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The Effect of Trainer's Communication Style on Rehabilitation Ability and Rehabilitation Satisfaction of Elite Athletes

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Abstract

The purpose of this study was to objectively explore and discuss the effect of trainer's communication style on rehabilitation ability and rehabilitation satisfaction of elite athletes. we observed the relationship between rehabilitation trainers and injured athletes and found that communication between them plays an important role. In this study, we criticized that most of the studies related to rehabilitation were conducted from the point of view of natural science. The results of this study emphasized that rehabilitation-related research should broadly accept social science positions such as business administration. *The main research findings are as follows. As a result of analyzing the relationship between trainer's communication style and rehabilitation ability, first, the trainer's cooperative and professional communication style affects emotional factors of injured players. Second, the trainer's cooperative and controlled communication style affects the cognitive factors of injured players. Third, the trainer's cooperative and professional communication style affects the behavioral factors of injured players. Fourth, the trainer's cooperative and professional communication style affects the rehabilitation satisfaction of injured players. Based on these results, this study was conducted to validate the necessity of discussing the trainer's communication style preference according to the individual background such as the injured player's gender, personality, and injury level, and the classification and composition of communication styles that match Korean culture and sentiment. As suggestions for follow-up research, active sharing of problems with adjacent disciplines such as sports sociology, sports education, and sports marketing, and parallel qualitative research centered on individual cases were suggested*

Keywords: Trainer. Elite Athlete, Communication Style, Rehabilitation Satisfaction, Rehabilitation Ability

1. Introduction

Injury and rehabilitation failure of elite athletes are pointed out as the main causes of dropout and early retirement [1-2]. For elite athletes, injuries can happen at any time in training and competition situations. However, since injuries in elite athletes are predictable, rehabilitation for the recovery of motor function after injury is very important. Meanwhile, it is a well-known fact that athletes' injuries are accompanied by psychological damage [3-4]. According to previous studies, it is common for injured players' sports injuries to be accompanied by negative emotions such as frustration, depression, tension, confusion, anxiety, and anger [5]. Since these negative emotions can affect rehabilitation ability and successful rehabilitation will, it is

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necessary for trainers to carefully consider the psychological and emotional state of the athletes involved in the rehabilitation process. In order to successfully rehabilitate an injured player, it is necessary to accurately recognize the psychological and emotional state of the injured player along with medical treatment by a rehabilitation trainer. For this reason, the rehabilitation trainer's communication style can be an important factor that can affect the rehabilitation success of elite athletes.

On the other hand, the satisfaction experienced by individuals in a specific activity is an intrinsic motivation to continuously and actively participate in the activity and is a research variable that is important in social science [6, 7]. In the same context, rehabilitation satisfaction is interpreted as the level of satisfaction with the overall rehabilitation that an injured athlete experiences and recognizes during the rehabilitation process [8]. In addition, rehabilitation ability is an indicator of the rehabilitation participation achievement of injured players, and is considered a variable that can predict rehabilitation results. Therefore, analyzing the effect of the rehabilitation trainer's communication style on these variables can be evaluated as objective data that predicts the physical effect of communication between the rehabilitation trainer and the injured player. From this point of view, the purpose of this study is to objectively analyze the effect of rehabilitation trainer's communication style on rehabilitation satisfaction and rehabilitation ability of injured athletes participating in rehabilitation.

2. Research Hypothesis and Research Model

Based on the necessity, purpose, and theoretical background of the above research, the specific research hypotheses presented in this study are as follows.

Hypothesis 1. The trainer's communication style perceived by the injured athlete will affect the rehabilitation satisfaction of the injured athlete.

Hypothesis 2. The trainer's communication style perceived by injured athletes will affect the rehabilitation athletes' ability to rehabilitate.

