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Piloting A Family-Supported Approach to Concurrently Optimize Mental Health and Sport Performance in Athletes

Clinical Case Studies
2015, Vol. 14(3) 159–177
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DOI: 10.1177/1534650114548311
ccs.sagepub.com


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Abstract

Participation in sports offers exceptional pro-social opportunities. However, sport participation also contributes to uniquely experienced stressors that may interfere with athletes' achievement in sports and mental health. In this study, we describe the initial process of empirically developing The Optimum Performance Program in Sports (TOPPS). We first review the need to adapt evidence-based behavioral interventions to optimize mental health in athletes. We then review the innovative features of TOPPS and report the results of our initial piloting of TOPPS in a series of case trials. Throughout this developmental process, we underscore our methods of addressing obstacles (e.g., stigma) that appear to have influenced the conspicuous absence of performance programming specific to mental health optimization in athletes. Recommendations are offered in light of the results.

Keywords

athletes, drug and alcohol, treatment, mental health, sport performance, STI/HIV prevention

I Theoretical and Research Basis for Performance Programming

Evidence-supported behavioral interventions are now universally available to enhance mental health in various populations (W. R. Miller, Zweben, & Johnson, 2005). However, there is a need to adapt mental health interventions to fit unique subgroup populations (Goodheart, 2011). For instance, behavioral interventions that are focused on mental health, particularly those that are optimized to manage substance misuse, have yet to be adapted for use in athletes although investigators have urged the development of such programs (e.g., Donohue, Pitts, Gavrilova, Ayarza, & Cintron, 2013; Martens, Dams-O'Connor, & Beck, 2006). In this article, we underscore empirical development of the first prescribed intervention to concurrently enhance multiple aspects of mental health and sport performance. We establish that there is a great need to develop mental health interventions for use in athletes and review the process of originating *The Optimum*

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Performance Program in Sports (TOPPS). We conclude by reporting the results of our initial examination of TOPPS in a series of case trials and suggest future directions in light of the results.

Need to Empirically Develop Mental Health Interventions Customized for Use in Athletes

Although athletes are frequently featured in the media for mental health related difficulties, particularly substance abuse, research in this area is sparse (see Seear & Fraser, 2010). Athletes have been identified to experience unique stressors that hinder their mental health optimization, including pressure to achieve success in multiple life domains (Evans, Weinberg, & Jackson, 1992), being separated from family for extended periods of time (Masland, 1983), and engagement in impulsive activities that are dangerous and encouraged by sport culture (Lisha & Sussman, 2010). High school and college athletes have been found to report greater misuse of alcohol than their non-athlete peers (Hildebrand, Johnson, & Bogle, 2001). Indeed, 80% of high school coaches confirmed substance abuse is a problem in their athletes (King, Dowdall, & Wagner, 2010), and substance use disorders are the leading referral to counseling programs for athletes attending college (see Glick & Horsfall, 2009). Athletes have also been found to experience perpetration and victimization of inappropriate sexual activity (e.g., Ullman, Karabatsos, & Koss, 1999), poor relationships with others (e.g., Donohue, Miller, Crammer, Cross, & Covassin, 2007), psychiatric symptoms (Donohue, Covassin, et al., 2004), and risk behaviors associated with HIV and other sexually transmitted diseases (Midgley et al., 2000).

Importantly, athletes have been identified to avoid counseling programs (Brewer, Van Raalte, Petitpas, Bachman, & Weinhold, 1998), and it is well-documented that the mental health needs of athletes are not being adequately addressed (Bergandi & Wittig, 1984; Brooks, Etzel, & Ostrow, 1987). Along these lines, experts have reported that mental health professionals have insufficiently incorporated sport culture into their intervention planning (Cooper, 2006; Donohue et al., 2013). These shortcomings have led others to urge the development of behavioral interventions that are capable of addressing substance abuse, and its comorbid problems in athletes (Carey, Scott-Sheldon, Carey, & DeMartini, 2007). Aoyagi, Portenga, Poczwardowski, Cohen, and Statler (2012) urged the development of prescribed behavioral intervention programs that are capable of concurrently enhancing mental health and sport performance in athletes.

Method of Originating TOPPS

We were inspired to originate TOPPS as a pedagogical alternative to traditional counseling programs that utilize stigma-laden concepts and rely on obsolete traditions that act to restrict athletes from pursuing mental health intervention programs. Viewing mental health as optimal regulation of thoughts, feelings/emotions, and behaviors consistent with a positive outlook and state of well-being, we set out to create an overtly positive and strength-based program chiefly focused on goal achievement through cognitive and behavioral skills acquisition. In doing so, we established relationships between members of the TOPPS research team and university administrators, coaches, and athletes through formal participation in athletic department committees and applied collaborative research initiatives. Along this vein, athletes were invited to complete behavioral rating scales to assist in formally assessing their mental health (Donohue, Covassin, et al., 2004; Donohue, Silver, Dickens, Covassin, & Lancer, 2007) and relationships with their coaches, family, and teammates (Donohue, Miller, et al., 2007). This information was utilized to determine appropriate intervention targets and to psychometrically develop relevant measures of outcome. Controlled outcome studies were also conducted with athletes to assist in the development of intervention components aimed at enhancing sport performance (Donohue, Barnhart,

Covassin, Carpin, & Corb, 2001; Donohue, Miller, et al., 2006; A. Miller & Donohue, 2003) and developing engagement strategies in controlled trials to assist behavioral intervention participation through the reduction of stigma (Donohue, Dickens, et al., 2004) and ethnic cultural enlightenment (Donohue, Strada, et al., 2006).

