Chapter 3

A survey of mental skills training among South African field hockey players at tertiary institutions

A SURVEY ON MENTAL SKILLS TRAINING AMONG SOUTH AFRICAN FIELD HOCKEY PLAYERS AT TERTIARY INSTITUTIONS

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A SURVEY OF MENTAL SKILLS TRAINING AMONG SOUTH AFRICAN FIELD HOCKEY PLAYERS AT TERTIARY INSTITUTIONS

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ABSTRACT

The aims of the study were to determine student field hockey players' perceived need for Mental skills training (MST), and their perceptions regarding their ability to prepare psychologically for matches, as well as to compile a general profile of their psychological skills for the total group and by gender. A total of 197 (91 men and 106 women) South African field hockey players at tertiary institutions who participated in the University Sport of South Africa (USSA) tournament, took part in the study. The subjects completed two standardised sport psychological questionnaires (which is the Psychological Skills Inventory (PSI) and the Ottawa Mental Skills Assessment Tool (OMSAT-3)). Descriptive statistics, *t*-tests and frequency analyses were calculated using SPSS for Windows (Version 3.1). The results from the PSI questionnaire showed poor values for skills such as goal directedness, activation control, maintaining self-confidence, concentration and imagery among the total group. Significant gender differences in which the male subjects outperformed the females were observed for concentration, achievement motivation and activation control. The highest mean scores on the OMSAT-3 were found for goal-setting, self-confidence and commitment. Significant gender differences were observed for goal-setting and commitment (in which the females outperformed the males), whilst the males fared better than the females in stress reaction. The participants in the study perceived MST as an important tool to enhance performance in field hockey. From these results, it can be recommended that sport psychologists and other role players in field hockey pay more attention to the development and implementation of MST programmes.

Key words: Mental skills training, field hockey, sport psychology, South African student sport

INTRODUCTION

Field hockey is an Olympic discipline (Demuth, Czerniak, Krzykata, Wielinski & Ziótkowsa-Lajp, 2007) played by men and women of all ages (Elferink-Gemser, Visscher, Lemmink & Mulder, 2004). Elferink-Gemser *et al.* (2004) asserted that success in this sport requires well-developed physiological, tactical, technical and psychological skills. Fallby, Hassmén, Kenittä and Durand-Bush (2006) stated that by combining physical training and mental skills training (MST) a player's ability to cope with the demands of the sport will increase and subsequently result in improved performances. The importance of MST and the development of such programmes have increased considerably (Onestak, 1991). Hardy, Hall and Hardy (2004) noted that combining a variety of psychological skills with a MST package may have a constructive impact on performance, which in turn should contribute to a positive self-esteem and enhanced self-confidence. This viewpoint was further emphasized by Blakeslee and Goff (2007) who pointed out that an MST package is more effective in team settings than applying one skill at a time.

MST refers to the regular and continuous use of psychological skills for purposes of enhancing performance as well as achieving greater self-satisfaction in sport (Weinberg & Gould, 2007). However, some athletes are of the opinion that they do not need MST to enhance their performance (Kirschenbaum, McCann, Meyers & Williams, 1995). These perceptions could be linked to the myths regarding the use of MST as indicated by Van Raalte, Brewer, Brewer and Linder (1992) as well as Weinberg and Gould (2007). These myths are:

- MST is only for athletes with psychological problems;
- Only elite athletes make use of MST;
- MST has a short, quick-fix effect; and
- MST is not a useful sport-enhancing technique.

Other reasons for athletes neglecting MST are the lack of knowledge with regard to implementing MST programmes, as well as the perception that there is too little time during the season to spend it on MST (Weinberg & Gould, 2007).

In contrast, Van den Heever, Grobbelaar and Potgieter (2007b) reported that 67.5% of provincial netball players in South Africa perceived MST as very important, whilst 70.4% of the players expressed a great need or need for MST programmes. Similarly Andrew, Grobbelaar and Potgieter (2007) found that 85.0% of student rugby players in South Africa also expressed a need or great need for MST programmes. In addition, Anderson, Hodge, Lavallee and Martin (2004) noted that New Zealand athletes display a positive attitude towards MST. It is not only athletes that see MST as an important component for success in sport, but also the coaches. Grobbelaar (2007) noted that 88.9% of provincial netball coaches perceived MST programmes as very important, although only 46.4% of the coaches implemented MST with their teams.

