

Factors involved in the psychological development of baseball players experiencing the Yips: social support, meaning-making processes, and overcoming the Yips

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Abstract

Problem Statement: The yips is a motor movement disorder consisting of involuntary movements that influence motor movements previously acquired by athletes. The yips occur in baseball, golf, archery, table tennis, tennis, cricket, and petanque, among others. Previous studies have reported that the yips not only negatively affect athletes but can also be an opportunity for them to undergo a positive psychological transformation. This study aims to elucidate the factors involved in positive changes in psychological aspects associated with the experience of the yips in baseball players. Moreover, it focused on the processes of social support and meaning-making and whether the yips can be overcome. **Materials and Methods:** A survey was conducted on 227 baseball players with experience of the yips (*Mean* = 19.81 years, *SD* = 1.02). A cross-sectional survey was conducted using questionnaires on Social Support, Meaning-making, How the Yips Can Be Overcome, and Psychological Maturity as an Athlete. Data were analyzed using structural equation modeling. **Results:** The results demonstrated that the goodness-of-fit of the hypothesized model was generally positive. In addition, social support is directly involved in psychological growth associated with the yips but indirectly involved in psychological growth associated with the yips through meaning-making by accommodation. In addition, we suggest that overcoming the yips may not be an essential part of this growth process. **Conclusion:** These results support previous studies on positive changes after stress experiences in clinical psychology and sports psychology. In addition, when athletes who suffer from the yips' symptoms learn about the results of this study, they may change the way they perceive the symptoms and the various negative experiences and may consider disclosing or sharing their concerns and thoughts with those around them.

Keywords: sport injury-related growth, posttraumatic growth, stress-related growth, structural equation modeling

Introduction

Athletes experience many problems that threaten their participation and continuity in sports, such as sports injuries, slumps, and relationship conflicts. One such problem is a movement disorder called the yips, which is defined as a phenomenon that affects individuals who perform finely controlled motor tasks (Bawden and Maynard, 2001, p. 937). The yips occur in baseball, golf, archery, table tennis, tennis, cricket, petanque, among others. Furthermore, the yips are seemingly relatively common, with prevalence estimations ranging from 17.6% in baseball (Matsuda et al., 2020), from 28% and 32.5% to 47.7% in golf (McDaniel et al., 1989; Smith et al., 2000), and 43.5% in archery (Clarke et al., 2020).

We review the following examples of reported yips symptoms in each sport. In baseball, Matsuda et al. (2020) and Papineau (2015) reported the inability to release and control the ball, loss of feeling in the fingertips, tremors in the hands, decreased ball speed, and inability to control the body. Moreover, in cricket, Bawden and Maynard (2001) reported manifestations, such as poor release and control of the ball. Sachdev (1992) cited that yips golf presents as follows: "developing a spasm, jerk, tremor, or freezing of movement during the execution of fine golfing strokes, such as putting or chipping, when these had not been present before" (p. 327).

A phenomenon interfering with athletic performance, similar to the yips, is the "critical deterioration in the execution of habitual processes as a result of an elevation in anxiety levels under perceived pressure, leading to substandard performance" (Mesagno et al., 2008, p. 439) and is termed *choking under pressure*. However, the difference between the yips and choking under pressure is that the former is considered more severe and long-term in manifestation than the latter (e.g., Bawden and Maynard; 2001). Many famous cases exist in sports where leading professionals have suffered from the yips, which severely deteriorated their performance (Sachdev, 1992; Smith et al., 2003). For example, movements necessary for your sport, which required years of

practice to perfect, have suddenly become unstable and uncontrollable. Moreover, this serious condition may manifest in the long-term. Psychological effects, such as anxiety, stress, anger, and frustration, would be significant and may lead to a loss of motivation for the sport. Indeed, previous studies reported that several athletes avoid performing yips-affected tasks (Bawden and Maynard, 2001), play fewer games (Smith et al., 2000), and even retire from athletic competition due to the yips (Papineau, 2015). Given these previous studies, this study infers that the yips can be a debilitating crisis for athletes.