We then adapted the intervention manual for Family Behavior Therapy (FBT; Donohue & Allen, 2011) to address sport performance and mental health goals in athletes. We chose FBT as the base intervention for TOPPS because it appeared to fit the culture of sport. For instance, FBT is focused on goal achievement through behavioral and cognitive skill development, involves a team approach to rehabilitation (i.e., making it easy for teammates, coaches, and family to support goal achievement), has been shown to enhance multiple areas of mental health and relationships that have been shown to affect performance in athletes, and its multi-component structure permitted us to easily integrate the engagement and sport performance interventions we reviewed earlier in this section (see Donohue et al., 2013).

In the last phase of development, we examined TOPPS in a series of case trials involving the first 10 athletes to enter the program. Although uncontrolled, this pilot examination includes several methodological advancements in the behavioral treatment of athletes, including (a) utilization of psychometrically validated measurements of drug and alcohol use, risk of HIV and other sexually transmitted infections (STI), relationships, cognitive and behavioral factors that interfere with sport performance, and psychiatric symptoms that have been found to exist in athletes; (b) objective biological methods to assess the presence or absence of drug use; (c) standardization and uniformity of intervention implementation through the incorporation of intervention manuals, utilization of protocol checklists to guide intervention implementation, and structured supervision of providers; (d) formalized assessment of intervention integrity (including objective reviews by independent raters); and (e) follow-up assessment to ascertain durability of study findings.

It was hypothesized that providers would be able to implement TOPPS with fidelity and that implementation of TOPPS would lead to sustained reductions in binge drinking, illicit drug use, mental strength and stability (i.e., mental health, positive mood), prevention of risk behaviors associated with HIV and other STIs, enhanced relationships, and sport performance up to 3 months post intervention.

2 Case Introduction

Method of Recruitment

Coaches and administrators in the Athletics Department were initially informed of the study through email and on-site presentations with coaches, student athletes (SA), and team presidents of various club sports. During these meetings, it was explained that SAs were invited to participate in an outcome study that was being conducted to develop a comprehensive intervention program aimed at assisting athletes in sport performance; avoiding substance misuse and HIV/STI risk factors; improving mental strength and stability; and enhancing relationships with coaches, family, teammates, and peers. They were informed that SAs needed to demonstrate problems with substance use to qualify for the study. These initial meetings failed to result in direct referrals.

We subsequently initiated a series of study engagement strategies that were aimed at encouraging athletes to visit the facility to learn more about TOPPS. These strategies included learning about the TOPPS study after they were engaged in (a) an alcohol prevention meeting (three referrals in this study were recruited in this way; all of which withdrew from the study after completing four meetings); (b) a competitive bean bag game on their walk to class (involved provision of instructional or motivational statements while athletes attempted to throw bean bags into holes

with designated scores; one referral in this study was recruited in this way); and (c) workshops that were aimed at sport performance assessment, restructuring negative thoughts, and team cohesion (three referrals in this study). The Athletics Training Director referred one athlete due to substance use, one athlete was referred by a parent, and one athlete was self-referred after approaching one of the TOPPS providers (i.e., performance coach) wearing a TOPPS shirt while working out in the university's gym. Conducting workshops and brief individual sport performance meetings that were explicitly not focused on mental health and substance abuse protected confidentiality of participants because it was not possible to determine why athletes were visiting TOPPS. When SAs responded that they were interested in learning about the outcome study, they were invited to participate in a structured engagement interview alone to determine whether they met study inclusionary criteria and were interested in consenting to be in the study.

Participants

Study inclusionary criteria included evidencing Substance Abuse or Dependence (lifetime or current) according to the SCID-IV (*Structured Clinical Interview for the Diagnostic and Statistical Manual for Mental Health Disorders* [4th ed.; *DSM-IV*]; American Psychiatric Association, 1994) during baseline assessment (see "Measures" section of this article for description of SCID-IV), being at least 18 years old, participating in intercollegiate club or a National Collegiate Athletics Association (NCAA) sport, and having at least one adult significant other willing to support the participant during intervention meetings (usually family member, coach, or teammate). Seven collegiate SAs consented to participate in the study, and completed baseline, post-intervention, and 1- and 3-month post-intervention follow-up assessments. Three additional participants consented to participate in the study, but withdrew from the study during summer after having completed four intervention meetings (one went home for the summer, two reported that they were only interested in sport performance and not the comprehensive services offered).

Demographics and subsequent results are presented only for the seven athletes who completed all assessments. Mean age of participants was 20 years ($SD = 1.53$). Four (57%) of the participants were male. Participants were of mixed ethnic background: two Caucasians (29%), two Hispanic Americans (29%), one Asian American (14%), and two multiple ethnic backgrounds (29%). Three participants (43%) played club sports and four (57%) participated in NCAA sports. Three participants (43%) were freshman, one (14%) was a sophomore, one (14%) was a junior, and two (29%) were seniors. The study was approved by the institutional review board, and a federal certificate of confidentiality was obtained prior to initiating the trial. No adverse events were determined to be due to the study.

3 Presenting Complaints

Although all participants in the trial self-reported significant impairments due to substance misuse at some point in their life, for most, their greatest motivation for participation was non-substance use related. Five participants pursued intervention to enhance their leadership, athletic performance, or relationships with teammates. One athlete was chiefly interested in decreasing alcohol use, and one pursued intervention to comply with the Athletic Trainer's mandate to attend intervention after substance misuse was evidenced.

