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Impact of a Brief Workshop on Stages of Change Profiles in Athletes

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Abstract

This report examines the impact of a psychoeducational workshop on athletes' stages of change for use of mental skills training. Fourteen teams participated in a sport psychology workshop including seven women's teams ($n = 124$) and seven men's teams ($n = 96$). Teams were assessed on decisional balance (pros and cons) and stages of change variables before and after the workshop. As hypothesized, athletes reported significantly higher pros and contemplation scores after the workshop, with corresponding decreases in cons and precontemplation scores. Moderate effect sizes (.35 - .68) supported a positive impact of the workshop on athletes' perceptions of mental training, but data were not collected on how long these effects may last. The results also suggest that research should explore more efficient methods for stage assignment for athletes to maximize intervention effectiveness.

Introduction

The sport psychology literature has provided ample evidence that psychological skills training programs and interventions can serve educational and performance enhancement purposes for both team and individual athletes as well as for exercise participants (Danish, Petitpas, & Hale, 1993; Greenspan & Feltz, 1989; Leith & Taylor, 1992; Whelan, Mahoney, & Meyers, 1991). However, many athletes hold negative perceptions of psychological services and sport psychologists, which may inhibit service use and intervention acceptance (Linder, Brewer, Van Raalte, & De Lange, 1991; Maniar, Curry, Sommers-Flanagan, & Walsh, 2001; Martin, Kellmann, Lavalley, & Page, 2002; Van Raalte, Brewer, Linder, & De Lange 1990).

These results suggest there may be a benefit to addressing beliefs about sport psychology in the early stages of interventions. This enhanced readiness for behavioral change may be an important primary outcome and an intermediary step in facilitating effective sport psychology interventions. The transtheoretical model of behavior change (TM) may provide a means of assessing behavioral readiness, intervention effectiveness, and the degree to which negative perceptions are reduced.

Application of the Transtheoretical Model

The TM is a general model of behavior change that has been validated with a wide range of problem and healthy behaviors (Prochaska & DiClemente, 1983; 1992; Prochaska et al., 1994), and most recently with mental skills usage (Grove, Norton, VanRaalte, & Brewer, 1999; Leffingwell, Rider, & Williams, 2001). The basic premise of the TM is that behavior change is not dichotomous, but rather a process with predictable stages. These stages include precontemplation, contemplation, preparation, action, and maintenance. The term decisional balance is used in the literature to refer to the ratio of perceived pros to cons for a given behavior change. Decisional balance scores follow a predictable pattern across the stages ranging from low-pros/high-cons in precontemplation to high-pros/low-cons in the contemplation stage and thereafter.

The primary importance of the TM for the early stages of sport psychology interventions is identifying methods or information that will assist athletes in moving from precontemplation to action (i.e., for adopting mental skills practice; Leffingwell et al., 2001). A precontemplator is defined as someone who is not currently thinking about adopting a mental skills training program in the next six months. Since the benefits of mental skills training (MST) may be less familiar to athletes than, for example, the benefits of exercise, this early stage may include those who are unaware of MST. The contemplation stage includes athletes who are thinking about beginning a mental skills program in the next six months. The preparation stage describes those athletes who have chosen to begin a mental skills program in the next month or those that have been using mental skills occasionally but have not committed to a formal program. The action stage involves regular participation in a mental skills training program (typically up to six months), and maintenance would include athletes who have been consistently practicing mental skills for a period of more than six months.

The primary benefit of classifying athletes into one of these stages is that different interventions are more appropriate for the various stages. Based on the seminal research by Prochaska and DiClemente (1983; 1992), the stages involve different processes of change. In the initial stages, individuals are focused on cognitive processes (e.g., weighing the pros and cons of change), whereas in the later stages individuals rely on behavioral processes such as stimulus control and reinforcement. Often times, interventions do not match the situation. For example, sport psychology consultants may waste time by trying to teach an athlete mental skills (behavioral strategies) before they have been convinced of the benefit of regular practice. Applying the transtheoretical model to the sport psychology intervention process may help consultants more easily identify and address the needs of each athlete, and ideally, to provide more relevant and effective services.