The life crises and excessive stress experiences experienced by athletes can trigger the arousal of negative emotions such as anxiety and depression (Appaneal et al., 2009; Morris et al., 2017). Alternatively, positive, clinical, and social psychology have demonstrated that such experiences experienced can also function as catalysts for positive change (e.g., Tedeschi and Calhoun, 2004). Posttraumatic growth (PTG) and stress-related growth (SRG) are frequently cited as representative concepts for explaining such phenomena. PTG is “the individual’s experience of significant positive change arising from the struggle with a major life crisis” (Calhoun et al., 2000, p. 521). In contrast, SRG is “the perception or experience of deriving benefits from encountering stressful circumstances” (Vaughn et al., 2009, p. 131). Others include *perceived benefits*, *thriving*, *blessings*, *positive by-products*, *positive adjustment*, *positive adaptation*, and other similar concepts examined worldwide (Linley and Joseph, 2004, p. 11). In addition, the number of studies that applied such phenomena in everyday life situations to the context of sport is increasing, especially in western countries (Trainor et al., 2020). Career crises are stressful experiences. They include deselection (Neely et al., 2018), repeated significant sporting failure (Sarkar et al., 2015), performance slumps, coach conflicts, eating disorders, sexual abuse (Tamminen et al., 2013), and injuries (Roy-Davis et al., 2017). These factors consistently negatively affect athletes. They can also act as catalysts for positive psychological change. For example, Roy-Davis et al. (2017) labeled positive change due to sport injury-related experiences as sport injury-related growth (SIRG).

In Japan, studies on psychological growth associated with life crises and excessive stress experienced by athletes are few. For example, Sugiura (2001) hypothesized that critical experiences in sports (e.g., injuries, performance slumps, and losing sight of goals) might lead to psychological growth as an athlete. The study formulated the Psychological Maturity as an Athlete Scale to measure athletes’ levels of psychological growth. The scale consists of five subscales: clear meaning of sports activity, self-understanding, independent achievement orientation, mental stability, and physiological controllability. Furthermore, it examines the relationship between subscale scores and athletic crises. The results are as follows. The first three subscales tended to improve with the crisis experience and were related to the sense of continuity and willingness to practice. The last two remained the same despite crisis and were related to game performance.

Based on the abovementioned results, Matsuda et al. (2018a) investigated the relationship between the yips and growth under the assumption that the yips might trigger athletes’ psychological growth. Baseball players were classified into three groups: the non-yips group, the yips group, and the overcoming yips group. The study then determined the differences in the subscale scores of the Psychological Maturity as an Athlete Scale (Sugiura, 2001) among the three groups. The results demonstrated that the overcoming yips group produced significantly higher scores than those of the non-yips group on three subscales: clear meaning of sports activity, self-understanding, and independent achievement orientation. Moreover, Sugiura (2001) reported that these subscales are those that athletes are more likely to improve after facing a crisis. On this basis, Matsuda et al. (2018a) inferred that players who experience and overcome the yips might undergo positive changes in the sense of continuity and motivation to practice.

Conversely, an interview study with athletes who experienced the yips also confirmed narratives related to psychological growth associated with the yips experience among athletes who had not overcome the yips (Matsuda et al., 2018b). Therefore, no consensus exists on how overcoming the yips influences the process of growth that accompanies the yips. Thus, this issue must be examined. In addition, according to Matsuda et al. (2018a,b), the observation of psychological growth in baseball players with experience of the yips or the type of factors involved in such a growth process is unclear. Consequently, future research should examine the promotion of the psychological growth of baseball players with an experience of the yips.

In the fields of positive and clinical psychology, research on the process of psychological growth due to negative life experiences has provided multifaceted findings and many concepts. One of the most widely known is meaning-making (e.g., Dursun et al., 2016). Horita (2016) defined meaning-making as “a concept that describes the process of adaptation after facing a stressful event, especially a significant negative experience” (p. 3). Scholars have cited meaning-making as an important concept involved in growth due to negative experiences (e.g., Calhoun and Tedeschi, 2001). Regarding such meaning-making, Horita and Sugie (2012) suggested the following:

... when people are threatened by their own existence, that is, when they are exposed to a stressful crisis situation, they are motivated to make new meanings in order to adjust and regain a sense of meaningfulness in their lives afterwards. (p. 408).

Based on this idea, this study infers that athletes who experience the yips also engage in meaning-making.

Furthermore, given the process of growth due to negative experiences through the concept of meaning-making, the literature has pointed out the importance of how individuals make sense of negative experiences, such as the meaning-making process (Frazier et al., 2009; Park, 2010). Furthermore, studies have demonstrated

that the impact on subsequent psychological transformation differs according to the type of meaning-making process undergone by an individual in response to negative experiences (Horita and Sugie, 2013a). One of the most influential theories for explaining meaning-making is the *organismic valuing theory* proposed by Joseph and Linley (2005). This theory classifies meaning-making into two processes, namely, assimilation and accommodation. Assimilation is “interpreting and understanding the experience to match one’s way of seeing and thinking about things” (Horita and Sugie, 2013a, p. 410). In contrast, accommodation is “conscious and intentional cognitive and emotional coping to understand and interpret the experience,” and it is defined as “modifying one’s way of seeing and thinking about things” (p. 410). Based on these findings, the present study aims to elucidate how making sense of the yips, which is a significant negative experience for baseball players, is involved in subsequent psychological growth through assimilation and accommodation. In addition, in light of the results of Matsuda et al. (2018a), the current study hypothesized a direct path from overcoming the yips to psychological growth because the presence or absence of overcoming the yips was involved in growth associated with the experience of the yips. In addition, previous studies predicted that players who had suffered from the yips’ symptoms might change their meaning-making toward the experience after overcoming the yips. Thus, we assumed a path from overcoming the yips to assimilation, accommodation, and psychological growth.

