

# Mental Health and Sport Performance Programming in Athletes Who Present Without Pathology: A Case Examination Supporting Optimization

Clinical Case Studies

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## Abstract

Athletes are exposed to unique stressors that often negatively impact the way they think, behave, and feel in athletic, academic, and social domains. The Optimum Performance Program in Sports (TOPPS), an adaptation of Family Behavior Therapy, is an innovative approach to optimization science that has demonstrated positive outcomes in student-athletes evidencing substance use disorders. However, this approach has yet to be evaluated in athletes who are interested in optimizing their mental health and sport performance, but have no indication of pathology. We describe the administration of TOPPS in a female student-athlete who presented for intervention with no assessed mental health pathology. Although experimental methodology was uncontrolled, many of the methodological features in this examination were advanced. Treatment integrity was reliably assessed and the athlete demonstrated significant improvements in psychometrically validated measurements of mental health and sport performance from baseline to 5-months post-treatment, including psychiatric domains (somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, phobic anxiety, paranoid ideation, and psychoticism), relationships with teammates, family members, coaches, and peers, and measures of sport performance. Future directions are reported in light of the results.

## Keywords

optimization, athlete, student-athlete, performance, mental health, drug and alcohol

## I Theoretical and Research Basis for Treatment

Athletes are considered a unique population with special needs pertaining to sport performance and mental health (Etzel & Watson, 2007). They have been found to evidence significant time constraints, pressure to maintain optimum fitness, social isolation, difficulty satisfying complicated multiple relationships, fatigue, financial concerns, criticism from others, and injury (Parham, 1993). Professionals have stressed the importance of psychologically based interventions to assist

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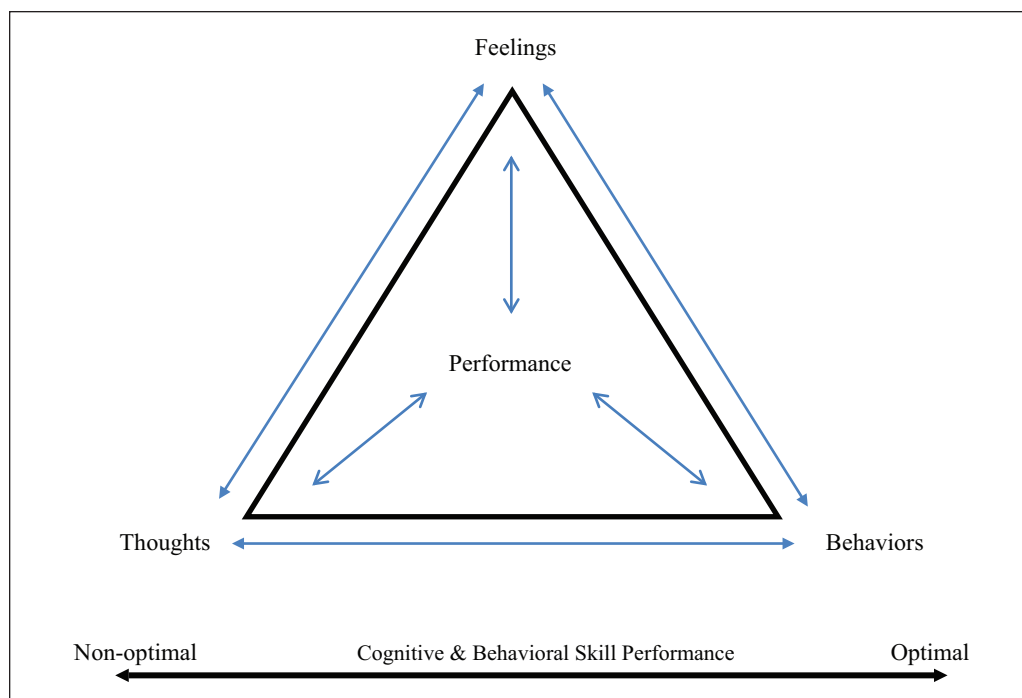
athletes in their adjustment to college and academic demands (Broughton & Neyer, 2001), setting reasonable goals (Elison & Partridge, 2012), enhancing relationships (Freeman & Rees, 2009), and stress management (Wilson & Pritchard, 2005). Intervention targets for athletes have often included externalizing behaviors that draw public criticism, such as substance use (Yusko, Buckman, White, & Pandina, 2008) and risky sexual practices (Huang, Jacobs, & Derevensky, 2010). However, they also evidence internalizing mental health concerns, such as depression and anxiety (Reardon & Factor, 2010), that are less noticeable but perhaps just as stigmatizing. Along similar lines, an overemphasis on pathology and psychological jargon by mental health professionals has led persons with mental health concerns to feel stigmatized and deny pathology (Schwenk, 2000), and ultimately influence athletes to underutilize traditional psychotherapies (López, & Levy, 2013). Indeed, athletes may be more likely to seek out psychological intervention programs when these programs are developed with a focus on optimization and better fit sport culture (Donohue, Pitts, Gavrilova, Ayarza, & Cintron, 2013).