The current study was designed to examine the effect of a workshop on stages of change scores within a sample of high school and college athletes. The focus of the current study was on three stages of the transtheoretical model (precontemplation, contemplation, and action) as well as changes in decisional balance scores. It was hypothesized that the workshop would lead to increases in contemplation and pros scores, with decreases in precontemplation and cons scores. No change in action scores was hypothesized to occur from pre- to post-workshop since it would be unreasonable to expect that athletes would be able to increase actual behaviors during the course of a workshop. Based on stage classification, it was also expected that the workshop would induce “positive cognitive shifts,” moving some individuals forward in the model (e.g., from precontemplation before the workshop to contemplation after the workshop). The data presented in the current study represent specific unused data from a published, longitudinal intervention project (Zizzi & Perna, 2002). The previous study explored usage patterns and preferences for sport psychology service over a one-month period but did not address transtheoretical concepts. The current project focuses instead on evaluating the impact of the workshop at the beginning of the intervention on the stage of change profiles of athletes. Thus, the research questions focus on the initial impact of a sport psychology workshop on athlete’s perceptions within a TM framework.

Method

Participants and Recruitment

The participants for this study included 220 small-college and high school athletes on fourteen intact teams from the Mid-Atlantic area of the United States. Teams were recruited through head coaches, and less than 15% of teams declined participation. The final sample included a balance of high school ($n = 108$) and college ($n = 112$) athletes as well as a fairly even distribution across genders (120 women, 100 men). The sports that were included in the study were basketball ($n = 49$), baseball ($n = 27$), softball ($n = 53$), tennis ($n = 54$), lacrosse ($n = 32$), and volleyball ($n = 6$). To minimize the experience level of the sample, schools were selected that did not have an identifiable sport psychology consultant on staff.

Procedure

The current study used a multi-group, pretest-posttest design. The primary investigator conducted all of the team workshops in the first two weeks of the teams’ competitive seasons with the exception of the basketball teams, which were conducted in the middle of their season. After providing informed consent, athletes participated in a single 45-minute group workshop on the application of mental skills to their sport. This interactive presentation overviewed several standard areas of mental skills including relaxation, imagery, concentration, confidence, and goal setting and addressed their perceptions and stigmas associated with sport psychology. In exploring their perceptions, several open ended questions were used to gather athletes’ misperceptions of psychology and mental skills training. Presentations followed a standard outline of content and no audiovisual aids were used. Core content was not modified for different sports, but specific examples using appropriate terminology were provided. Prior to and following the workshop, participants completed a stages of change for mental training

questionnaire as well as a decisional balance measure.

Treatment Fidelity

Treatment fidelity was maintained across the fourteen workshops in several ways. The workshop followed a scripted discussion format that included a content checklist. This format was piloted and practiced twice with a total of 50 athletes before data collection began, and two sport psychology professionals observed and provided feedback during the pilot. Athletes from a variety of college sports were represented in the pilot workshops including football, baseball, wrestling, and men's and women's basketball, track and field, tennis, soccer, and swimming. Additionally, a research associate observed all 14 presentations to ensure that the content was delivered in its entirety. Finally, as a manipulation check, the post-workshop questionnaire included a single item measuring the impact of the workshop on perceptions of sport psychology. This item asked "What was the impact of the workshop on your impression of sport psychology services?" and had anchors of 1 (Very negative impact) and 7 (Very positive impact).

Instrumentation

Athletes completed a demographics form, the 12-item Stages of Change for Mental Training questionnaire and the 10-item Decisional Balance for Mental Training questionnaire (SOC-MT; DB-MT; Leffingwell et al., 2001). All items on both questionnaires are coded along a scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). These instruments are earlier versions of the Stages of Change for Psychological Skills Training (SOC-PST) and did not include preparation or maintenance scales. In the current sample, internal consistency estimates for the precontemplation, contemplation and action were .55, .79, and .87 respectively, while scores for the pros and cons scales were .61 and .80. Although two of these subscales show moderate reliability estimates (<.70), it should be noted that these subscales contain only 4-items, which can reduce estimates. Further information on the development of the SOC-MT and SOC-DB is provided by Leffingwell et al. (2001).

Stage assignment. Based on the recommendations of Leffingwell et al. (2001), participants' raw scores on each subscale were transformed into standardized T-scores at each data point. Athletes were categorized into one of the three stages of change based on their highest relative T-score. Stage assignment was done after data collection, thus participants were unaware of their own stage assignments.

Results

Dependent t-tests with Bonferroni corrections were used to address specific hypotheses related to the three stages of change and two decisional balance scores. Repeated measures effect size estimates (d_{RM}) were calculated according to procedures for pre-post designs discussed in Morris and DeShon (2002). This effect size estimate can be interpreted as the amount of change from zero, as opposed to the absolute difference between means in standard deviation units used in independent groups analyses. Descriptive statistics and effect sizes are reported in Table 1.