Social support is an important concept involved in making sense of negative experiences and subsequent growth. He et al. (2013) defined social support as “assistance and protection given to others, especially to individuals” (p. 3). National and international research confirms that social support is an important resource that influences the process of making sense of negative experiences. In addition, a study that examined the predictors of PTG in adults with chronic illness found that social support contributed to PTG via illness-related meaning-making. Zeligman et al. (2018) suggest that meaning derived from social interactions may lead to growth. Furthermore, in a long-term longitudinal study on PTG after severe traumatic brain injury, Powell et al. (2012) reported that having a sense of the meaning of severe traumatic brain injury and social support were significant factors associated with PTG. Tedeschi and Calhoun (2004) study identified a potential relationship between two variables, namely, social support and meaning-making. Based on the abovementioned review of previous studies, the current study assumes a path from social support to assimilation and accommodation and from assimilation and accommodation to growth.

At the same time, scholars found that social support exerted a direct facilitative effect on growth after negative experiences (e.g., Tedeschi and Calhoun, 2004). In addition, Howells et al. (2020) found that “the likelihood of PTG is augmented if the individual is supported by compassionate and understanding others. Several scholars have suggested that social is a predictor of SIRT in the context of sports (e.g., Tamminen and Neely, 2016). The current study also assumes a direct path from social support to growth based on these findings. Finally, a widely known fact is that social support plays an important role in improving the physical and mental health problems of athletes (sports injuries, stress, eating disorders, and burnout). Therefore, social support could affect overcoming the yips. Thus, the current study also assumed a path from social support to overcome the yips.

In the present study, the hypothetical model was established with social support, overcoming the yips, and the process of sense-making as variables (Figure 1). It intends to elucidate the factors involved in the psychological growth of baseball players who experienced the yips. Sugiura (2001) indicated that the subscale could improve after athletes experienced a crisis and was significantly higher in players who experienced and overcame the yips (Matsuda et al., 2018). Thus, the present study builds on these findings and positions three subscales, namely, clear meaning of sports activity, self-understanding, and independent achievement orientation, as observable variables of psychological growth. In addition, psychological growth in the present study conforms to the definition of Sugiura (2004, p. 24), that is, the “positive transformation of psychological aspects necessary for athletes to engage in sports.”

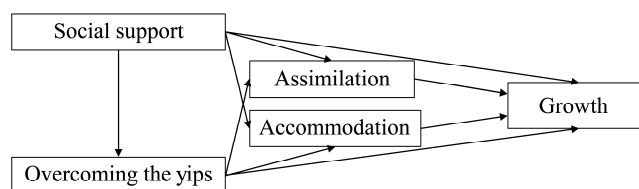


Figure 1: Hypothetical model.

Materials and methods

Participants and procedure

The study recruited 1,308 male baseball players from 29 Japanese universities. In the invitation, the players were requested to fill up a few questionnaires with scales for measuring psychological variables, such as the meaning-making process in the yips’ experience, social support, and psychological growth associated with the yips’ experience. In addition, they responded to questions on demographic variables, such as gender, age, grade, positions in baseball, a career in baseball or other sports, and the yips (e.g., whether they experienced the yips, whether they overcome the yips, and the incidence of yips symptoms). Before answering the

questionnaires, the investigator or a research collaborator provided the subjects with verbal and written explanations of the definition of the yips (see above; Bawden and Maynard, 2001, p. 937) and its characteristics.

This process minimized any discrepancies in the perception of the yips between the researcher and the subject. Afterward, the subjects answered *Yes* or *No* to the question, "Have you ever experienced the yips?" A total of 274 subjects answered *Yes*. Subsequently, they were requested to answer all subsequent questions. Conversely, the 1,044 respondents who answered *No* were excluded from the analysis. Furthermore, 52 out of the 274 respondents who answered *Yes* were excluded from the analysis. They did not meet the inclusion criteria for those who had experienced the yips, as listed below, or due to missing data. Thus, only 227 (17.43%; *M* age = 19.81 years, *SD* = 1.02) out of 1,308 university baseball players were included in the study due to their experience with the yips or were considered eligible for analysis. Table 1 provides the characteristics of the final sample.