The main variables set in this study are as follows. Rehabilitation trainer's communication style was set as an independent variable, and it is composed of three sub-factors: cooperation type, control type, and professional type. Rehabilitation ability was set as a dependent variable, and it was composed of emotional, cognitive, and behavioral sub-factors. In addition, rehabilitation satisfaction was set as a dependent variable, and it was composed of a single factor.

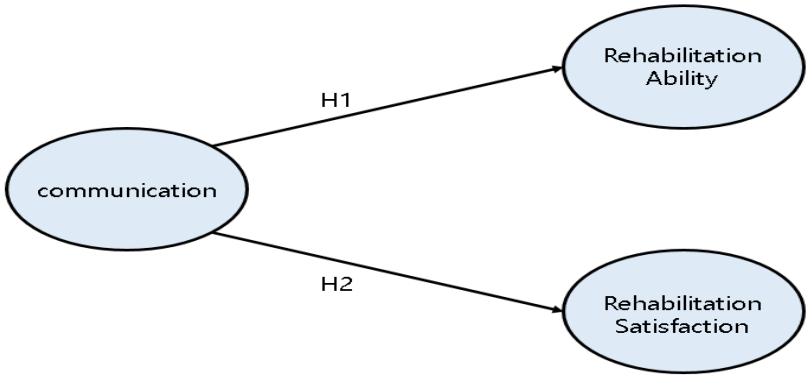

Figure 1. Research model

3. Research Method

3.1. Research Subjects

The subjects of this study were elite athletes currently active in Seoul and Gyeonggi Province. Sampling for this study was conducted for about 10 weeks from August to October 2022. For sampling, injured rehabilitation athletes were identified through wired and wireless channels for elite athletes in Seoul and Gyeonggi regions, and after obtaining prior consent, data were distributed and collected through direct visits or e-mails. Elite athletes who responded to the survey conducted in this study were limited to injured athletes who had been injured for more than 2 weeks and were participating in rehabilitation or who had participated in rehabilitation during the data collection period. The details are shown in Table 1 below.

Table 1. Research subject general information **(N=125)**

variable	division	n	%
sex	Male	85	68
	Female	40	32
age	17-19	45	36
	20-23	30	24
	20-23	50	40
sport	Soccer	35	28
	Volleyball	30	24
	Baseball	35	28
	Taekwondo	25	20
Affiliation	High school, University	80	64
	Business team	40	32
	Etc	5	4

3.2. Research Tools

This study used a questionnaire as a tool to objectify the respondents' perceptions of the major variables set. The specific details are as follows.

3.2.1 Communication Style

The tool used to measure the rehabilitation trainer's communication style perceived by the respondent was a questionnaire used in a previous study [9, 14]. that was modified and supplemented to suit the purpose of this study. The questionnaire used in this study consists of 15 questions in total with 5 questions each for three factors: cooperative type, control type, and expert type. This questionnaire is rated on a Likert scale ranging from very much(5 points) to not at all(1 point), and the higher the score, the stronger the perception of the factor.

3.2.2 Rehabilitation Qualification Questionnaire (RQQ)

To measure the degree of respondent's rehabilitation ability, the developed rehabilitation ability test sheet was used [10]. The questionnaire used in this study consists of a total of 3 factors and 17 questions, including emotional factors(6 items), cognitive factors(6 items), and behavioral factors(5 items). Responses to each question consisted of a 5-point Likert scale ranging from ‘not at all’ to ‘very much so’, and the higher the total

score, the higher the rehabilitation ability.

3.2.3 Rehabilitation Satisfaction

In order to measure the rehabilitation satisfaction of the respondent, the athlete rehabilitation satisfaction test tool was modified and supplemented according to the purpose of this study [11, 12]. This questionnaire consists of 17 questions on three factors: satisfaction with instructors, satisfaction with medical staff, and satisfaction with affiliated organizations. Each item is composed of a Likert 5-point scale ranging from very much(5 points) to not at all(1 point). The higher the total score, the higher the level of rehabilitation satisfaction.