Across clinical trials, family-based treatments continue to demonstrate positive outcomes in psychologically influenced conditions (Matthews & Peterson, 2016). However, with few exceptions (Smoll & Smith, 1996), these interventions are rarely utilized sport settings. The Optimum Performance Program in Sports (TOPPS) is an evidence-based program that was adapted from Family Behavior Therapy (FBT; Azrin et al., 1994). In both uncontrolled and controlled case trials, TOPPS has preliminarily demonstrated concurrent improvements in mental health and sport performance in collegiate athletes (Chow et al., 2015; Donohue et al., 2015; Pitts et al., 2015), and outcomes are currently being examined in a large-scale randomized controlled trial in collegiate athletes (National Institute on Drug Abuse [NIDA]; 1 R01 DA031828).

The providers of this intervention follow theoretical tenets that are consistent with the cognitive-behavioral triangle that is depicted in Figure 1 (Friedberg, McClure, & Garcia, 2009). In this model, the thoughts, behaviors, and feelings of athletes are conceptualized to reciprocally interact with one another in response to a specified event. The providers of TOPPS utilize this model, although “performance” (instead of the respective event) is placed in the center of the triangle to show athletes that performance influences the way they think, behave, and feel, and these factors in turn influence performance. Thoughts and behaviors are influenced through skill development and thus considered primary targets for goal setting in an effort to optimize performance.

Along this vein, performance is conceptualized to occur on a continuum ranging from non-optimal to optimal (see Figure 1), thus eliminating the need to discuss pathology, deficits, problems, and so on during intervention planning. All interventions focus on the development of cognitive and behavioral skills through modeling and behavioral rehearsal, and support systems (usually coaches, teammates, and family members) are encouraged to facilitate skill acquisition during conference calls, personal calls, or videoconferencing with athletes. The latter approach is much different from the commonly utilized individual-based psychotherapies that currently predominate campus counseling centers (Brunner, Wallace, Reymann, Sellers, & McCabe, 2014).

Athletes learn about TOPPS in several ways, including brief 5-minute reviews at the end of sport performance workshops with teams, class lectures, bean bag games in heavy campus traffic areas, conversations with teammates, athletic administrators, trainers, and university personnel, and during 30-minute semi-structured interviews for which course credit is obtained. These strategies have increased recruitment and engagement of collegiate athletes into TOPPS in a controlled trial (Donohue et al., in press), and are utilized to encourage participation in TOPPS. Initial interviews at TOPPS are conducted in offices that include sport paraphernalia (university insignia, team schedules, pictures of ethnically diverse university athletes, motivational posters), and athletes are offered healthy snacks and drinks, T-shirts, pens, and trendy wrist bands with TOPPS branding. The nomenclature of providers is focused



**Figure 1.** Cognitive-behavioral triangle adapted to accommodate performance and performance optimization scale.

on destigmatization of services (e.g., performance programming instead of therapy, performance coaches instead of counselors or therapists, focus on optimization of skills not remediation of pathology), and text messages and telephone calls are made throughout intervention to encourage meeting attendance, review performance assignments, and provide support (Donohue et al., 1999).