Table 1. <u>Stages of Change and Decisional Balance Raw Scores Before and After the Workshop</u>							
		Before Workshop (<i>n</i> = 220)		After Workshop (<i>n</i> = 220)			
		<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>SD_{diff}</i>	<i>Effect Size (d_{RM})</i>
Stages of Change	Precontemplation	8.50	2.54	7.87	2.58	1.59	.39
	Contemplation	15.80	2.44	16.33	2.35	1.29	.35
	Action	12.02	3.14	12.28	3.18	1.89	.14
Decisional Balance	Pros	16.22	2.55	17.10	2.29	1.56	.68
	Cons	12.02	3.32	10.95	3.49	1.87	.57
<i>Note.</i> SD_{diff} = standard deviation of the average difference between means. $d_{RM} = (Mean1 - Mean2) / SD_{diff}$ (Morris & DeShon, 2002).							

Prior to running the primary analyses, two preliminary checks in the pre-test data were conducted to ensure consistency across all dependent variables (precontemplation, contemplation, action, pros, and cons). Rejection criterion were adjusted for these analyses to $p < .01$ to reduce the risk of Type I error. Since basketball teams were tested at different time points in their season, athletes pre-test scores from this sport were compared to all other athletes. Using independent t-tests, no significant differences were found between basketball and other athletes at pre-test. A similar analysis revealed that college athletes had slightly higher contemplation scores at pre-test than high school athletes ($p < .01$) but no other differences were found.

Intervention Effects on Stages of Change Scores

As hypothesized, contemplation and pros scores significantly increased following the workshop, $t(218) = 4.17, p < .001, d = .35$ and $t(218) = 7.03, p < .001, d = .68$ respectively. In addition, precontemplation and cons scores significantly decreased from pre to post-workshop, t

(218) = 4.22, $p < .001$, $d = .39$ and $t(217) = 6.07$, $p < .001$, $d = .57$. There was no significant change in action scores after the workshop, $t(218) = 1.54$, $p > .05$, $d = .14$. Overall, these results revealed small to moderate effects in the hypothesized directions. On the seven-point manipulation check item, a large majority of the athletes reported that the presentation had a positive impact on their perception of sport psychology (only 4% reported a neutral or negative response; $M = 5.8$; $SD = .80$).

Intervention Effects on Stage Assignment

Assigned stages were examined before and after the workshop to see how many athletes experienced a cognitive shift in their stages of change profile. The percentages of athletes classified into each stage before and after the workshop are displayed in Table 2. Although the overall percentages of athletes across the stages remained quite similar before and after the workshop, some athletes shifted between stages. Using Leffingwell and colleagues classification system, 32% of athletes ($n = 71$) shifted into a different stage after the workshop. Sixteen percent of the sample (35 athletes) experienced a hypothesized positive cognitive shift (i.e., moving forward in the model) and unexpectedly, an additional 16% of the sample incurred a negative cognitive shift. More specifically, of the 71 athletes who shifted stages, 34% ($n = 24$) were classified into precontemplation at the pre-test but moved forward after the workshop. Additionally, another 15% ($n = 11$) moved from contemplation into action. The remaining athletes who changed stage assignments ($n = 36$) shifted from action down to a lower stage or from contemplation to precontemplation.

Table 2. <u>Stages Assignments Before and After the Workshop</u>			
		Before Workshop ($n = 220$)	After Workshop ($n = 220$)
Stage Assignment	Precontemplation	44%	44%
	Contemplation	30%	29%
	Action	26%	27%
<p><i>Note.</i> Although percentages of athletes in each stage before and after the workshop are similar, approximately 32% of participants changed stages during this time period.</p>			

Discussion

The present study provides evidence of a short-term impact of a sport psychology workshop