3.3 Data Processing

The data collected in this study were analyzed using the SPSS 21.0 statistical program. First, descriptive statistical analysis was conducted to identify the general characteristics of the respondents, and the mean and standard deviation were obtained. Exploratory factor analysis and reliability analysis were conducted to confirm the reliability and validity of the questionnaire. In addition, multiple regression analysis was performed to find out the level of influence of each sub-factor of the independent variable on each variable of the dependent variable, and the statistical significance level was verified at $p<.05$.

4. Results

4.1. Questionnaire Validity and Reliability

Exploratory factor analysis was conducted as a method to confirm the construct validity of the questionnaire. For exploratory factor analysis, only items with an eigenvalue of 0.1 or more and a factor loading of 0.4 or more were selected through the orthogonal rotation method by Varimax [13]. Through Bartlett's identity matrix check, it was checked whether the variables were independent of each other. He also investigated the suitability of factor analysis through the sample fit of KMO. And to verify the reliability Cronbach's α coefficient was calculated for the implicit consistency between each item and evaluated based on 0.6 or higher.

4.1.1 Communication Style

As a result of communication factor analysis, as shown in Table 2, a total of three factors were extracted: cooperation type, control type, and professional type. The Bartlett identity matrix of the communication style was 1320.093(Sig=0.000) and the KMO index was 0.698. The cumulative amount of communication style was 81.132%, and the factor influence was 0.874~0.791 for cooperative type, 0.873~0.676 for control type, and 0.868~0.637 for professional type. Items with a factor loading value similar to that of other factors were removed and analyzed. Items 3, 10, 13, and 15 were removed. Reliability values(Cronbach's α) were confirmed as 0.907 for the cooperative type, 0.914 for the control type, and 0.848 for the professional type.

Table 2. Communication style factor analysis

Item	1	2	3	h^2
1	**0.874**	0.295	0.094	0.859
2	**0.842**	0.144	0.304	0.823
3	**0.836**	0.124	0.194	0.751
5	**0.791**	0.356	0.127	0.769

6	0.315	**0.873**	0.079	0.867
7	0.211	**0.867**	0.294	0.882
8	0.117	**0.871**	0.227	0.825
9	0.383	**0.676**	0.371	0.742
11	0.231	0.210	**0.868**	0.851
12	0.100	0.190	**0.887**	0.833
14	0.400	0.395	**0.637**	0.722
Eigenvalue	3.326	3.215	2.383	
Dispersion(%)	30.238	29.231	21.663	
Accumulate(%)	30.238	59.469	81.132	
Cronbach's *α*	0.907	0.914	0.848	

Bartlett(χ^2=1320.093, *df*=55, *p*=0.000) Kaiser-Meyer-Olkin MSA=0.698

4.1.2 Rehabilitation Capacity

As a result of the rehabilitation ability factor analysis, as shown in Table 3, three factors were extracted: emotional factor, cognitive factor, and behavioral factor. The Bartlett unit matrix of rehabilitation ability was 2285.632(Sig=0.000), and the KMO index was 0.763. The cumulative amount of rehabilitation ability was 80.145%, and the factor effects were 0.935~0.794 for emotional factors, 0.839~0.627 for cognitive factors, and 0.830~0.718 for behavioral factors. Items with a factor loading value similar to that of other factors were removed and analyzed. Items 10, 15, and 17 were removed. Reliability values(Cronbach's α) were identified as 0.972 for the emotional factor, 0.891 for the cognitive factor, and 0.833 for the behavioral factor.