4 History

All athletes initiated their substance use prior to college and continued their use into college. At the time of referral, all participants (100%) reported binge drinking, four (57%) reported marijuana use, and one (14%) reported hard drug use during the past 4 months. Three athletes reported

symptoms consistent with a current substance use disorder, and four athletes reported a lifetime substance use disorder. One participant (14%) met criteria for current cannabis dependence, one participant (14%) met criteria for current alcohol dependence, one participant (14%) met criteria for current cannabis abuse, one participant (14%) evidenced past history of cannabis abuse, two participants (29%) evidenced past history of alcohol dependence, three (43%) participants evidenced past history of alcohol abuse, and one participant (14%) evidenced past history of hard drug abuse and dependence.

The patterns of alcohol misuse varied, but included binge drinking at parties (e.g., after competitions to celebrate victories and to commiserate losses, drinking games, to have a good time). Along this vein, one athlete reported that peer pressure to binge drink was associated with team acceptance. Marijuana use was reported to occur in various situations, including small “get-togethers” among close friends and alone to cope with various day-to-day stressors or relax. Substance use was particularly high during the off-season when training and competition were not scheduled to occur. Indeed, one athlete reported that his coach indicated that alcohol use should be minimized during season, which one athlete interpreted as meaning it was acceptable to drink alcohol outside the sport season. High levels of stress were reported by all participants and included difficulties managing busy schedules, injuries, arguments, and pressure to perform optimally. Two SAs reported an extended history of thought disturbance (i.e., depression, inaccurate perception) that appeared to be exacerbated by alcohol intoxication and stress.

5 Assessment

Method of Collecting Data

Baseline, 4-month, 5-month, and 7-month post-baseline assessments were administered in an assessment center that was independent of the intervention clinic. Participants were compensated for their time completing post-intervention assessments with a US\$45 gift voucher.

Measures of Outcome

Frequency of days using illicit drugs and alcohol binge drinking (defined as four or five alcoholic beverages in a short period of time for females and males, respectively) during the 4 months prior to baseline assessment and 7 months post baseline (post-intervention, 1 and 3 month follow-up) was assessed using the Timeline Follow-Back (TLFB; Sobell & Sobell, 1986). The TLFB utilizes a calendar to evaluate daily patterns and frequency of drug use over a specified time period. Memorable events (e.g., birthdays, holidays) are marked on the calendars to facilitate recall. A five-panel urinalysis screen (amphetamines, barbiturates, benzodiazepines, oxycodone, anabolic steroids) and a five-panel hair follicle toxicology screen (cocaine, opiates, methamphetamines, phencyclidine, and tetrahydrocannabinol (THC)) incorporating conventional detection cutoffs were used to corroborate TLFB data. The TLFB was also utilized to ascertain the athletes' number of days suspended from sport practice, incarcerated, and hours employed. The TLFB has consistently demonstrated outstanding psychometric support (Donohue, Azrin, et al., 2004; Donohue, Hill, Azrin, Cross, & Strada, 2007). The abbreviated 17-item Risk Assessment Battery (RAB; Metzger et al., 1993) was examined to assess risk of HIV and STIs. Higher scores are indicative of greater risk of contracting HIV/STI. The RAB's psychometric support appears to be poor to good in collegiate samples (Metzger et al., 1993). The Global Severity Index of the Symptoms Checklist-90-Revised (SCL-90-R) is one of the most widely utilized scales to assess general psychiatric symptoms, has demonstrated satisfactory reliability and validity (Derogatis, 1994; Vallejo, Jordán, Díaz, Comeche, & Ortega, 2007), and has been used to examine psychological distress in SAs (Donohue, Covassin, et al., 2004). SCL-90-R factor scores are presented

as standard scores with a mean of 50 and a standard deviation of 10. The Beck Depression Inventory–II (BDI-II; Beck, Steer, & Brown, 1996), a newer version of the BDI (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), is perhaps the most widely used method of assessing depressive symptoms in the age range of the participants in this study, and its psychometric support is excellent. Scores higher than 13 are indicative of depression. The Sport Interference Checklist (SIC; Donohue, Silver, et al., 2007) includes 2 inventories (i.e., Problems in Sport Training Scale, Problems in Sport Competition Scale), each having 26 items that were developed to assess a wide range of problems that commonly interfere with sport performance. SIC items were rated on a 7-point rating scale ranging from 1 (*never a problem*) to 7 (*always a problem*). Thus, higher scores are indicative of experiencing greater problems in areas that are known to interfere with sports performance. Psychometric support for the SIC is excellent (Donohue, Silver, et al., 2007). The Student–Athlete Relationship Instrument (SARI) includes four inventories (i.e., Family, Coaches, Teammates, Peers), with each inventory having multiple subscales. Higher scores suggest greater problems in sports due to the respective relationships. Subscales for these four inventories are listed in Table 4, and psychometric support for the SARI is excellent (Donohue, Miller, et al., 2007).

6 Case Conceptualization

Substances are inherently reinforcing, leading to pleasurable sensations, social support, and minimization of aversive emotions and sensations, such as breaking up with an intimate partner, anxiety experienced while performing a class speech or award banquet, and pain experienced due to injury. Although negative consequences may result after substance intoxication, the severity of these negative consequences is often minimized or suppressed (Donohue & Azrin, 2011). Therefore, the negative impact of substance misuse is often overlooked by athletes. The aforementioned tenets of operant conditioning may be applied to other undesired behaviors that are targeted in TOPPS, such as those associated with sexual intercourse without a condom. Mental health difficulties are often influenced by stress specific to performance demands. From our family behavioral perspective, strong relationships with positive influences and well-developed cognitive and behavioral skill sets may be utilized to create antecedent conditions that compete with undesired behaviors and thoughts, and facilitate motivation to achieve goals through the provision of positive reinforcement (Donohue et al., 2013). TOPPS is, therefore, focused on modifying SAs' behavioral and cognitive skill sets and environmental cues through interpersonal support to inspire and bring about goal accomplishment. Supportive others are considered change agents capable of assisting goal accomplishment through modeling, instruction, encouragement, and positive reinforcement.