Table 1: Characteristics of participants (N = 227, Age: 19.81 ± 1.02, all men)

Variables	n (%) OR mean ± SD
Attending a hospital or taking any kind of medication for mental illness	
Yes	0 (0 %)
No	227 (100 %)
History of nervous system dysfunction (e.g., dystonia, cramp)	
Yes	0 (0 %)
No	227 (100 %)
Baseball experience in years (mean ± SD)	11.7 ± 2.2
Position at the time symptoms of Yips appeared	
Pitcher	83 (36.6 %)
Catcher	31 (13.7 %)
First Baseman	21 (9.3 %)
Second Baseman	20 (8.8 %)
Third Baseman	20 (8.8 %)
Shortstop	28 (12.3 %)
Outfielder	24 (10.6 %)
Position at the time the symptoms of the yips appeared	
Elementary school	7 (3.1 %)
Junior high school	48 (21.1 %)
High school	109 (48.0 %)
University	63 (27.8 %)

We developed the inclusion criteria for those experiencing the yips based on prior research (Bawden and Maynard, 2001; Bennett et al., 2015; Martin, 2015; Sachdev, 1992; Smith, 2000) to exclude players unable to throw the ball well due to other reasons such as injury (e.g., unable to throw the ball well due to pain from an *elbow/shoulder injury* or a *fractured/broken finger*) or the lack of skill by players who perceive themselves to have experienced the yips, after listening to and understanding the definition and characteristics of the yips. The face sheet and the yips questionnaire were used to determine whether the following four criteria were satisfied: (1) at least five years of experience playing baseball; (2) apparent abnormalities in the throwing motion; (3) a sudden inability to perform a motion that was previously very natural; and (4) noted abnormalities in baseball throwing motion that were not the result of an obvious physical disability or sports injury.

Ethical considerations

The present study complied with the tenets of the Declaration of Helsinki. Ethical clearance was not required because the sample population consisted of healthy individuals who were not visiting a hospital or taking medication for any mental issues. Data were collected using a short, low-burden questionnaire survey. The survey was administered only after obtaining informed consent from the participants, including the following statements: (1) the data obtained will not be used for any purpose other than research and will be quantified after collection. Moreover, no personal information will be disclosed. (2) The principal investigator will store and manage the data appropriately. (3) The respondents will face no disadvantages if they refuse to answer or discontinue the survey. (4) Responses are voluntary, and freedom of participation is guaranteed. (5) The survey is anonymous and the respondent will not be identified. (6) If the subject complains of mental illness during or after the study, then a clinical psychologist or psychiatrist will be consulted.

Measurements

The study used the following questionnaire. The subjects were first requested to answer a questionnaire about sociodemographic data and basic data on baseball and the yips. The author developed these questionnaires based on previous studies (e.g., Sachdev, 1992; Smith et al., 2000; Smith et al., 2003). The three psychological measurements that subsequently used are previously developed scales and have proven to hold satisfactory validity and reliability.

Background information: Sociodemographic and basic data on baseball were collected on gender, age, years in college, years of experience competing, and main position, and whether the participant experienced being a captain.

Questionnaire on the yips: The questionnaire asked the following questions to those who answered *Yes* to the question “Have you ever experienced the yips?” For example, the age at which the yips developed, the period of symptom emergence, causes of the development of the yips, addressing the yips, whether or not the yips was overcome, severity of the yips symptoms, the scene where the yips symptoms appeared, frequency of yips symptoms, and status of skill acquisition of movements in which the yips symptoms appeared.

Social Support: The Receiving Social Support Scales for Sports Teams (Hagiwara and Isogai, 2014) was used to measure the extent to which those who experienced the yips received support from surrounding people after developing the yips. The scale consists of one factor and six items, preceded by the sentence, “To what extent did the people around you do or say the following things to you while you were experiencing yips symptoms?” This scale contains items such as “Cheer you up when you are feeling low,” “Give you advice to help solve your problems,” “Work with you to solve your problems,” “Encourage you when you are feeling insecure,” “Teach you techniques that you are unsure of,” and “Respect you as a team member and give you an appraisal.” These items are rated using a five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree) and are summed to provide a total score representing the frequency of receiving social support. Hagiwara and Isogai (2014), the developers of this scale, confirmed its reliability and validity using Cronbach’s alpha and construct validity. In the current study, Cronbach’s alpha values were .94.