Relevant to the expansion of mental health intervention in athletes, it is important to consider that the majority of student-athletes do not evidence significant psychopathology. Rather, they frequently experience subclinical mental health symptoms (e.g., maladaptive self-talk, lowered self-confidence) that interfere with optimum performance and may trigger mental health concerns at a later time (Thompson & Sherman, 2007). The literature indicates a conspicuous absence of controlled and uncontrolled evaluations of comprehensive programming designed to concurrently address mental health and sport performance in athlete populations (Donohue et al., 2013). Therefore, the current case examination involves an athlete who did not evidence a mental health disorder during pre-intervention assessment, but did desire optimization in mental health and sport performance in her pursuit of TOPPS. In contrast to impairment-driven approaches that are aimed to prevent or ameliorate pathology, her intervention planning was comprehensively focused on optimization of mental health and sport performance through cognitive and behavioral skill development.

## 2 Case Introduction

Maria presented to TOPPS as a female collegiate athlete in early 20s from a team sport at a Division I university. She self-referred to TOPPS after participating in a TOPPS performance workshop with her team. The workshop introduced several sport-specific mental skill

interventions and was aimed to increase awareness of services offered by TOPPS. Prior to this workshop, Maria had no experiences with sport and/or clinical psychology interventions. At the time of referral, Maria lived with her parents and sister and was a full-time student with partial athletic scholarship and part-time employment.

Maria was screened for inclusion and exclusion criteria to assure that she (a) was at least 18 years of age, (b) was a student-athlete indicated by formal participation in the National Collegiate Athletic Association (NCAA) or Club sports for at least 4 months prior to referral, (c) was expected to be enrolled at a state university for the next 8 months, with no plans of an extended absence of more than 1 month within the first 4 months of participation in the study (to assure a 4-month baseline, opportunity for sufficient dosage of intervention implementation, and improvement of follow-up data recovery), (d) had no evidence of a psychiatric disorder as per pre-intervention *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*; American Psychiatric Association, 1994) results, (e) was not receiving any formal psychotherapy at the time of pre-intervention assessment to avoid confounds due to concurrent intervention, (f) had at least one adult supportive other (SO) willing to participate in the program. All study procedures were approved by the university's institutional review board for the protection of human participants.

### 3 Presenting Complaints

Maria reported experiencing negative thoughts, fear of injury, and a lack of self-confidence that prevented her from performing to her "best." These factors, along with difficulties managing motivation, led Maria to consider abandoning her collegiate sport activities several months prior to seeking intervention services. Maria was interested in optimizing her confidence, motivation, and relationships with teammates and coaches.

### 4 History

Maria initiated her primary sport at 3 years of age. Her mother, grandmother, and sister all competitively participated in this sport at some point in their lives. She was successful in high school, but did not "live up" to her own sport-specific expectations across her first year of college. She decided to quit because she thought her efforts were "a waste of time." However, she did not want to "let her coach down," and when Maria informed the coach about quitting, the coach encouraged her to continue.

Just prior to joining TOPPS, Maria stated that she did not see herself the way other people saw her and thought that she "wasn't good." She reported that her performance suffered from lack of confidence, as well as several sport-related injuries in high school that continued to trouble her. She could not see her own progress, lacked motivation to push herself, and reported being comfortable with mediocre performance. She reported, "I wouldn't say I was depressed, but I wasn't happy." She described herself as "emotionally weak" and stated that when her coaches gave her corrective feedback during practice, she would view it as a "personal attack," leading her to feel stressed.