7 Course of Performance Programming and Assessment of Progress

TOPPS

Format. Intervention includes 12 meetings scheduled to occur within 4 months. Meetings fade in frequency with the passage of time. The first couple of meetings are about 90 min, whereas the remaining meetings are an hour. There are a dozen intervention components, each involving the provision of an introductory rationale, prescriptive instructions that are utilized to guide intervention implementation, and worksheets that are utilized during meetings and to assist performance assignments.

Inclusion of supportive others. Unique to most campus counseling programs, supportive others from the athlete's social ecology are incorporated into meetings to assist goal accomplishment

through modeling skill sets and encouragement to practice performance-based skills. Supportive others usually include teammates, adult family members, coaches, partners, and close friends. This approach has been previously proposed to assist SAs who feel disenfranchised from the university community (Gill, 2008).

Therapeutic style. TOPPS providers (performance coaches [PCs]) emphasize positive feedback and encouragement, ignore undesired behaviors, empathize with expressed concerns, and descriptively praise desired actions with passion (Donohue, Dickens, & Del Vecchio, 2011). PCs are encouraged to be humorous, entertaining, and compassionate throughout intervention (Donohue et al., 2013). They initially suggest participants' problem behaviors (e.g., substance misuse) occur due to external factors, often beyond their control. Such strategies reduce defensiveness and inspire participation. To assist skill development, several behavioral strategies are utilized, including modeling, behavioral rehearsal, and imagery.

Optimum mind-set for meeting. Meetings are initiated with a preparation exercise to achieve optimum mind-set. In this exercise, positive thoughts and emotions are solicited from participants, including positive qualities about the athlete, and motivational, focus-, and relaxation-oriented statements. PCs passionately suggest, model, repeat, and efficiently combine these statements to facilitate enthusiasm for the meeting. In this way, the meetings teach and encourage athletes to prepare for difficult life scenarios with enthusiasm and confidence.

Structured meeting agendas. Prior to intervention implementation, participants are informed which interventions the PC plans to review during the meeting, including estimated times for implementation and opportunities for the participant to change intervention plans.

Orientation. Prior to implementing the intervention components, participants and their supportive others are oriented to meeting communication guidelines, meeting format, conceptualization of TOPPS, and potential benefits of participation. The reasons for referral (including the participant's feelings about the referral) are examined, sport background is assessed (e.g., how participant wants to be remembered, accomplishments in sport), and the importance of establishing optimum performance in target areas (i.e., sport and mental performance, relationships, abstinence or safe and appropriate sexual activity, abstinence or controlled drinking) is emphasized. Importantly, the role of supportive others in performance programming is reviewed extensively during orientation, including generation of potential supportive others and reviewing how each supportive other can be utilized to accomplish specific goals.

Cultural enlightenment. The Semi-Structured Interview for Ethnic and/or Sport Consideration in Therapy Scale (SSIECTS/SSIESCTS) is reviewed based on the participants' desire so the PC can appreciate potential cultural issues that have been indicated in the literature to facilitate therapeutic engagement (Donohue, Strada, et al., 2006). These scales include six items (four solicit positive experiences regarding ethnic/sport background and two solicit negative experiences regarding ethnic/sport background utilizing a 7-point scale of agreement). Therapists subsequently review the endorsed responses with participants (e.g., query participants to discuss responses, provide empathy for negative experiences, disclose common experiences). In a controlled trial (Donohue et al., 2006), this interview enhanced college students' perceptions of the interviewers' knowledge and respect for their ethnic background more so than a control condition specific to sport culture, and improved therapeutic rapport, and perceptions of the interviewers' therapeutic skills.

Dynamic goals and rewards. Participants are shown a summary of their baseline assessment results and subsequently asked to indicate whether they would like to set goals for elevated

(goal-worthy) items. Endorsed goals are added to a monitoring worksheet, and for each of the remaining weeks of intervention, SAs are prompted to select which of the listed goals will be targeted during the upcoming week. Immediately after goals are assigned for the respective week, the supportive other is prompted to indicate the extent to which goal accomplishment will be rewarded and/or supported. This contingency is reviewed during the next meeting. Thus, goals and reward contingencies are dynamic in their flexibility from week to week.

Performance planning. Participants and their supportive others each rank their performance intervention preferences from a menu of options. Interventions are subsequently implemented sequentially and cumulatively based on the arithmetic average of the rankings. That is, after most interventions are implemented for the first time, they are reviewed in subsequent sessions to a progressively lesser extent as relevant skills are developed.

Goal inspiration (consequence review). To inspire motivation for goal achievement, participants are prompted to review negative consequences associated with their performance of undesired behaviors whereas PCs listen and empathize with solicited concerns. Participants are assisted in converting undesired actions and thoughts into desired goals, and the exercise concludes with a review of anticipated positive consequences associated with goal achievement.

Communication skills training. To facilitate reciprocally positive communication in participants and their supportive others, exercises are conducted in which statements of appreciation are exchanged, and participants are taught to assertively and respectfully make positive requests to enhance the exchange of reinforcement in relationships. Relevant examples include requesting condoms during sexual activity, soliciting academic assistance, and resolving conflicts with coaches, teammates, and parents.

Career development. Participants are assisted in determining their “dream job,” including methods involved in achieving job satisfaction in the future. This is important because athletes are often very busy, making it difficult for them to review career options.

Job-getting skills training. Participants are taught to solicit job interviews utilizing strategies that are unconventional to most college students (e.g., contacting potential employers directly through social networking) and to enhance job interviewing skills.