Meaning-Making Process: Horita and Sugie (2013b) formulated the scale to measure how individuals who experienced stressful experiences *assimilate* and *accommodate* the sense-making process of such experiences. The scale consists of two factors (assimilation and accommodation) and 14 items, preceded by the following sentences, “If you are still experiencing symptoms of the yips, how much do you currently think about the following? If you have already overcome the yips, how much did you think about the following when the yips symptoms first appeared? Please reflect on your thoughts at the time.”

In addition, assimilation is evaluated using seven items: “The meaning of the experience is consistent with my way of seeing and thinking about things” and “I could use some of my perspectives and ideas about things to help me understand that experience.” Alternatively, accommodation is evaluated using seven items: “I feel the need to review my own way of perspective and ideas about things” and “I’m trying to make sense of that experience somehow.” These items were rated using a five-point Likert-type scale ranging from 1 (strongly opposed) to 5 (relatively applicable). The total score of the items corresponding to each subscale was calculated with each total score being the assimilation and accommodation subscale scores. Horita and Sugie (2013b) confirmed the scale’s validity through construct validity and the reliability by internal consistency. Both aspects were sufficient. Cronbach’s alphas were .86 and .85 for assimilation and accommodation in the current study.

Psychological Maturity as an Athlete Scale: Sugiura (2001) constructed the scale to measure the extent of a person’s psychological development as an athlete. The scale consists of five factors (i.e., clear meaning of sports activity, self-understanding, independent achievement orientation, mental stability, and physiological controllability) and 32 items, which are preceded by the sentence, “As a result of your experience with the yips, which of the following apply to you?” As previously mentioned, three of these subscales, namely, clear meaning of sports activity, self-understanding, and independent achievement orientation, are the observed variables in this study.

The clear meaning of sports activity is evaluated using seven items, such as “I have a clearly defined purpose for doing the sport” and “I know why I am doing the sport,” whereas self-understanding is evaluated using six items such as “I think I have an accurate picture of my abilities” and “It allows me to look at myself as an athlete objectively.” Lastly, independent achievement orientation is evaluated using six items such as “You practice voluntarily without anyone telling you to” and “You are able to concentrate on your practice.” Responses were evaluated using a five-point Likert-type scale ranging from 1 (completely disagree) to 5 (completely agree). The total score of the items corresponding to each subscale was calculated, and the total scores were designated as the scores of the three subscales. These three subscale scores were then used as the observed variables of growth as an athlete. Sugiura (2001) confirmed the reliability and validity of the Psychological Maturity as an Athlete Scale, which consists of the five original subscales, using Cronbach’s alpha, which was adequate. In addition, we confirmed the reliability of the three subscales using Cronbach’s alpha values at .83, .84, and .84, respectively.

Analysis method

First, descriptive statistics, such as statistical means, standard deviations, maximum and minimum values, and Cronbach’s alpha were computed. Second, data were analyzed by examining correlations between variables through Pearson’s correlational coefficient. Analyses were conducted using IBM SPSS 28.0. Finally, structural equation modeling examined the hypothetical model (Figure 1) of the predictors of psychological growth associated with the experience of the yips.

This analysis was performed using Amos 28.0 with the maximum likelihood estimation. In order to assess the measurement models’ adequacy to the data, the study employed a six-index presentation strategy (i.e.,

comparative fit index [CFI], Tucker–Lewis Index [TLI], root mean square error of approximation [RMSEA], goodness-of-fit index [GFI], adjusted goodness-of-fit index [AGFI], and incremental fit index [IFI]) proposed in previous studies. The standard values for the fit indice are shown below. Apart from RMSEA, the study considered the five other indicators to obtain an acceptable fit if ≤ 0.90 , which refers to the criteria of previous studies (e.g., Hair et al., 2014). Alternatively, although a variety of values have been presented for the criterion value of RMSEA in particular, the present study considers a value of less than 0.10 to be an acceptable fit, which refers to those pointed out by Marsh et al. (2004) and Mutumba et al. (2015).

Results

Correlations and descriptive statistics

Table 2 presents the correlations between the study variables and the maximum and minimum scores of the variables, statistical means, standard deviations, and Cronbach's alphas of the measurements. According to Pearson's correlation analysis, social support was significantly associated with assimilation, accommodation, clear meaning of sports activity, self-understanding, and independent achievement orientation. However, overcoming the yips was only associated with self-understanding and independent achievement orientation but not with other variables. Assimilation was significantly associated with social support, accommodation, and independent achievement orientation. Meanwhile, accommodation was significantly associated with social support, assimilation, clear meaning of sports activity, self-understanding, and independent achievement orientation. The clear meaning of sports activity was significantly associated with social support, accommodation, self-understanding, and independent achievement orientation. Moreover, self-understanding was significantly associated with social support, overcoming the yips, accommodation, clear meaning of sports activity, and independent achievement orientation. Finally, independent achievement orientation was associated with social support, overcoming the yips, accommodation, clear meaning of sports activity, self-understanding, and independent achievement orientation.

