

Examining the Factors of the Yips in Baseball: From the Perspective of Psychological Flexibility and Social Factor

Kazuya Inoue ¹, Tatsuto Yamada ², & Tomu Ohtsuki ¹

¹Faculty of Human Sciences, Waseda University, ²Meiji Gakuin University

INTRO

- The yips are a psycho-neuromuscular impairment affecting fine motor skills execution in sports performance (Clarke et al., 2015).
- A high prevalence rate of yips was observed among amateur athletes. 42% of middle school Japanese baseball players had experienced and 25% were currently experiencing throwing yips (Kagawa & Fukae, 2013); and 47% of college baseball players experienced yips (Aoyama et al., 2021).
- However, no effective theory-based treatment for the yips has been established so far (Clarke et al., 2015).
- This study investigates to what extent experiential avoidance and cognitive fusion predict yips symptoms. Moreover, we provide a preliminary examination of the effect of the psychological flexibility model's *values* and environmental factors on throwing yips in baseball.

METHODS

- Cross-sectional study by Questionnaires.
- Participants**
Altogether, 292 junior high school, high school, university, and (amateur) community baseball players in Japan (278 male, 14 female, *mean* age = 23.15, *SD* = 7.53) completed the questionnaires.
- Predictive Measures**
Acceptance and Action Questionnaire-II (AAQ-II; Shima et al., 2013). The AAQ-II is a general means of experiential avoidance. High scores indicate high experiential avoidance.
Cognitive Fusion Questionnaire (CFQ; Shima et al., 2016). The CFQ is a general measure of cognitive fusion.
Values. In this study, we developed an index to broadly assess whether value-based playing baseball in terms of positive and negative reinforcement, because values vary from individual to individual and are complex. Participants rated three items on a 7-point Likert-type scale (1=never true, 7=always true): (1) Do you feel that you enjoy baseball? [context of positive reinforcement], (2) When a throw goes well, I feel glad that I didn't fail [reverse item; context of negative reinforcement], (3)When a throw goes well, I feel enjoyment in the play itself [context of positive reinforcement].
- Environmental Variables Surrounding Baseball**
We developed a 3-item 7-point rating scale for them. Item 1: At baseball practice, I'm often reprimanded by my coach, supervisor, or teammates (1 = not applicable, 7 = extremely applicable); Item 2: Are there any penalties for baseball errors (e.g., mistakes or losing a game)? (Penalties include intense training such as pushing tires and sprinting between poles) 1 = no, 7 = many); Item 3: How hard is it to become a regular? (1 = not tough at all, 7 = extremely tough).

- Control Variable**
Short Fear of Negative Evaluation Scale (SFNE; Sasagawa et al., 2004). The SFNE is a general measure of fear of negative evaluation.
- Outcome Variable**
Psychological measure of yips: Throwing Disability Scale (Kagawa & Fukae, 2013). This scale measures anxiety and fear about throwing errors via 15 items rated on a 4-point Likert scale (1 = *never*, 4 = *very often*); high scores indicate high anxiety and fear about throwing errors. This scale consists of five factors (*Sense of high strain caused by wild pitch image* (e.g., item: *When I hold the ball, I imagine throwing a wild pitch and my body tenses up*), *Excessive consciousness toward others' evaluation*, *Excessive consciousness toward seniority*, *Sense of inferiority* (e.g., item: *I wish I could throw how I want like the other players around me*), *Excessive consciousness toward important situations* (e.g., item: *At important games, like regular-season games, I can't throw how I want*).

Hypothesis

- Experiential avoidance and cognitive fusion positively affect yips symptoms. Additionally, we expected that degree of value-based on playing baseball would negatively affect yips symptoms. Moreover, environmental variables surrounding baseball positively affect yips symptoms.

Results & Discussion

- Hierarchical multiple regression analysis was performed with the yips symptoms as a dependent variable. Results indicate that higher scores on "when a throw goes well, I feel glad that I didn't fail," being reprimanded by supervisor and teammates about mistakes, and CFQ scores increased many yips symptoms. We suggest that a reduction of the degree of cognitive fusion and an improvement of teaching methods, such as not having an environment of blame for mistakes, may be effective for treating yips symptoms in baseball. Furthermore, we consider it important to encourage them to link play with their values rather than playing to ensure they do not make mistakes.

Table 1 Pearson's product-moment correlations among the study variables (N = 292).