on stages of change profiles in athletes. After the presentation, athletes' scores were elevated on contemplation and pros, while lowered on precontemplation and cons. These hypothesized changes support the efficacy of the workshop and the content validity of the instrument. However, using the classification system, only 16% of the sample experienced a positive cognitive shift from the workshop whereas, unexpectedly, another 16% experienced a negative cognitive shift in their assigned stages of change for mental training. The positive results from the manipulation check item suggest that the workshop was favorably received, and therefore despite the negative shifts, nearly all athletes reported leaving the workshop with a better understanding of sport psychology services. For example, prior to the workshop, 21 athletes were classified into action but after the workshop ended up in a lower stage. These athletes may have either increased their contemplation scores (which could have resulted in being classified into the contemplation stage) or simply realized that they are not currently actively pursuing a mental skills program (i.e., decreased action scores suggests they developed a more accurate view of themselves). An alternative explanation is that the workshop content was too broad and not tailored to a particular sport or situation, and therefore may have not met the specific needs of some athletes. Future workshops may consider first identifying and standardizing the content to be delivered and then specifically tailoring the examples by gender, sport, and age level. Pre-workshop needs assessments could also be used to identify key issues to be emphasized with specific teams. These modifications may help the workshop translate the sport psychology content more effectively to diverse audiences.

The workshop was evaluated in terms of the “strong-weak” principle, which provides an indication of clinical usefulness or meaningful change (Prochaska, 1994). This principle suggests that in order to move a person from precontemplation into action, there needs to be a one standard deviation increase in the perceived benefits (pros) of a given behavior change and a ½ standard deviation decrease in the perceived consequences (cons). Given that Prochaska's (1994) work has occurred across a variety of behavior change contexts, it is likely that this principle applies to the adoption of mental skills training as well. Examining the standardized effect size estimates from the current study shows that there was nearly a ¾ standard deviation increase on average for workshop participants in their pros ($d = .68$) and more than a ½ standard deviation decrease on their cons scores ($d = .57$). Thus, the broad psychoeducational workshop that addressed directly the stigma associated with sport psychology may have had a clinically meaningful impact on athletes' impression of sport psychology services, although it is unclear how long this impact lasted. Future research should consider examining the temporal effects of similar workshops and the relationships between improved attitudes, intentions to use service and actual service use.

Assessment Issues in Stages of Change Research

Research should begin to explore a consistent way to establish stage assignment with athletes, as there were difficulties in this study. Researchers in other areas (Marcus et al., 1992; Marcus, Selby, Niaura, & Rossi, 1992) initially used single-item descriptors with a true-false format for each stage. Work by Grove and colleagues (1999) attempted to utilize this approach with mental training outcomes and found difficulty in obtaining accurate stage assignments. Conversely, Leffingwell and colleagues (2001) disagreed with this single item approach, considering it less accurate, which in part led them to develop the previously mentioned instruments with several items for each stage. Thus, while Grove et al. (1999) suggest using a single item descriptor for

each stage or a single multiple choice item reflecting all stages, Leffingwell and colleagues (2001) prefer the subscale approach. Results from the current study support the notion offered by Grove et al. (1999) that a simplified approach may add clarity to stage assignment. Using single item descriptors may have alleviated problems that were encountered in the present study. Problems were particularly evident when standardized stage scores were similar; in these cases, decisional balance scores were used for assistance in accurately assigning stages. If the TM is to be used effectively with mental skills training interventions, correctly identifying the needs of individual athletes will remain important. Results from the present investigation suggest that these needs may be best assessed by a combination of decisional balance scores and single items stage descriptors.

Limitations

The current study has some limitations due to its design. The pre-post nature of the data without a control group limits our ability to attribute the positive impact of the workshop due to the intervention. It is important to note, though, that this design did involve fourteen iterations of the same workshop with good treatment fidelity and a large sample, and thus the threats to internal validity based on a single group pre-post design are less applicable. Secondly, since uncontaminated follow-up data are not available in the current study, it will be important for future research to ascertain the degree to which these effects persist over time. Also, the manipulation check involved a single item, thus future research may consider using more thorough methods to confirm intervention effectiveness. Finally, the SOC-MT may have had some temporal instability due to low internal consistency estimates on two of the subscales and it is possible that some of the changes that occurred from pre- to post-workshop could be attributed to this instability.

Future Directions for Transtheoretical Research in Sport Psychology

Although the model is in its infancy in sport psychology, using the TM as a backdrop for applied research and intervention can be an effective way of assessing client progress and conducting outcome research (Grove et al., 1999; Leffingwell et al., 2001). Small to moderate effects in the current study provide evidence for the impact of a brief workshop on the stage of change profiles of athletes, but it is unclear how long these cognitive effects may last and how mental skills behavior will be affected. For example, stage of change identifies participants' readiness for change but does not discuss self-efficacy to engage in self-regulatory behavior, perceived behavioral control over barriers, or even specific strength of intention to begin a mental skills training program. Further research is needed to solidify the use of the transtheoretical model in sport psychology interventions.

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