Her family members were reportedly generally supportive of her decisions and provided her financial assistance. However, she felt they did not show enough interest in her sport performance through encouragement and praise. She reported her sister would "never" hug or say that she loved her. Her relationships with coaches and teammates were reportedly "good," but she felt she was not living up to their expectations. Regarding her relationships with non-teammate friends, she reported feeling guilty for having few opportunities to interact with them. She also reported that her peers encouraged her to drink alcohol and use recreational drugs. She initiated alcohol when she was 15 years old and tried smoking marijuana during her sophomore year of high school to

satisfy her curiosity. Just prior to seeking intervention services, she had been occasionally using alcohol in social contexts and had been abstaining from sex due to religious reasons.

## 5 Assessment

### *Pre-intervention, Post-intervention, 1- and 5-Month Follow-Up*

Upon self-referral and program consent, Maria was scheduled for a 2-hr comprehensive baseline assessment. She completed the same battery of assessment measures 5 days after intervention completion to determine immediate effects of intervention and 41 and 141 days after intervention to determine the effects of intervention after the discontinuation of intervention. The battery included the following measures:

*Structured Clinical Interview-I for DSM-IV (SCID-IV)*. The SCID-IV (First, Spitzer, Gibbon, & Williams, 2002), a structured diagnostic interview, was used to assist in determining psychiatric symptoms that are consistent with the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; *DSM-IV-TR*; American Psychiatric Association, 2000) Axis I diagnoses. Administrations of this test yield good validity and reliability (Spitzer, Williams, Gibbon, & First, 1992). Only the SCID-IV Axis I diagnoses, including the psychotic module (to determine inclusion/exclusion criteria), were assessed at baseline.

*Semi-Structured Interview for Consideration of Ethnic Culture in Therapy Scale (SSICECTS)*. The SSICECTS is a reliable and valid measure (Donohue et al., 2006) that was used at baseline assessment to address potential ethnic cultural issues relevant to intervention planning. The SSICECTS includes seven items; four of them query about positive experiences regarding ethnic background (Ethnic Cultural Importance [ECI] scale) and three of them query about negative experiences (Ethnic Cultural Problems [ECP]). In a randomized controlled trial (RCT) involving college students of various ethnicities (Donohue et al., 2006), the implementation of this interview (as compared with an identical interview relevant to students' sport/exercise background) enhanced participants' perceptions of the interviewers' knowledge and respect for their ethnic background, and both interview formats (ethnicity, sport/exercise) significantly improved therapeutic rapport and perceptions of the interviewers' therapeutic skills, according to the participants.

*Sport Interference Checklist (SIC)*. The SIC is a reliable and valid 26-item self-report inventory (Donohue, Silver, Dickens, Covassin, & Lancer, 2007) that was used to assess a wide range of cognitive and behavioral problems that commonly interfere with sport performance. Participants report the extent to which various factors interfere with their sport performance in training (Problems in Sport Training Scale [PSTS]) and in competition (Problems in Sport Competition Scale [PSCS]), utilizing a 7-point scale (anchored by 1 = *never*, 7 = *always*), and whether they desire sport psychology assistance in problematic areas (Desire for Sport Psychology Scale [DSPTS]), utilizing yes/no response format. The PSTS and DSPTS include four factors (dysfunctional thoughts and stress, academic problems, injury concerns, and poor team relationships) and the PSCS includes six factors (dysfunctional thoughts and stress, academic and adjustment problems, lack of motivation, overly confident/critical, injury concerns, and pain intolerance).

*Student Athlete Relationship Instrument (SARI)*. The SARI is a reliable and valid measure (Donohue, Miller, Crammer, Cross, & Covassin, 2007) that was utilized to assess how relationship domains (i.e., family, coaches, teammates, and peers) may influence sport performance.

Participants are instructed to indicate the extent to which they agree or disagree (1 = *extremely disagree*, 7 = *extremely agree*) with statements that are aimed at assessing how relationships impact problems in sport performance. Subscales across four inventories include Pressure to Perform, Lack of Support, Pressure to Use Illicit Substances, Pressure to Quit Sports or Continue Unsafely, Experiencing Embarrassing Comments and Negative Attitude, Lack of Concern for Teamwork and Safety, Lack of Involvement and High Expectations, Too Demanding, Not a Team Player, and Too Noncompetitive.