Before implementing an MST programme, it is important to firstly identify the psychological strengths and weaknesses of the players (Weinberg & Gould, 2007). In this regard, Taylor (1995) noted that individual needs and the specific demands of the sport should be taken into consideration when developing an MST programme. Identifying the psychological skill levels of players should assist sport psychologists in developing individual MST programmes (Anderson *et al.,* 2004).

Grove and Hanrahan (1988) observed relatively poor mental skill levels among field hockey players, highlighting the importance of developing MST programmes specifically for this sport. Due to the limited research regarding MST in field hockey especially taking gender into consideration, the aims of this study are: firstly, to determine the players' actual mental skill levels for the total group and by gender; secondly, to determine the players' opinions regarding MST and the need for such programmes for each gender and thirdly, to determine the players' perceptions regarding their ability to be psychologically prepared for matches for each gender.

These results could provide valuable information regarding the development and implementation of an MST program aimed at addressing the specific needs of field hockey players.

METHODS

Subjects

Fourteen men's and nineteen women's field hockey teams that participated in the University Sport of South Africa (USSA) tournament, hosted by the North-West University Hockey Academy in Potchefstroom during June/July 2008, took part in the study. The aim was to include all the participants of the tournament (approximately 550 players). Unfortunately, only 14 of the 34 teams comprising 200 players (94 men and 106 women) participated in the study. Only 197 of the 200 participants completed all the questionnaires. All subsequent analyses were then performed on these subjects only.

Test procedures

Administration of testing

The coaches and managers of the participating teams were informed about the aim of the study prior to the start of the tournament and were requested to participate. The testing took place during the week of the tournament. The subjects were informed about the nature and purpose of the research project, that their data would be treated confidentially and that their results would be used for research purposes only. All of the subjects signed forms of consent and were free to withdraw their participation in this research project at any stage. Thereafter they completed the demographic and general information questionnaires and two sport psychological questionnaires. The duration of the testing was 30 to 45 minutes.

Demographic and general information questionnaire

Demographic information (name, surname, date of birth, test date, age and race), hockey playing history (years of playing, playing position(s)) and sport psychology background (visits to sport psychologists, perceived importance of mental skills training, the need for mental skills training programmes and the extent to which the player feels he/she can prepare him-/herself psychologically for matches) was gathered by means of a questionnaire developed by Van den Heever (2006).

Measuring instruments

The various sport psychological skills and constructs were measured by means of two questionnaires, which is the Psychological Skills Inventory (PSI) of Wheaton (1998) as well as the Ottawa Mental Skills Assessment Tool (OMSAT-3) of Durand-Bush, Salmela and Green-Demers (2001).

The PSI consists of 64 items and measures achievement motivation, goal directedness, activation control, maintaining self-confidence, concentration and imagery from which a composite psychological skills score is derived (average value of the six subscales). Each of the subscales consists of ten items measured on a 5-point Likert type scale ranging from "Never" [0] to "Always" [4]. The score are classified from 'very poor" to "very good" according the percentages scored (<60% = very poor; 60-69% = poor; 70-79% = average; 80-89% good and 90-100% = very good). In some cases, reverse scoring applies, and the subscale scores are expressed as a percentage in which higher values reflect better psychological skill levels (comprising 7 items), with a Cronbach's Alpha of 0.81 with the individual correlation ranging from 0.77 to 0.85.