Table 3. Rehabilitation ability factor analysis

Item	1	2	3	h^2
3	**0.935**	0.227	0.161	0.951
1	**0.923**	0.185	0.209	0.929
4	**0.919**	0.186	0.169	0.907
2	**0.892**	0.349	0.189	0.953
5	**0.884**	0.269	0.206	0.896
6	**0.794**	0.135	0.031	0.649
7	0.253	**0.839**	0.290	0.852
8	0.051	**0.868**	0.226	0.807
9	0.241	**0.709**	0.341	0.676
11	0.326	**0.732**	0.097	0.651
12	0.383	**0.627**	0.259	0.607
13	0.054	0.355	**0.830**	0.819
14	0.169	0.308	**0.876**	0.890
16	0.302	0.159	**0.718**	0.633
Eigenvalue	5.276	3.468	2.477	
Dispersion(%)	37.683	24.768	17.693	
Accumulate(%)	37.683	62.452	80.145	
Cronbach's α	0.972	0.903	0.869	

Bartlett(χ^2=2285.632, *df*=91, *p*=0.000) Kaiser-Meyer-Olkin MSA=0.763

4.1.3 Rehabilitation Satisfaction

Rehabilitation satisfaction was composed of a single factor as a total of 5 questions. Rehabilitation satisfaction contains the degree of satisfaction with the rehabilitation atmosphere, comfort, and effect expectations that the respondent experienced during the rehabilitation process. The reliability value(Cronbach's α) found in rehabilitation satisfaction variables was 0.963.

4.2. Hypothesis Testing

The results of the verification of the two main hypotheses established in the study and the detailed hypotheses are as follows.

4.2.1. The Effect of the Trainer's Communication Style on the Rehabilitation Ability of Injured Athletes Players

There are 3 detailed hypotheses on the effect of the trainer's communication type on the injured athlete's rehabilitation ability.

4.2.1.1. Influence of Trainer's Communication Style on Emotional Factors of Injured Athletes Players

As shown in Table 4, the effect of the trainer's communication style on the emotional factor of the injured player was found to be significant at the significance level $p<0.001$ with $F=263.598$. Specifically, the cooperation type($\beta=0.699$), control type($\beta=0.228$), and professional type($\beta=0.277$) were found to have a positive effect. The explanatory power of the regression equation was confirmed to be 86.7%($R^2=0.867$), and according to the standardized coefficient representing the relative contribution of independent variables, the cooperative type, the control type, and the professional type affect the emotional factors of injured players in the order.

Table 4. The effect of communication style on emotional factors

Subfactor	B	*SEB*	*β*	*t*	VIF
Collaborative	1.138	0.067	0.699	16.94***	1.55
Controlled	.515	0.099	0.228	5.21***	1.75
Specialized	.277	0.086	0.136	3.21**	1.64
R=0.931, R^2=0.867, *F*=263.598, *Sig F*=0.000, *D-W*=1.676					

**$p<0.01$, ***$p<0.001$

4.2.1.2. The Effect of Trainer's Communication Style on Cognitive Factors of Injured Athletes Players

As shown in Table 5, the effect of the trainer's communication style on the cognitive factors such as anxiety and fear of the injured player was significant at the significance level $p<0.001$ with $F=42.413$. Specifically, it was found that the cooperative type($\beta=0.830$) positively and the controlling type($\beta=-0.270$) negatively influenced the cognitive factors of injured players. The explanatory power of the regression equation was confirmed to be 51.3%($R^2=0.513$). According to the standardized coefficient representing the relative contribution of independent variables, the cooperative type and the control type affect the cognitive factors of injured players in the order.

Table 5. The effect of communication style on cognitive factors

Subfactor	B	*SEB*	*β*	*t*	VIF
Collaborative	0.678	0.065	0.830	10.50***	1.55
Controlled	-0.270	0.095	-0.239	-2.85**	1.75
Specialized	-0.027	0.083	-0.027	-0.33	1.64
R=0.716, R^2=0.513, *F*=42.413, *Sig F*=0.000, *D-W*=2.555					

**p<0.01, ***p<0.001

4.2.1.3. The Effect of Trainer's Communication Style on Behavioral Factors of Injured Athletes Players

Table 6 shows the influence of the trainer's communication style on behavioral factors such as satisfaction and calmness of injured players. Looking at specific indicators, F=25.999, p<0.001 is significant, and cooperative type (β=0.627) and professional type(β=-0.283) have a positive effect on the behavioral factors of injured players. The explanatory power of the regression equation was confirmed to be 39.2%(R^2=0.392). According to the standardized coefficient representing the relative contribution of independent variables, the behavioral factors of injured players are affected in the order of cooperation type and control type.