*Symptom Checklist 90–Revised (SCL90-R)*. As one of the most widely utilized scales, the SCL90-R (Derogatis, Rickels, & Rock, 1976) was used to assess a broad range of psychological problems. The SCL90-R test contains 90 items that measure nine primary symptom dimensions, including somatization, obsessive–compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. Overall psychological distress is assessed in a global severity index (GSI). Psychometric support for this scale is satisfactory (Horowitz, Rosenberg, Baer, Ureño, & Villaseñor, 1988).

*HIV Risk Assessment Battery (HIV RAB)*. The HIV RAB (Metzger, Nalvaline, & Woody, 2001), a valid and reliable self-report measure, was used to examine HIV risk behaviors. It was originally developed for use in substance abusing populations but offers an efficient tool for screening individuals who may be at risk for HIV infection. HIV RAB includes 16 items which yield three subscales (Drug-Risk, Sex Risk, and Total Risk).

*Beck Depression Inventory–II (BDI-II)*. The BDI-II (Beck, Steer, & Brown, 1996), one of the most widely utilized measures for adolescents and adults, was used to assess depressive symptoms consistent with depression criteria of the *DSM-IV*. The BDI-II consists of 21 items that assess the intensity of depression in clinical and non-clinical patients. Psychometric support for this scale is excellent (Beck et al., 1996).

*Timeline Followback (TLFB)*. The TLFB is a reliable and valid measure (Sobell, Sobell, Klajner, Pavan, & Basian, 1986) that was used to assess relatively precise estimates of daily patterns and frequency of use of alcohol, marijuana, and other illicit substances, and the number of hours worked. Using a calendar, participants provide retrospective estimates of these events over a specified time period.

*Client Satisfaction Questionnaire–8 (CSQ-8)*. The CSQ-8 is a reliable and valid eight-item questionnaire (4-point scale; Attkisson & Zwick, 1982; Larsen, Attkisson, Hargreaves, & Nguyen, 1979) that was used to measure client satisfaction with services received. A total score is calculated by summing the responses to all eight items, which produces a range of 8 to 32, with high scores reflecting greater satisfaction.

### **Pre-intervention Assessment Results**

According to the SCID-IV results, Maria did not evidence any *DSM-IV* diagnostic criteria, nor endorse any HIV risk behaviors as per the HIV RAB measure. Table 1 includes Maria's responses to the SIC, SARI, BDI-II, and SCL90-R. Although Maria's pre-intervention results on these measures were not in the clinically significant range, areas of relative growth were noted. Her pre-intervention SIC results indicated that she experienced relatively high levels of dysfunctional thoughts and stress, motivation, and injury concerns in both training and competition. The SARI pre-intervention results revealed that Maria experienced difficulties in her relationships with teammates, coaches, family members, and peers that negatively impacted her sport performance.