The OMSAT-3 was developed by Durand-Bush *et al.* (2001) to measure a broad range of mental skills. The questionnaire includes 12 mental skill sub-scales that are grouped together to form three categories, namely foundation skills (goal-setting, commitment and self-confidence), psychosomatic skills (stress reaction, fear control, relaxation and activation) and cognitive skills (focusing, refocusing imagery, mental rehearsal and competition planning). The athlete's response is given on a 7-point Likert type scale ranging from "Strongly disagree" [1] to "Strongly agree" [7]. The score is seen as a high value when it is 6 or 7, medium or moderate between 3 to 5 and low if it is 1 or 2. The second-order CFA assessment (comprising 12 items) of the OMSAT demonstrated it to be related to other similar inventories with a Cronbach's Alpha of 0.74, with the individual correlation ranging from 0.69 to 0.79.

Statistical procedures

Descriptive statistics (mean, minimum and maximum) and frequencies were calculated using SPSS for Windows (version 13.0). Non-parametric techniques of Chi-square were employed to test the significant gender differences. The level of significant differences was set at $p<0.05$.

RESULTS

Table 1 presents the descriptive statistics for the PSI subscales for the total group of hockey players. The results show poor mean scores for five of the six psychological skill subscales (goal directedness, activation control, imagery, maintaining self-confidence and concentration). The mean score for achievement motivation was 77.83% ± 11.58, which falls within the average category.

Table 1: Descriptive statistics of the PSI subscales for the total group (N=197) of tertiary institution field hockey players.

PSI subscales	Mean	Standard deviation	Minimum	Maximum
Average Psychological Skills score	61.57	11.79	34.60	95.40
Achievement motivation	77.83	11.58	45.00	100.00
Goal directedness	57.80	19.32	7.50	100.00
Activation control	58.24	15.47	15.00	95.00
Maintaining Self-confidence	62.06	17.28	17.50	100.00
Concentration	60.61	14.45	20.00	100.00
Imagery	53.43	17.43	20.00	100.00

Table 2: Descriptive statistics and gender comparison of the PSI subscales for tertiary institution field hockey players.

	Males (n=91)			Females (n=106)			
PSI subscales	**Mean**	**Minimum**	**Maximum**	**Mean**	**Minimum**	**Maximum**	**p=values**
Average Psychological Skills score	61.39	34.60	88.80	61.72	36.70	95.40	0.744
Achievement motivation	76.18	45.00	100.00	79.25	52.50	100.00	0.097
Goal directedness	54.12	7.50	97.50	60.97	20.00	100.00	0.017*
Activation control	59.73	15.00	95.00	56.96	27.50	92.50	0.096
Maintaining Self-confidence	64.18	17.50	100.00	60.24	17.50	97.50	0.100
Concentration	62.36	22.50	97.50	59.10	20.00	100.00	0.034*
Imagery	53.02	20.00	90.00	53.77	20.00	100.00	0.989

* Statistical significance ($p \leq 0.05$)

Table 2 presents the descriptive statistics and gender differences of the PSI subscales for tertiary institution hockey players. Significant gender differences were found for goal directedness and concentration. Borderline significant ($p<0.10$) differences were observed for activation control, in which the males outperformed the females, and for achievement motivation where the females' scores showed higher values than those of the males.

Table 3: Descriptive statistics of the OMSAT-3 subscales for the total group (N=197) of tertiary institution field hockey players.

	OMSAT-3 subscales	Mean	Standard deviation	Minimum	Maximum
Foundation Skills	Goal setting	5.13	1.06	1.00	7.00
	Self-confidence	5.54	0.91	1.75	7.00
	Commitment	5.29	1.07	2.25	7.00
Psychosomatic Skills	Stress reactions	4.51	1.19	1.25	7.00
	Fear control	4.70	1.04	1.25	7.00
	Relaxation	4.80	1.06	1.00	7.00
	Activation	4.94	0.90	2.25	7.00
Cognitive Skills	Focusing	4.44	1.14	1.25	7.00
	Refocusing	3.89	1.22	1.50	7.00
	Imagery	4.83	1.06	1.75	7.00
	Mental practice	4.35	1.10	2.00	7.00
	Competition planning	4.39	1.23	1.50	7.00

The results of the OMSAT-3 show the highest mean scores for self-confidence, commitment and goal-setting for the total group of tertiary institution hockey players (Table 3). The remaining nine OMSAT-3 variables fell within the moderate category.