Table 6. The effect of communication style on behavioral factors

Subfactor	B	*SEB*	*β*	*T*	VIF
Collaborative	0.418	0.059	0.627	7.10***	1.55
Controlled	0.167	0.087	0.181	1.93	1.75
Specialized	-0.237	0.076	-0.283	-3.12**	1.64
R=0.626, R^2=0.392, *F*=25.999, *Sig F*=0.000, *D-W*=2.105					

**p<0.01, ***p<0.001

4.2.2. The Effect of Trainer's Communication Style on Rehabilitation Satisfaction of Injured Athletes Players

As shown in Table 7, the effect of the trainer's communication style on the rehabilitation satisfaction of the injured player was significant at the significance level p<0.001 with F=198.277. Specifically, it was analyzed that the cooperative type (β=0.787) and professional type(β=0.195) had a positive effect on the rehabilitation satisfaction of injured players. The explanatory power of the regression equation was confirmed to be 83.1%(R^2=0.831). According to the standardized coefficient representing the relative contribution of independent variables, the cooperative type and the professional type affect the rehabilitation satisfaction of injured players in the order.

Table 7. The effect of communication style on rehabilitation satisfaction

Subfactor	B	*SEB*	*β*	*t*	VIF
Collaborative	0.797	0.047	0.787	16.90***	1.55
Controlled	0.024	0.069	0.017	0.35	1.75
Specialized	0.247	0.061	0.195	4.08***	1.64
R=0.912, R^2=0.831, *F*=198.277, *Sig F*=0.000, *D-W*=2.274					

***p<0.001

5. Conclusion

We observed the relationship between rehabilitation trainers and injured athletes and found that communication between them plays an important role. In this study, we criticized that most of the studies related to rehabilitation were conducted from the point of view of natural science. The results of this study emphasized that rehabilitation-related research should broadly accept social science positions such as business administration. Recently, Based on the analysis results, this study can conclude as follows. First, as a result of analyzing the influence of the trainer's communication style on the emotional factors of the injured player, it was found that the cooperative, controlling, and professional styles had a positive effect on the client's tension and anxiety. are influencing. Second, as a result of analyzing the influence of the trainer's communication style on the cognitive factors of injured players, the cooperative type has a positive effect and the controlling type has a negative effect. The cooperative type has a relatively stronger effect on the cognitive factors of injured players.

Third, as for the effect of the trainer's communication style on the behavioral factors of the injured player, the cooperative type has a positive effect and the professional type has a negative effect. The cooperative type has a relatively large effect on the behavioral factors of the injured player. Fourth, as a result of analyzing the effect of the trainer's communication style on the rehabilitation satisfaction of the injured player, the cooperation type and the professional type were statistically effective, and the cooperative type had a relatively large effect.

Follow-up research needs to discuss trainers' communication style preferences according to personal backgrounds such as gender, personality, and injury level of injured players. Through this, it can be expected to be able to gauge the specific guidelines and direction of the trainer's communication and meaning sharing. In addition, communication style is explained with various concepts by scholars in a similar context. In addition, since most domestic studies borrow these concepts without any special criteria and use them as research tools, follow-up studies need to carry out validation work on the classification and composition of communication styles that fit Korean culture and emotions. Lastly, it is necessary to partially revise the curriculum of natural science and applied science, which are currently focused on learning contents for qualification and training of trainers. To this end, active sharing of issues with adjacent disciplines such as sports sociology, sports education, sports marketing, and sports psychology is required.

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