Financial management. Participants are first taught to determine their present and anticipated income and expenses. They are also taught methods of increasing income and decreasing expenses in the present and future. This intervention was originated to assist participants in achieving future stability, which has been identified as a significant problem in athletes, particularly athletes from impoverished backgrounds (see Donohue et al., 2013).

Environmental control. Lists of people, situations, activities, and emotions compatible and incompatible with goal attainment, respectively, are accomplished. Each meeting participants monitor their time spent with these stimuli, and strategies are reviewed and practiced to enhance experiences with goal compatible stimuli, and prevent (and cope with) goal incompatible stimuli. For instance, goal incompatible stimuli may include boredom, frustration, parties, upset, arguments, and drug using teammates, whereas goal compatible stimuli included coaches, using condoms during sexual activity, injury management, class attendance, and weight lifting.

Self-control. Participants are taught to utilize backward chaining to identify thoughts that eventually lead to undesired actions and engage in a series of alternative actions facilitative of goal accomplishment, including termination of thoughts associated with undesired actions, review of

negative consequences associated with performance of undesired actions, cue-controlled relaxation paired with diaphragmatic breathing, generation and review of goal-oriented actions, and imagination of goal accomplishment. Target scenarios may include negative emotional reactions to mistakes made during sporting events, failing to get up for class when the alarm sounds, binge drinking expectations, and desire to have sex without a condom.

Meeting conclusion. Toward the end of the trial, meetings ended by discussing methods of assuring practice assignment completion, reviewing things participants thought were performed during the meeting to make them better, preparing for the upcoming meeting (including determination of supportive others to include), and assuring a positive mind-set leaving the meeting (i.e., expressing a participant's positive qualities, motivational statements, practicing diaphragmatic breathing).

Examination of Intervention Integrity

PCs (five) were four graduate students in a clinical psychology PhD program and a post-doctoral fellow with a doctoral degree in kinesiology. They had no experience implementing prescribed behavioral interventions, including TOPPS, prior to this study. Each provider received approximately 2 days of formal training in a workshop emphasizing behavioral role-playing prior to intervention implementation. Providers attended approximately 2 hr of weekly group supervision throughout the study. Group supervision focused on maintenance of intervention adherence, and making slight adjustments in the intervention protocols to enhance implementation. Strategies were used to ensure the integrity of intervention, including utilization of protocol checklists, written documentation of implemented techniques utilizing standardized forms, reviewing audiotapes of intervention implementation, and ongoing clinical supervision of intervention meetings (Azrin et al., 2001; Donohue, Allen et al., 2004, Yeaton & Sechrest, 1981). Intervention integrity estimates were derived from completed protocol checklists of the provider and independent reviewer, a method that has been shown to be reliable and valid (Azrin et al., 2001; Sheidow, Donohue, Hill, Henggeler, & Ford, 2008). In the current study, PCs were evaluated to implement 94% of the protocol instructions with the seven participants who completed intervention, suggesting they achieved high adherence to intervention protocols. Approximately 20% of the sessions were randomly coded by independent reviewers. The providers' and independent raters' lists were compared, and there was 91% agreement, suggesting the reliability between the providers and blind raters was excellent.

Examination of Participation

Session attendance. One method of determining interest of participants in TOPPS is to examine the average number of meetings attended. Along these lines, participants attended approximately 10 meetings ($M = 9.6$, $SD = 3.84$). Seven of the 10 athletes completed 12 meetings (the maximum number of meetings offered in this study).

Consumer ratings. At the conclusion of each intervention component during each meeting, participants rated the extent to which the respective component was helpful utilizing a 7-point scale (1 = *extremely unhelpful*, 7 = *extremely helpful*). Participants were additionally prompted to report how the intervention component could be enhanced, permitting PCs to make rapid adjustments in intervention implementation. The average rating of helpfulness for all intervention components was 6.78 ($SD = 0.68$). Thus, participants found the intervention components to be "very much" to "extremely helpful."

Table 1. Means and Standard Deviations for Timeline Follow-Back Variables Equated to 30 Day Intervals.

Variable	Pre	Post	1-month follow-up	3-month follow-up
Days of binge drinking	1.21 (1.05)	1.21 (1.55)	1.49 (1.40)	.92 (0.64)
Days of illicit drug use	4.93 (11.14)	4.46 (11.27)	1.20 (2.04)	.65 (1.29)
Days incarcerated	0.07 (0.19)	0.00 (0.00)	0.00 (0.00)	0.07 (0.19)
Days suspended from practice	0.21 (0.57)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Hours worked	22.50 (33.82)	53.59 (57.76)	61.02 (76.47)	33.57 (51.23)

Note. Standard deviations are represented in parentheses.

Table 2. Means and Standard Deviations for Mental Health Measures.

Assessment	Pre	Post	1-month follow-up	3-month follow-up
SCL-90-R GSI T-score	61.43 (9.91)	48.71 (11.80)	49.14 (14.58)	49.43 (15.50)
BDI Total score	11.57 (6.95)	3.57 (4.54)	4.86 (7.08)	10.86 (11.25)
RAB Total score	3.86 (1.07)	3.14 (1.21)	3.43 (1.72)	3.43 (1.27)

Note. Standard deviations are represented in parentheses. Lower scores are associated with fewer problems. SCL-90-R = Symptoms Checklist-90-Revised; GSI = Global Scale Index; BDI = Beck Depression Inventory; RAB = Risk Assessment Battery .

Performance coach ratings. At the conclusion of each intervention component during each meeting, the PCs rated the extent to which participants were engaged in the respective component utilizing a 7-point scale (1 = *extremely disengaged*, 7 = *extremely engaged*). Providers additionally indicated how the participant's engagement could be enhanced in the future. These ratings were shared with the referral agents after receiving written permission to do so from participants. The average rating of engagement for all intervention components was 6.92 ($SD = 0.34$). Thus, PCs found the participants to be "very much" to "extremely" engaged in the intervention components.