Table 4 shows significant gender differences in the OMSAT-3 subscale scores for goal setting and commitment. Borderline significant ($p<0.10$) gender differences were observed for stress reaction, with the male players outperforming the females.

Table 4: Descriptive statistics and gender comparison of the OMSAT-3 subscales for tertiary institution field hockey players.

		Males (n=91)			Females (n=106)			
	OMSAT-3 subscales	**Mean**	**Minimum**	**Maximum**	**Mean**	**Minimum**	**Maximum**	**p=values**
Foundation Skills	Goal setting	4.75	1.00	6.75	5.47	3.25	7.00	0.000*
	Self-confidence	5.50	1.75	7.00	5.58	2.00	7.00	0.587
	Commitment	5.10	2.25	7.00	5.46	2.75	7.00	0.019*
Psychosomatic Skills	Stress reactions	4.65	1.25	7.00	4.38	1.75	7.00	0.093
	Fear control	4.65	1.25	6.75	4.74	2.75	7.00	0.796
	Relaxation	4.87	1.00	6.75	4.73	2.00	7.00	0.270
	Activation	4.92	2.25	7.00	4.97	2.50	6.75	0.680
Cognitive Skills	Focusing	4.49	1.25	7.00	4.39	1.75	7.00	0.403
	Refocusing	3.97	1.50	6.50	3.81	1.50	7.00	0.276
	Imagery	4.71	2.25	6.75	4.93	1.75	7.00	0.121
	Mental practice	4.26	2.00	6.50	4.43	2.00	7.00	0.390
	Competition planning	4.15	1.50	7.00	4.60	2.00	7.00	0.140

* Statistical significance ($p\leq0.05$)

Figures 1 and 2 respectively represent the players' opinion regarding the importance of MST and their need for MST programmes. From Figure 1 it is clear that 82% of the male and 85% of the female players perceived MST as important or very important. It is clear from Figure 2 that there is a great need for MST among field hockey players, as 77% of the males and 81% of the females indicated a need for these programs.

Furthermore, Figure 3 shows that 69% of the males and 63% of the females were of opinion that their ability to prepare mentally for games is good or very good. The results show 3% of the males to be below average and 4% of the females were below average regarding their ability to prepare mentally for mathces.

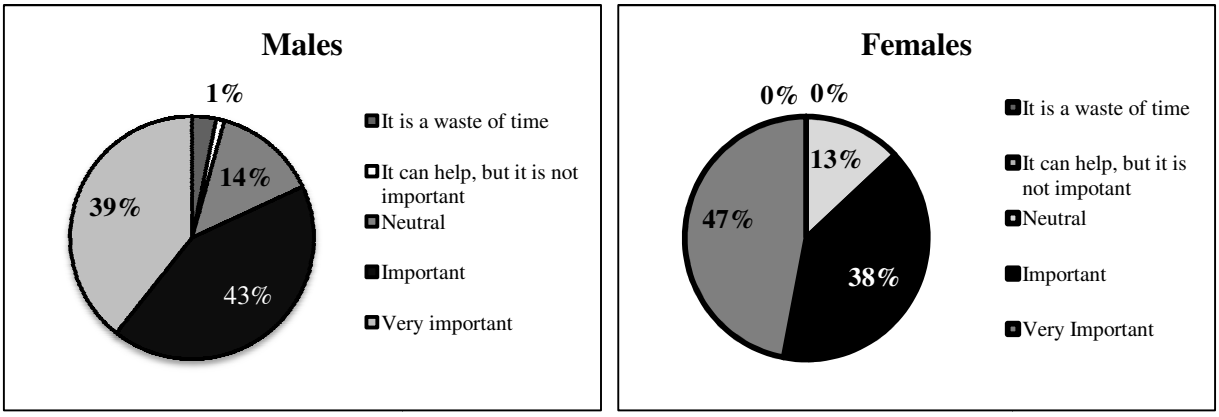

Figure 1: Male (n=91) and female (n=106) tertiary institutions field hockey players' perceptions regarding the importance of MST.