Assessment of the hypothesized relationships

To elucidate the factors involved in the psychological growth of baseball players who experience the yips, we established a hypothetical model in which social support, whether or not the yips was overcome, and the process of assimilation and accommodation are variables (Figure 1) and conducted structural equation modeling. First, the overall model fit of the structural model exhibited acceptable values (CFI = .972, TLI = .926, RMSEA = .087, GFI = .972, AGFI = .911, IFI = .972; Figure 2). We then examine the relationships among the variables in the hypothetical model. First, the paths from the latent variable psychological growth to the three observed variables (clear meaning of sports activity, self-understanding, and independent achievement orientation) displayed path coefficients above .74 ($p < .001$ for all significance levels). Moreover, the direct effect of social support on psychological growth was $\beta = .22$ ($p = .001$), whereas the indirect effect of social support on psychological growth via accommodation was $\beta = .40$ ($p = .000$). In addition, we observed a positive effect of social support on assimilation ($\beta = .20$, $p = .002$). Conversely, the path coefficients from social support to overcome the yips, from overcoming the yips to assimilation, accommodation, psychological growth, and assimilation to psychological growth were non-significant at the 5% level.

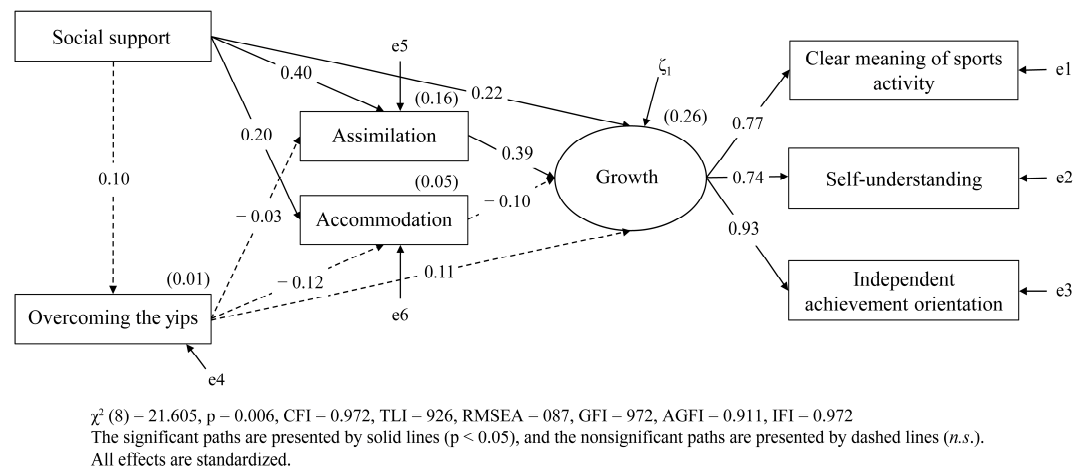


Figure 2: Structural equation model of the process of psychological growth associated with the yips experience

Discussion

In order to elucidate factors involved in the psychological growth of baseball players who experienced the yips, this study focused on the process of social support and meaning-making and whether or not the yips were overcome. Furthermore, it established and tested the hypothetical model. The results of structural equation

modeling, which was used to examine the validity of the model, revealed showed that each of the GFIs of the model attained acceptable values (CFI = .972, TLI = 926, RMSEA = 087, GFI = 972, AGFI = .911, IFI = .972). Therefore, the model was appropriate.

Moreover, we discuss the partial evaluation results of the hypothetical model. First, the results indicate that social support facilitates assimilation and accommodation. In other words, adequate social support for baseball players with the yips can play a role in encouraging them to interpret their experience of the yips in a manner that remains consistent with their original view and cognition about things. Moreover, it may play a role in encouraging them to consciously modify their manner of viewing and thinking about things to understand their experience of the yips. Many previous studies illustrated that social support influences the meaning-making process after stressful experiences (e.g., Zeligman et al., 2018). The current results, which indicate that social support facilitates assimilation and accommodation, support the findings of previous studies. In addition, appropriate methods of addressing and coaching players who develop the yips remain lacking. Therefore, a possibility is that coaches, teammates, and family members can provide unique and varied support. Thus, the study infers that certain people that surround players who develop the yips provide the support that may be more likely to promote assimilation or accommodation. In such a view, the ability of social support to promote assimilation and accommodation is understandable. However, a few studies reported that social support only facilitates accommodation (e.g., Horita, 2016). Thus, further investigation into the effects of social support on assimilation and accommodation is required.