Examination of Intervention Outcomes

Substance use. Table 1 presents the mean number of days per month of TLFB outcome measures throughout the study. As can be seen, binge drinking remained about 1 day per month throughout baseline and intervention. The number of days per month of illicit drug use decreased somewhat during intervention. Self-reports of substance use were consistent with biological testing, as illicit drug use was detected by one of the participants during baseline and two participants immediately post intervention.

Employment. Relative to baseline, the number of hours worked during intervention implementation per month doubled in frequency, as compared with baseline.

Conduct. The number of days suspended from sport practice decreased from about 0.21 days per month during the 4 months of baseline to no suspensions throughout 4 months of intervention. Participants were incarcerated 0.07 days per month during the 4 months of baseline and avoided incarceration throughout intervention.

Mental strength and stability. Table 2 shows outcomes that are specific to mental health. As can be seen, participants' scores on the Global Severity Index of the SCL-90-R showed participants

Table 3. Means and Standard Deviations for Sport Interference Checklist Training and Competition Factors.

Subscale	Pre	Post	1-month follow-up	3-month follow-up
Training				
Dysfunctional Thoughts and Stress	3.67 (1.19)	2.45 (1.23)	2.36 (1.16)	2.05 (1.00)
Academic Problems	3.43 (1.45)	2.05 (1.03)	1.76 (0.79)	1.81 (1.09)
Injury Concerns	2.57 (1.21)	1.71 (0.71)	1.67 (1.00)	1.67 (0.96)
Poor Team Relationships	1.86 (1.49)	1.21 (0.39)	1.14 (0.38)	1.14 (0.38)
Competition				
Dysfunctional Thoughts and Stress	3.75 (1.13)	2.50 (1.25)	2.04 (0.62)	2.04 (0.89)
Academic and Adjustment Problems	2.67 (1.09)	1.52 (0.50)	1.24 (0.25)	1.38 (0.56)
Lack of Motivation	2.18 (0.67)	1.39 (0.66)	1.21 (0.47)	1.21 (0.39)
Overly Confident/Critical	1.86 (0.69)	1.64 (1.11)	1.43 (0.73)	1.43 (0.35)
Injury Concerns	2.79 (2.08)	2.14 (1.31)	2.07 (1.48)	1.93 (1.27)
Pain Intolerance	2.07 (1.27)	1.43 (0.53)	1.43 (0.93)	1.50 (1.12)

Note. Standard deviations are represented in parentheses. Lower scores are associated with less interference in sport.

were more than a standard deviation above the mean in psychiatric functioning at baseline and improved in this area during intervention by more than a standard deviation (normal range). BDI-II scores also decreased substantially from baseline to post intervention.

HIV/STI risk. As shown in Table 2, RAB scores at post-intervention assessment were lower than baseline scores, indicating participants were at less risk to obtain HIV/STIs after the implementation of TOPPS, according to this measure. The endorsed items were specific to sexual risk behavior, and not drug use.

Sport performance. Table 3 presents outcomes specific to sport performance. Participants demonstrated pronounced improvements from baseline to 4 months post intervention in their ability to manage factors known to interfere with sport performance in both training and competition. Improvements in academic performance, team relationships, thoughts and stress, and injury management were reported to enhance training performance. Improvements in academic performance, thoughts, and management of stress and injuries were found to enhance competition performance. There were also improvements found in motivation, adjustment to college, pain tolerance, avoidance of criticism, and appropriate confidence.

Relationships. Table 4 shows outcomes related to relationships with teammates, family, coaches, and peers. Results of the SARI indicated modest improvements in the way all relationships were able to assist participants in their sport from baseline to 4 months post intervention. All relationships demonstrated improved support, in general. Specific domains that were substantially improved included relationships, support, involvement, and expectations of coaches, as well as relationships and support of teammates.

8 Complicating Factors

It was difficult to motivate participants to eliminate binge drinking, as the number of binge drinks throughout the study remained at approximately one binge drinking episodes per month. Along these lines, avoidance of alcohol misuse was clearly the performance goal for which participants were least motivated to accomplish. Some of the participants complained binge drinking was part

Table 4. Means and Standard Deviations for Student–Athlete Relationship Instrument Factors.

Subscale	Pre	Post	1-month follow-up	3-month follow-up
Teammates				
Poor Relationships and Lack of Support	2.05 (0.74)	1.55 (0.61)	1.62 (0.98)	2.19 (1.60)
Pressure to Use Illicit Drugs and Being Difficult During Training	1.86 (1.13)	1.18 (0.28)	1.61 (1.02)	2.46 (1.82)
Not a Team Player and Too Non-Competitive	3.29 (1.04)	2.93 (2.05)	3.00 (1.32)	3.21 (1.60)
Poor Relationship	2.79 (1.19)	2.46 (1.98)	2.46 (1.66)	2.57 (1.65)
Pressure to Drink Alcohol and Interfere During Competition	2.71 (1.70)	2.14 (1.46)	1.93 (1.54)	2.64 (2.04)
Family members				
Poor Relationships and Lack of Support	2.54 (0.94)	1.89 (1.03)	1.94 (0.88)	2.49 (1.44)
General Pressure	2.31 (1.50)	2.10 (1.83)	2.02 (1.63)	2.50 (1.89)
Pressure to Quit or Continue Unsafely	1.38 (0.49)	1.24 (0.50)	1.33 (0.47)	2.19 (1.63)
Embarrassing Comments and Negative Attitude	2.07 (1.84)	1.86 (1.70)	2.29 (1.52)	2.50 (1.73)
Coaches				
Poor Relationships and Lack of Support	2.63 (1.30)	1.71 (0.95)	1.90 (1.44)	2.06 (1.53)
Lack of Concern for Teamwork and Safety	1.81 (0.96)	1.57 (1.10)	1.86 (1.05)	2.23 (1.64)
Lack of Involvement and High Expectations	2.79 (1.65)	2.00 (1.52)	2.07 (1.49)	2.36 (1.90)
Too Demanding	2.14 (1.49)	1.67 (1.49)	1.71 (1.13)	2.24 (1.90)
Peers				
Poor Relationships and Lack of Support	2.93 (1.46)	1.90 (1.35)	1.90 (1.15)	2.37 (1.55)
Use of Recreational and Performance-Enhancing substances	2.05 (1.78)	1.86 (1.44)	1.71 (1.25)	2.86 (1.77)