**Table 1.** Pre, Post, and Follow-Up Results for SIC, SARI, SCL90-R, and BDI-II.

Variable	Pre-assessment	Post-assessment	1-month follow-up	5-month follow-up
SIC Training				
Dysfunctional Thoughts and Stress	4	1.67 (58.25%)	2 (50%)	1.83 (54.25%)
Academic Problems	2.67	1.67 (37.45%)	2 (25.09%)	2 (25.09%)
Injury Concerns	3.67	1.67 (54.5%)	2 (45.5%)	1.67 (54.5%)
Poor Team Relationships	2.50	1 (60%)	1 (60%)	2 (20%)
SIC Competition				
Dysfunctional Thoughts and Stress	4	1.63 (59.25%)	2 (50%)	2.75 (31.25%)
Academic and Adjustment Problems	1.67	1 (40.12%)	1.33 (20.36%)	1.67 (0%)
Lack of Motivation	3.75	1 (73.33%)	1.25 (66.67%)	1.75 (53.33%)
Overly Confident and Critical	2.50	2.50 (0%)	1.50 (40%)	2 (20%)
Injury Concerns	5	2 (60%)	1.50 (70%)	2 (60%)
Pain Intolerance	3	1.50 (50%)	1.50 (50%)	1.50 (50%)
SARI Teammates				
Poor Relationship and Lack of Support	4.67	1.50 (67.88%)	1.33 (71.52%)	1.50 (67.88%)
Pressure to Use Illicit Drugs and Being Difficult During Training	2.50	1 (60%)	1.25 (50%)	1 (60%)
Not a Team Player and Too Noncompetitive	6	1.50 (75%)	1.50 (75%)	1 (83.33%)
Poor Relationships	6	1.75 (70.83%)	1.50 (75%)	2.75 (54.17%)
Pressure to Drink Alcohol and Interfere During Competition	4.50	1 (77.78%)	1.50 (66.67%)	2 (55.56%)
SARI Family				
Poor Relationship and Lack of Support	5.40	1.80 (66.67%)	2.40 (55.56%)	1.60 (70.37%)
General Pressure	3.33	1 (69.97%)	1.17 (64.86%)	1 (69.97%)
Pressure to Quit or Continue Unsafely	2	1 (50%)	1 (50%)	1 (50%)
Embarrassing Comments and Negative Attitude	6	1.50 (75%)	1.50 (75%)	2 (66.67%)
SARI Coaches				
Poor Relationship and Lack of Support	3.11	1.11 (64.31%)	1 (67.85%)	1.67 (46.3%)

(continued)

**Table 1. (continued)**

Variable	Pre-assessment	Post-assessment	1-month follow-up	5-month follow-up
Lack of Concern for Teamwork and Safety	2.33	1.33 (42.92%)	1.33 (42.92%)	1.33 (42.92%)
Lack of Involvement and High Expectations	3.25	1.25 (61.54%)	1.25 (61.54%)	1.75 (46.15%)
Too Demanding	3.33	1 (69.97%)	2.33 (30.03%)	1.33 (60.06%)
SARI Peers				
Poor Relationship and Lack of Support	5.43	1.43 (73.66%)	1.43 (73.66%)	2 (63.17%)
Use of Recreational and Performance-Enhancing Substances	6.33	1.33 (78.99%)	1.33 (78.99%)	1.67 (73.62%)
SCL90-R				
Somatization	0.75 (60)	0.17 (46)	0.25 (49)	0.67 (58)
Obsessive-Compulsive	1 (62)	0.20 (48)	0.10 (44)	0.40 (53)
Interpersonal Sensitivity	1.22 (67)	0 (39)	0 (39)	0 (39)
Depression	0.85 (60)	0 (34)	0 (34)	0 (34)
Anxiety	0.90 (63)	0 (37)	0 (37)	0.10 (44)
Hostility	0.50 (57)	0.17 (48)	0.17 (48)	0.17 (48)
Phobic Anxiety	0.43 (61)	0 (44)	0 (44)	0 (44)
Paranoid Ideation	1 (63)	0.17 (49)	0 (41)	0 (41)
Psychoticism	0.30 (60)	0 (44)	0 (44)	0 (44)
Global Severity Index	0.74 (62)	0.07 (37)	0.07 (37)	0.19 (48)
BDI-II				
Somatic-Affective	4	0 (100%)	1 (75%)	2 (50%)
Cognitive	5	0 (100%)	0 (100%)	1 (80%)
Total	9	0 (100%)	1 (88.89%)	3 (66.67%)

Note. For SIC, SARI, and BDI, percent change from baseline is presented in parentheses. For SCL90-R, T-scores are presented in parentheses (M = 50, SD = 10). Percentages are reported in relation to baseline. SIC = Sport Interference Checklist; SARI = Student Athlete Relationship Instrument; SCL90-R = Symptom Checklist 90-Revised; BDI-II = Beck Depression Inventory-II.