Second, the results of this study demonstrated that social support promotes psychological growth through accommodation. Previous research in clinical psychology in Japan and abroad suggests that social support influences the coping process, such as meaning-making in response to stressful experiences and subsequent PTG (e.g., Urasaki and Morikawa, 2019; Zoellner and Maercker, 2006). In addition, through social support, many opportunities for the recipient and the supporter to repeat various narratives are inevitable. The previous literature on PTG reported that repeated narratives of posttraumatic experiences can help trauma survivors confront posttraumatic experiences. Moreover, a common belief is that a process that enables people to consider spiritual and life meaning and how they can reconstruct their experiences facilitate PTG. Furthermore, previous scholars demonstrated that sharing or disclosing internal experiences among individuals with experiences in traumatic events influence their cognitive engagement with and cognitive processing of traumatic experiences, dissipation of negative emotions, decreased risk of depression, and positive changes. In this scenario, a supportive social environment is considered to play an important role (e.g., Calhoun and Tedeschi, 2013). In addition and similarly, previous research on SIRT reported that adequate social support during the rehabilitation process for sports injuries could influence the coping process, such as meaning-making, and facilitate subsequent SIRT (Roy-Davis et al., 2017; Salim et al., 2016). In the literature on meaning-making and positive change after stress experiences, several studies focused on assimilation and accommodation and examined the relationship between the two concepts and positive change after stress experiences (Joseph and Linley, 2006; Horita and Sugie, 2013a). Moreover, meaning-making through assimilation exerts a weak influence on positive change after experiencing stress, whereas meaning-making through accommodation is significantly involved in positive change after experiencing stress. The process through which social support promotes psychological growth through accommodation, as demonstrated by the results, is considered to support the findings of the abovementioned studies. Conversely, Horita and Sugie (2013a), in another study on assimilation and accommodation, argued that although accommodation promotes growth after stressful experiences, it also tends to promote negative emotions. Assimilation tends to suppress negative emotions that occur after stressful experiences. Wadey et al. (2011) cited that to accurately and fully understand the diverse experiences gained by athletes through participation and continuation in sport, elucidating the negative or positive aspects of each experience is necessary. Therefore, future research should focus on negative and positive changes after baseball players experience the yips and examine the role of assimilation and accommodation in both changes simultaneously. The results can provide meaningful insights for baseball players and coaches. In addition, the results suggest that social support may directly promote growth without the process of meaning-making. Scholars cited that humans are inherently growth-oriented and, therefore, they will naturally gravitate toward growth given the appropriate social environment (Joseph and Linley, 2006). Based on this idea, the study infers that baseball players who develop the yips receive the social support they need and that the supportive involvement of others around them promotes the process of psychological growth. Indeed, a few studies reported the direct positive impact of social support on PTG (e.g., Jia et al., 2015). However, others proposed that social support facilitates growth after stress experiences through the mediation of variables apart from meaning-making, such as spiritual resources (e.g., Sörensen et al., 2021) and resilience (e.g., Armeli et al., 2001). Therefore, the possibility that certain factors mediate the relationship between social support and psychological growth is undeniable. Therefore, future research should examine a hypothetical model in which variables apart from meaning-making and whether or not the yips are overcome are introduced between social support and psychological growth. In addition, we only focused on perceived support among various forms of social support because several studies reported that provided support is related to PTG (Sörensen et al., 2021). Therefore, examining the mechanism through which provided support influences the psychological development of players after experiencing the yips is also important.

Table 2: Correlations, descriptive statistics, and Chronbach's alphas of the variables.

Variable	1	2	3	4	5	6	7
1. Social Support	—	0.10	0.19	** 0.40	*	0.22	** 0.36
2. Overcoming the Yips	0.10	—	– 0.10	0.01		0.11	0.14 *
3. Assimilation	0.19	**	– 0.10	— 0.48	*	– 0.03	0.09
4. Accommodation	0.40	***	0.01	0.48 *	—	0.22	** 0.33
5. Clear Meaning of Sports Activity	0.22	**	0.11	– 0.03	0.22	**	— 0.59
6. Self-understanding	0.36	***	0.14 *	0.09	0.33	*	0.59
7. Independent Achievement Orientation	0.35	***	0.13 *	0.15 *	0.43	*	0.72
Mean	23.64	—	22.70	26.51	26.67	23.19	22.17
Standard Deviation	4.95	—	5.72	5.06	5.58	4.29	4.79
Maximum	30.00	—	35.00	35.00	35.00	30.00	30.00
Minimum	6.00	—	7.00	10.00	13.00	11.00	10.00
Cronbach's Alpha	0.94	—	0.86	0.85	0.83	0.84	0.84

* $p < .05$. ** $p < .01$. *** $p < .001$.