Note. Standard Deviations are represented in parentheses. Lower scores are associated with fewer problem behaviors.

of their sport culture, and that they did not feel alcohol use altered their sport performance. Two of the participants who were challenged to avoid alcohol binge drinking withdrew their participation after the fourth meeting. However, it is important to indicate that these participants stated that they were only interested in sport performance prior to participating in intervention, and did not perceive a relationship between their alcohol consumption and sport performance. In retrospect, it may have been helpful to better incorporate coaches in support of these goals, or emphasize the Goal Inspiration (Consequence Review) intervention.

9 Access and Barriers to Care

The athletes participated in this study within a sport culture that found mental health and substance abuse treatment to be stigmatizing. For instance, prior to conducting this study, administrators in our Athletics Department indicated that SAs who were referred to campus counseling and psychological services due to substance abuse or mental health difficulties almost always attended one assessment session that was mandated by the Athletics Department and withdrew their participation prior to receiving intervention due to being too busy, perceived embarrassment, and/or believing intervention would not be helpful. Therefore, efforts were made to destigmatize TOPPS. These methods are underscored in the following sections.

Environment

The facility was modified to reduce stigma and to make the offices more inviting for athletes. T-shirts for participants and polo shirts for PCs were printed with the TOPPS and university

logos, and entertaining phrases that were specific to TOPPS (e.g., “Wanna Be on TOPP”). Rooms were painted in university colors and decorated in motivational posters, pictures of university athletes and paraphernalia, and posters of game schedules and motivational statements. The conference table was decorated with the university mascot, and we placed a small refrigerator with healthy drinks and snacks in the waiting room. An insignia was created to brand TOPPS with a gender-neutral athlete running up a stairs of blocks labeled TOPPS. On the front door of the facility, a sign read “If you are an elite athlete interested in optimum performance, knock on the door you’ve made it to The Optimum Performance Program in Sports.” Thus, the TOPPS facility fit the culture of an athletics training room. Meetings were also offered in situ (e.g., training facilities, playing field) to engage SAs who prefer these contexts due to convenience or avoidance of stigma associated with going to a perceived mental health facility. Interestingly, none of the athletes preferred the latter alternative.

Use of Positive, Non-Pathological Nomenclature

Providers were trained to replace stigmatizing terms customarily utilized in mental health programs with positive ones (e.g., counselors = PCs, treatment = performance programming, mental health = mental strength and stability, treatment manual = team playbook, Clinic Coordinator = Team Coordinator, problems = goal-worthy, treatment plan = performance plan). When athletes visited the facility, they were enthusiastically greeted and introduced by their name and sport to other staff members. Brief conversations about sports, or the athletes’ participation in sports, were encouraged. Staff routinely complimented the efforts of PCs.

Engagement Calls

An attempt was made to integrate engagement strategies that are not traditionally emphasized within campus mental health programs. For instance, brief engagement telephone calls were made prior to scheduled meetings. Consistent with previous studies involving FBT that have been shown to improve therapeutic attendance (Donohue et al., 1998), these calls were usually scheduled to be made 2 to 3 days prior to the respective meetings, and included solicitation of significant other support, review of practice assignments, and statements of excitement for their participation. When participants or their supportive others were unable to attend meetings because they were geographically too far away, they were encouraged to participate in therapy sessions utilizing tele-conferencing or less often utilized video-streaming.

Athletic Involvement of Performance Coaches

PCs were encouraged to attend university athletic events, read literature about, and participate in, the sports of their participants. This assisted in achieving rapport and credibility with participants, and assisted in gathering insights specific to goal accomplishment.

Provider Substitutions

Assisted by prescribed protocols, the PCs were encouraged to conduct meetings with participants who were not on their caseload. These exchanges were performed most often when PCs or athletes were unavailable for regularly scheduled meetings, which assisted in reducing cancellations. However, substitutions were also made when PCs were especially good at particular interventions. Participants were solicited by a research assistant to evaluate substitute providers after their meeting. Of the 96 meetings that were provided to the 10 cases, 6 (6%) were conducted by substitute providers, and for 4 of these substituted meetings, ratings were obtained (7-point

ratings of substitute's overall helpfulness, skill, comfort, and usefulness of working with a different PC). Ratings for substitute providers across the 4 meetings were seven.

10 Follow-Up

Substance Use

Binge drinking remained about 1 day per month throughout follow-up, whereas illicit drug use decreased substantially during the 3 months of follow-up. A 76% decrease in illicit drug use from baseline was observed at 1-month follow-up and an 87% decrease from baseline was observed at 3-month follow-up. Biological testing was again consistent with self-report data for substance use during the follow-ups, as almost all of the athletes evidenced no illicit drug use during the follow-up assessments (one athlete tested positive for an illicit drug at 1-month follow-up, two athletes tested positive for illicit drugs at 3-month follow-up).