**Table 2.** Pre, Post, and Follow-Up Results for TLFB.

Variable	Pre-assessment	Post-assessment	1-month follow-up	5-month follow-up
TLFB	120-day period	120-day period	36-day period	100-day period
Alcohol days	4	0	1	3
Binge drinking days	2	0	0	0
Number of drinks	14	0	3	6.5
Hours worked <sup>a</sup>	68	102	78	58.5

Note. TLFB = Timeline Followback.

<sup>a</sup>Converted to 30-day average to equate across assessment periods.

She reported experiencing pressure to drink alcohol and use recreational drugs from her non-teammate friends.

Maria's pre-intervention results on the SCL90-R (reported in *T*-scores) indicated elevations (i.e., 1 *SD* or more above the mean of 50) on most mental health symptom dimensions, including somatization, obsessive–compulsive, interpersonal sensitivity, depression, anxiety, phobic anxiety, paranoid ideation, psychoticism, and the GSI. The pre-intervention BDI results revealed that Maria experienced minimal levels of depression, consistent with her SCL90-R depression dimension results.

Table 2 includes Maria's assessment results for the TLFB. TLFB results are presented as actual occurrences of each behavior during the respective time period. During the 120-day period prior to intervention, Maria reported 4 days of alcohol use, two occurrences of binge drinking, and 14 drinks. She worked 272 hours during this time period.

## 6 Case Conceptualization

Maria's case was conceptualized from a family behavioral perspective, emphasizing the importance of SOs. Her difficulties with confidence were primarily developed from having critical, albeit loving, parents with very high standards. Her parents modeled and encouraged her to attempt performance scenarios that were relatively difficult to achieve and consequently provided her critique and intermittent praise to assist her in learning to perform. As tasks became more difficult, she had a tendency to focus on negative aspects of her performance, believing this focus would assist her in avoiding mistakes. Her focus on outcomes and unrealistic goals led to high performance expectancies that were difficult to achieve. She also frequently worried about what others (particularly her coaches) were thinking about her performance, reducing her attention to important aspects of sport performance, disrupting flow, and exacerbating execution of skills. Non-optimal performance confirmed negative self-beliefs.

Maria's negative thinking likely contributed to mild depressive and anxiety symptoms, which in turn resulted in reduced motivation. For example, she felt like a failure; was discouraged about her future; was critical of herself; lost confidence; evidenced difficulty making decisions, sleeping, and concentrating; and fatigued easily. Consistent with anxiety symptoms, she worried too much about things, felt fearful, experienced nervousness or shakiness inside and heart pounding, felt that people disliked her and talked about her, and felt inferior to and underappreciated by others. These experiences also led her to consider quitting her sport.

Maria's negative thinking style also affected her relationships with her coach and teammates. Maria experienced cognitive distortions in response to feedback, including undervaluing positive feedback and overvaluing criticism and a heightened level of attention to information that “confirmed” her negative beliefs about self. Although Maria's coach was highly committed to supporting her in practices and outside of sports, Maria frequently dismissed such evidence of the

quality of their relationship, attributing these behaviors to normal coaching obligations. Along these lines, because Maria held her coach and teammates in high esteem and wanted to impress them, she was afraid of disappointing them by “messing up.” This focus on avoiding undesired behaviors reduced Maria’s focus on performance tasks and resulted in errors during practice, which reinforced her perception that she was not liked by the other teammates and elevated her levels of stress.

Maria’s relationships with her family members and non-teammate friends also played a role in her symptom presentation. Specifically, lack of parental praise and engagement in Maria’s sport undermined her sport-related motivation and conveyed a message that her sport was not important. Combined with her negative self-beliefs and a history of less than optimal collegiate sport performance, this perceived lack of concern from her family members influenced Maria to lose her ambitions. In addition, Maria’s inability to spend time with her non-teammate friends due to her sport commitments created feelings of isolation and guilt. Although Maria did not engage in frequent drinking prior to seeking services, she experienced some binge drinking. Indeed, to reduce these feelings and “fit in,” Maria would go to parties where she was at higher risk for peer-induced substance use. In some cases, alcohol has been found to influence social anxiety by allowing the person to relax and increasing confidence (Martens, Cox, & Beck, 2003) due to the disinhibiting effects of alcohol on the frontal lobe (Chen et al., 2007). These outcomes often result in attributing confidence and relaxation to alcohol, thus reinforcing alcohol use in social situations.