In addition, Matsuda et al. (2018a) suggested that the psychological growth process associated with the yips in baseball may be related to whether or not the yips were overcome. However, the current study results did not support that of the previous research. In other words, the results suggest that the presence or absence of overcoming the yips is not necessarily related to the process of psychological growth associated with the yips. These results may support those of Matsuda et al. (2018b), who reported that psychological growth narratives associated with the experience of the yips were obtained even among baseball players who had not overcome the yips. Although the results alone cannot ensure that the presence or absence of overcoming the yips is not involved in the psychological growth that accompanies the yips, one may say that overcoming the yips is not essential to this growth process. The results revealed no significant relationship between social support and overcoming the yips. The evident reason for this notion is that the surrounding environment is not involved in overcoming the yips. However, the study assumes that social support content may be related. In other words, as previously mentioned, appropriate ways of interacting with, coping with, and teaching players who develop the yips remain lacking. This notion suggests that many of them may be unable to provide effective social support that contributes to overcoming the yips. In such cases, quantitative surveys, such as the present study, may not accurately measure the role of social support in overcoming the yips. Therefore, although the direct relationship between social context and overcoming the yips may be weak, elucidate the relationship between social context and overcoming the yips through future qualitative and intervention studies.

Limitations and directions for future research

Although the current study provides many useful insights for athletes and their families and coaches in the context of sports, it has its limitations, which must be considered in interpreting the results. First, the current study used a cross-sectional design. Thus, causal relationships cannot be estimated. Future studies should be longitudinal to fully investigate direct and indirect relationships and how they develop over time. Second, this study relied on self-report data. Thus, future research could reveal comprehensive findings by, for example, examining the various changes in players who developed the yips from the perspectives of their coaches and teammates. Third, the current study focused on the psychological growth that accompanies the yips. Howells et al. (2017) recently conducted a systematic review. They proposed that growth after adversity and difficulty in competitive sports could be classified into three categories, namely, intrapersonal indicators (e.g., awareness of the self), interpersonal indicators (e.g., enhanced relationships), and physical indicators (e.g., increased physical strength). Important aspects for future research are exploring whether these three categories of growth can also be observed in growth associated with the yips and elucidating how meaning-making and social support (the results of this research) influence each of the three categories of growth from multiple perspectives. Moreover, examining the mechanism through meaning-making and social support influences each of the three growth categories. Additionally, exploring other factors that promote growth associated with the experience of the yips and verifying the effects of these factors through intervention studies. Fourth, although this study examined the process from the development of yips to psychological growth, other studies on PTG focused on the process after PTG. For example, a few scholars demonstrated that PTG may attenuate the negative effects of posttraumatic stress disorder (Bluvstein et al., 2013) and contribute to strengthened immune systems, less hospitalization time, and increased adherence to medication for individuals with HIV/AIDS. Therefore, investigating the relationship between psychological growth that accompanies the yips and subsequent athletic life is a future challenge.

Conclusions

The current study focused on social support, the sense-making process, and whether or not the yips could be overcome to elucidate the factors involved in psychological growth associated with the yips. We found that social support directly influences the psychological growth accompanying the yips and indirectly affects meaning-making through accommodation. In addition, we suggest that overcoming the yips may not be an essential part of this growth process. The findings are valuable because they can provide sports coaches with preliminary evidence of how they can help athletes transform crises and stressful experiences (regardless of the yips) into opportunities for positive change. Hopefully, this strategy can better prepare for future crises and stressful experiences. In addition, when athletes who suffer from the yips' symptoms learn about the results of this study, they may change the way they perceive the symptoms and the various negative experiences and may consider disclosing or sharing their concerns and thoughts with those around them. In addition, they may begin to seek support from others.

Notably, the present study is not intended to argue for or justify the importance of the yips. We are not arguing that athletes should actively experience the yips because they can grow with the experience. The yips, athletic life threats, and stressful experiences are never desirable, such that the pain associated with such experiences will remain despite the growth achieved. Moreover, stating that one would have preferred to undergo such experiences is typically impossible. In addition, not all people experience growth, and expecting growth may not be desirable. However, we hope the results will change how athletes and their coaches, who have undergone or may be undergoing unwanted experiences (i.e., the yips), perceive and view the yips' experience and positively influence the process of improving the yips and subsequent athletic life.

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Conflict of interest

None declared

Ethical and legal considerations

The experiments comply with the current laws of the country in which they were performed.

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