with acquired physical disability.

However, our findings indicate that the number of dramatic sport experiences is more important for the enhancement of positive psychological aspects than age or duration of sport participation in athletes with acquired physical disability. Among the many potential psychological effects that could be associated with involvement in sport, we found that individuals who were more strongly involved in sports exhibited an enhanced sense of self. Sport participation has an important meaning for individuals with acquired physical disability because the athletic identity created through sport is useful for them in rebuilding their self-concept after loss<sup>23)</sup>. However, our findings emphasize the importance of dramatic experiences in sport. Well-being is affected by the extent to which people are able to attain the goals, motives, and values that are important to them, and pursuing some or all of these challenges can increase happiness and life satisfaction<sup>24)</sup>. Thus, dramatic experiences in sport might represent important challenges that affect the psychological well-being of individuals with acquired physical disability.

Our findings indicate that the number of dramatic sport experiences is more important for the enhancement of positive psychological aspects than age or duration of sport participation. For coaches,

researchers, and practitioners in the field of adapted physical activity, this finding identifies dramatic sport experience as having a strong influence on psychological well-being. It would appear that providing good opportunities for athletes to experience dramatic sport episodes is psychologically beneficial.

Because this was a cross-sectional study, it is difficult to establish causality. Future research could address this limitation by using both longitudinal and experimental methods to provide a developmental perspective on these factors. Additionally, a complementary qualitative study could be useful in corroborating the current quantitative findings and generating more detailed information about dramatic experiences and how they are related to psychological well-being. Despite its limitations, the present study considerably extends our insight regarding the relationships between the predictors and correlates of psychological well-being, as well as the importance of positive experiences for increased psychological well-being in athletes with physical disability.

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