Measures	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	M	SD	α
1. AAQ-II																	20.01	9.29	.89
2. CFQ	.75***																33.23	13.09	.92
3. SFNE	.52***	.64***															25.34	7.99	.92
4. Degree of throwing error (27 m or under)	.16**	.23***	.17**														2.26	2.23	-
5. Degree of throwing error (27 m or over)	.17**	.17**	.22***	.59***													2.23	1.95	-
6. Sense of high strain caused by wild pitch images	.35***	.38***	.31***	.67***	.40***												5.64	2.82	.94
7. Consciousness toward others' evaluation	.43***	.45***	.47***	.43***	.33***	.60***											6.96	3.06	.90
8. Consciousness toward seniority	.41***	.35***	.36***	.46***	.30***	.60***	.68***										5.02	2.45	.86
9. Sense of inferiority	.37***	.44***	.43***	.54***	.44***	.65***	.61***	.49***									7.45	3.39	.90
10. Consciousness toward important situations	.40***	.45***	.43***	.57***	.46***	.70***	.66***	.54***	.67***								6.34	2.81	.92
11. Overall scores of the throwing disability scale	.47***	.50***	.48***	.64***	.46***	.85***	.85***	.78***	.84***	.86***							31.42	12.14	.95
12. Degree of finding baseball enjoyable	-.10	-.03	.08	-.08	-.04	-.11	-.05	-.18**	-.05	-.05	-.10						6.00	1.37	-
13. Feeling glad at not failing	.29***	.34***	.44***	.27***	.25***	.39***	.49***	.29***	.48***	.46***	.51***	.02					5.15	2.06	-
14. Enjoying the play itself	.14*	.19***	.24***	.03	.01	.06	.17**	.05	.17**	.13*	.14*	.42***	.36***				6.20	1.37	-
15. Reprimanded by others	.26***	.26***	.22***	.17**	.25***	.26**	.37***	.35***	.29***	.32***	.38***	-.14*	.23***	.08			3.09	1.82	-
16. Penalties (harsh training) for mistakes	.19**	.18**	.11	.01	.09	.05	.21***	.24***	.11	.18**	.18**	-.12*	.09	-.04	.50***		2.51	1.93	-
17. Degree of competition to become regular	.14*	.11	.08	-.03	.05	.09	.18**	.15**	.12*	.13*	.16**	-.10	.17**	-.04	.11	.06	3.54	1.89	-

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

Table 2 Hierarchical multiple regression equation predicting yips symptoms (N=292).

Predictor	High strain caused by wild pitch image					Sense of inferiority					Consciousness toward important situations					Frequency of throwing error (27 m or under)					VIF				
	B	95% CI for B		β	ΔR^2	Adj. R^2	B	95% CI for B		β	ΔR^2	Adj. R^2	B	95% CI for B		β	ΔR^2	Adj. R^2	B	95% CI for B		β	ΔR^2	Adj. R^2	
		LL	UL					LL	UL					LL	UL					LL		UL			
Step 1 (Constant)	2.87	1.84	3.91		.10	.09	2.87	1.69	4.05		.18	.18	2.50	1.53	3.48		.19	.18	1.03	.19	1.88		.03	.03	
SFNE	.11	.07	.15	.31***			.18	.14	.23	.43***			.15	.11	.19	.43***			.05	.02	.08	.17**			1.00
Step 2 (Constant)	2.38	1.36	3.40		.07	.15	2.37	1.19	3.54		.05	.22	2.03	1.07	2.99		.06	.24	.82	-.03	1.67		.03	.05	
SFNE	.04	-.01	.08	.10			.10	.05	.16	.24***			.08	.03	.13	.23***			.01	-.03	.05	.04			1.72
AAQ-II	.04	-.01	.09	.14			.02	-.03	.08	.07			.04	-.01	.08	.12			-.01	-.05	.03	-.03			2.29
CFQ	.05	.01	.08	.21*			.06	.02	.10	.23**			.05	.01	.08	.21*			.04	.01	.07	.23*			2.86
Step 3 (Constant)	3.03	1.21	4.86		.11	.24	1.51	-.56	3.58		.11	.32	1.30	-.41	3.00		.11	.33	1.66	.10	3.22		.08	.11	
SFNE	.00	-.05	.05	.00			.05	-.01	.10	.11			.04	-.01	.09	.12			-.01	-.05	.03	-.04			1.93
AAQ-II	.03	-.01	.08	.11			.01	-.04	.06	.03			.02	-.02	.07	.08			-.01	-.05	.03	-.05			2.35
CFQ	.04	.01	.08	.20*			.05	.01	.09	.21*			.04	.00	.07	.18*			.04	.01	.07	.22*			2.88
Degree of finding baseball enjoyable	-.10	-.34	.14	-.05			-.07	-.34	.20	-.03			.00	-.22	.22	.00			-.07	-.27	.13	-.04			1.31
Feeling glad at not failing	.42	.25	.58	.30***			.54	.36	.73	.33***			.42	.26	.57	.31***			.28	.14	.42	.26***			1.45
Enjoying the play itself	-.20	-.45	.04	-.10			-.05	-.33	.24	-.02			-.13	-.36	.10	-.06			-.15	-.36	.07	-.09			1.46
Reprimanded by others	.27	.08	.46	.17**			.27	.05	.48	.14*			.23	.06	.41	.15**			.17	.01	.33	.14*			1.46
Penalties (harsh training) for mistakes	-.18	-.35	-.01	-.12*			-.08	-.28	.11	-.05			.02	-.14	.18	.01			-.13	-.27	.02	-.11			1.36
Degree of competition to become regular	-.02	-.18	.13	-.02			.01	-.16	.19	.01			.03	-.12	.17	.02			-.12	-.25	.01	-.10			1.06

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Degree of finding baseball enjoyable = "Do you enjoy baseball?"; Feeling glad at not failing = "When a throw goes well, I feel glad that I didn't fail"; Enjoying the play itself = "When a throw goes well, I enjoy the play itself"; Reprimanded by others = "At baseball practice, I'm often reprimanded by my coach, supervisor, or teammates"; Penalties (harsh training) for mistakes = Degree of punishment (hard practice) for missing plays.