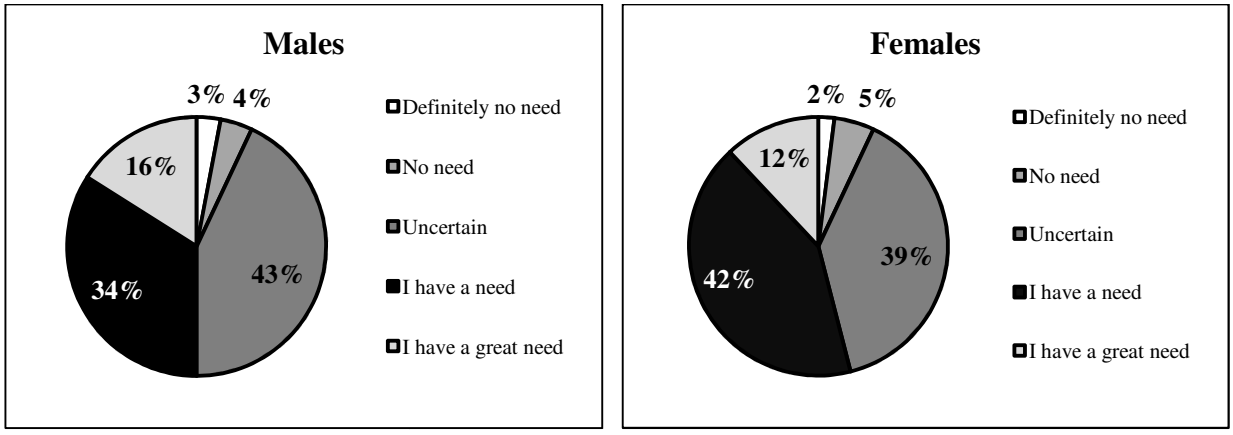

Figure 2: Male (n=91) and female (n=106) tertiary institutions field hockey players' perceived need for MST programmes.

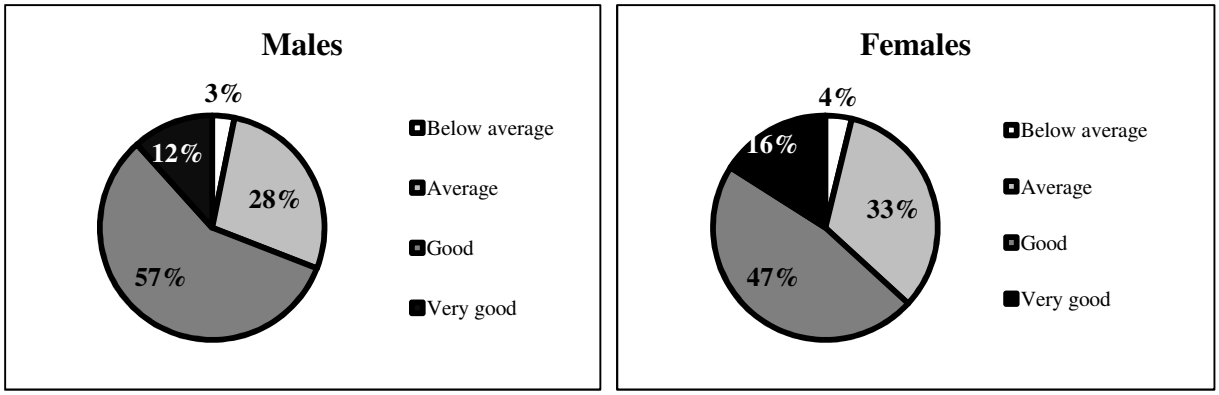

Figure 3: Male (n=91) and female (n=106) tertiary institutions field hockey players' perceptions regarding their ability to prepare mentally for matches.