Employment

The number of hours worked per month decreased during the 3 months of follow-up as compared with their hours of employment during intervention. However, throughout the 3 months of follow-up, athletes continued to work more than their baseline rate.

Conduct

There were no suspensions from sports throughout the 3 months of follow-up, although incarceration regressed to baseline rates during this time.

Mental Strength and Stability

Psychiatric functioning, according to the SCL-90-R, remained within normal limits during follow-up, and BDI-II scores maintained at non-clinical levels during the 1-month follow-up and regressed to baseline rates at 3-month follow-up.

HIV/STI Risk

Scores on follow-up assessments for the RAB remained moderately lower than baseline scores, suggesting participants remained at moderately low risk to obtain HIV/STIs throughout follow-up.

Sport Performance

Participants continued to improve from intervention to both follow-up phases in their ability to manage common interferences with sport performance. Indeed, all aspects of sport performance contribution were improved, sometimes markedly, in both training and competition.

Relationships

Relationships modestly improved from baseline to 1-month follow-up and were about the same or worse at 3-month follow-up. It may be that much of the improvements occurring during intervention were due to significant others assisting the participants while receiving intervention. Once performance programming was over, the support systems were not solicited by the PCs and thus, the relationships appeared to get worse.

11 Performance Programming Implications of the Case

This pilot study supports the initial efficacy of TOPPS in concurrently addressing substance use, HIV/STI risk, mental health, relationships, and sport performance in collegiate athletes. FBT intervention components were adapted to fit the cultural uniqueness of athletics, and providers were trained to implement these interventions with fidelity. Comprehensive recruitment and engagement strategies were used to assist in reducing stigma and increase meeting attendance and retention. Notable improvements were demonstrated for illicit drug use, mental health (with the exception of mood at 3-month follow-up), factors that interfere with sport performance, and to a lesser extent HIV/STI risk and relationships with family, coaches, teammates, and peers. Although the cases were examined utilizing uncontrolled methodology and relatively short follow-up assessments (i.e., 3 months.), the implications of this study are important. For instance, empirical development of culturally sensitive mental health care options for athletes, such as TOPPS, are likely to lead to a paradigm shift in campus counseling service delivery. Indeed, mental health care providers on college campuses now have, for the first time, access to an evidence-supported substance abuse intervention that incorporates practice scenarios that are tailored to SAs, family support, engagement, and cultural enlightenment interventions, all of which are conspicuously absent in the treatment of SAs despite a preponderance of evidence warranting such examination.

12 Recommendations to Clinicians and Students

The results of this study indicate that incorporating sport culture into intervention planning and creating a non-stigmatizing environment may assist in making mental health interventions more attractive to athletes to ensure their performance needs are addressed. However, controlled research is needed to evaluate methods of recruiting, engaging, and retaining athletes in performance programs, such as TOPPS. Although this intervention outcome study was uncontrolled, TOPPS appears to represent a promising intervention to enhance mental health and sport performance in college athletes. TOPPS was very efficacious in reducing illicit drug use, but not alcohol binge drinking. Therefore, providers may need to put more emphasis on alcohol binge drinking when implementing TOPPS in athletes. For instance, the cases in this trial were not highly motivated to reduce binge drinking. Therefore, controlled clinical trials are desperately needed to further establish the efficacy of TOPPS and to potentially adjust its intervention components to better assist in reducing alcohol binge drinking among athletes. To assist controlled evaluation of TOPPS, standardized protocols are currently available from the first author free of charge.

Although RAB scores showed lower risk of HIV/STIs consequent to intervention, it is difficult to interpret the magnitude of these effects. Indeed, the developers of this instrument suggest RAB scoring should be interpreted with caution, and examination of RAB items suggest this measure includes content that may not be relevant to most collegiate athletes (e.g., cottons, rinse water, shooting-gallery/house, works or needles, cooker, back-loading, visits to crack house). Along this vein, all endorsed risk items of the RAB in this study were specific to sexual practices, including sexual orientation. Therefore, psychometric evaluation of the RAB and other measures of HIV/STIs in athlete samples is warranted (Metzger et al., 1993). A relative strength of this study concerns its demonstration of intervention sensitivity for several of the outcome measures, including to some extent the RAB, suggesting these scales may be important considerations for future outcome studies involving athletes.

Last, the context in which this study occurred is very important, as administrators and coaches in the Athletics Department were very supportive in providing a backdrop in which to develop TOPPS, facilitate referrals, and assure continuity of student-athlete care. Along these lines, we

recommend Athletic Departments (and other organizations serving athletes) consider the following strategies and administrative policies for their athletes: (a) implementing methods of detecting mental health concerns, including substance misuse (e.g., random drug urinalysis testing, widespread semi-structured assessment interviews with a mental health professional, widespread substance misuse prevention programming that explicitly encourages athletes who are identified to misuse substances in these prevention programs to receive performance-based intervention); (b) introducing referrals to performance-based intervention engagement personnel to facilitate easy access and transition into services; (c) assuring athletes complete minimum standards of professional care when such services are warranted (e.g., requiring athletes to complete a minimum number of meetings in a prescribed evidence-supported intervention); (d) ongoing exchange of student–athlete progress between appropriate administrators in the referral agency/department and providers of performance-based programs (assuming athlete’s consent).

Acknowledgment

We would like to acknowledge Athletic Director Tina Kunzer-Murphy and her outstanding staff and coaches who worked diligently and creatively within their student-centered context of excellence to facilitate the development of The Optimum Performance Program in Sports (TOPPS).

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This research was supported by a grant from the National Institute on Drug Abuse (NIDA; 1R01DA031828) to Brad Donohue.

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