DISCUSSION

The purpose of this study was threefold: firstly, to determine the players' opinions regarding MST and the need for such programmes for the total group and by gender; secondly, to determine the players' perceptions of their ability to be psychologically prepared for matches for the total group and by gender; and thirdly, to determine the player's actual mental skills levels for the total group and by gender. In general the results of the present study on field hockey players revealed poor scores with regard to the PSI subscales, except for achievement motivation which showed average values for the total group. In addition, significant gender differences were observed for two of the OMSAT-3 foundation skills (goal setting and commitment).

To some extent these findings are in agreement with research findings from other studies (Andrew *et al.,* 2007, and Reilly, Williams, Nevill & Franks, 2000). In the present study, tertiary institutions field hockey players scored average on achievement motivation of the PSI whilst they scored relatively poor in the other variables of the PSI. The results are similar to the findings of Andrew *et al.* (2007), namely that top ranking rugby players showed average scores with regard to the PSI sub-scales such as goal directedness, maintaining self-confidence and concentration, and poor activation control and mental rehearsal scores. From the results of the present study and previous studies it is, however, important to note that psychological preparation is of vital importance to any sport performance. This confirms a statement of Reilly *et al.* (2000) who notes that an increasing number of athletes are paying attention to psychological preparation.

The cognitive skills measured by the OMSAT-3 focused on strategy and cognitive response, which athletes could see as important mental skills (Durand-Bush *et al.,* 2001). In this study average scores were found for focusing, refocusing, imagery, mental practice and competition planning. Given the importance of cognitive skills in relation to its role in performance (Dominikus, *et al.,* 2009), these findings are worrying and should receive urgent attention. This is congruent with many sport psychology researchers who are convinced that mental skills are linked to excellence in sport, and that these skills are essential for sport development (Mahoney *et al.,* 1987; Orlick, 2008). In a study by Bernier and Fournier (2007), in which the OMSAT-3 was used, it was found that refocusing skills improve significantly after a 10-month MST programme.

Significant gender differences were observed for the foundation skills of goal-setting and commitment (as measured by means of the OMSAT-3) with the females outperforming the males. In a study by Bernier and Fournier (2007) on elite French male and female athletes, using the OMSAT-3, gender differences were observed. Male athletes' in the present study scored higher in confidence, stress reaction, relaxation and imagery, whereas the women scored higher in competition planning.

Generally the hockey players in the study showed high scores with regard to the perceived importance of MST in enhancing performance. In a study on provincial netball players in South Africa, Van den Heever *et al.* (2007a) reported that the players perceived MST as a very important component for performance. In New Zealand it was reported that athletes showed a positive attitude towards using MST as a performance enhancement tool (Anderson *et al.,* 2004). Weinberg and Gould (2007) pointed out that prior to implementing an MST program it is very important to ensure that athletes understand the importance of MST and the manner in which these skills can improve their performance.

It was interesting to note that the subjects in the present study generally perceived their ability to prepare themselves mentally for games as good. According to Weinberg and Gould (2007), self-confidence, goal-setting and concentration are the skills most commonly used by athletes, although this is only a small number of the skills which can be used in an MST programme.

Only 33% of the players in this study have had prior exposure to these skills, which might thus have influenced their opinion regarding their ability to prepare psychologically before a match.

The results of this study cannot be generalised to all field hockey players due to the fact that the study was limited to tertiary institution hockey players. In addition, the small number of participants might have affected the results, which warrants caution when interpreting the results. Despite these limitations, the study provides useful information regarding the exposure to, perceptions and mental skill levels of South African tertiary institution hockey players, and it contributes to the existing knowledge concerning the importance of MST in sport.

CONCLUSION

The results of this study highlight the importance of MST among hockey players. The results show that gender differences exist for certain mental skills, such as goal-setting and achievement motivation where the females outperformed the males. The male players outperformed the female players in activation control. Furthermore, the results showed that South African tertiary institution hockey players perceived MST as an important component to enhance performance. The majority of the players were of opinion that their ability to prepare mentally for matches was good. Hence it is recommended that sport psychologists and other role players in field hockey should devote their time and energy to developing and implementing an MST program specifically for hockey.

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