## 7 Course of Intervention and Assessment of Progress

### *Intervention*

Maria’s Performance Coach (PC) was a first-year clinical PhD student. Maria attended all 12 of her scheduled intervention meetings that were focused on optimizing performance in sports, mental health, relationships, safe sex, and avoidance of drug and alcohol use. At least one SO was present in each intervention meeting; Maria’s head coach attended all 12 meetings, two teammates attended several meetings, and an athletic staff member attended one meeting. Meeting duration ranged from 62 to 96 min ( $M = 80.08$ ,  $SD = 12.52$ ) and intervention lasted 3 months and 17 days.

The overarching procedures of TOPPS interventions were consistent with the FBT treatment manual for adults (Donohue & Allen, 2011), with modifications tailored for student-athletes. The interventions were initially administered in the order determined by the performance plan and were reviewed as needed thereafter to a progressively lesser extent. The content of each intervention component is described below.

*Meeting agendas (Meetings 1-12).* Each intervention session started with a meeting agenda. To elicit a positive mindset, Maria and her SOs were prompted to initiate meetings with a report of outstanding positive behaviors that had occurred during the previous week. The PC suggested interventions to occur each session and provided estimated times to review each intervention component. Maria and her SOs were invited to adjust the selection, order, and duration of each agenda item, making the interventions consumer driven. The meeting participants preferred to maintain the proposed agenda items in all 12 meetings. In Meetings 11 and 12, Maria’s coach and teammate volunteered positive feedback specific to Maria’s progress, including observed increase in confidence in skill execution and overall demeanor, positive actions within the team, and a more upbeat attitude. Maria enjoyed hearing the positive statements and indicated that she had a positive influence on the team. Agendas assisted meeting efficiency and Maria’s sense of control.

*Program Orientation (Meeting 1).* The first meeting included a structured overview of TOPPS, including discussion of the benefits and methods of incorporating SOs into performance meetings, including modeling skills, helping with performance assignments, rewarding effort, and so on. It was disclosed that the PC would utilize protocol checklists to guide meetings, and communication guidelines were established (e.g., say only what you mean, focus on solutions and strengths instead of problems and weaknesses). The PC solicited ways she could support Maria, including attendance at competitions, training workouts, calls between meetings to assist performance assignments. Maria was queried about her thoughts and feelings relevant to attending TOPPS, which permitted the PC to assess her needs and motivational factors. Maria's coach, who participated in this meeting, expressed excitement and commended Maria for her desire to work on improving herself and growing as a person. During this orientation, the PC answered Maria's questions about the TOPPS approach to alcohol use (i.e., skills are developed to reduce substance misuse through reduction of stressors, increase in optimal relaxation, and confidence in social contexts). Maria spontaneously indicated that she wanted to avoid intoxicating effects of alcohol and maintain abstinence from illicit drugs.

*Cultural Enlightenment (Meeting 1).* Based on the results of the SSICECS, Maria disagreed that her ethnic culture was a big part of her life, was important to her, or that there were things that she liked about her ethnic culture. Similarly, she stated that she had not experienced negative comments or arguments due to her ethnic culture and that it would not be important to consider her ethnic culture in program meetings. Because Maria reported little to no connection with her ethnic culture, the intervention was brief (<5 min).

*Dynamic Goals and Rewards (Meetings 1-12).* This intervention consisted of (a) the PC reviewing assessment results to determine goal-worthy items from subscales that were least optimal, (b) collaboratively developing goals to optimize relevant behavioral and cognitive skills, (c) establishing rewards from the SO that were made contingent on goal accomplishment, and (d) monitoring goal achievement on a weekly basis using a worksheet to assist established contingencies. Maria agreed to attempt all program goals (i.e., performance meeting attendance, involvement of SOs in each performance meeting, completion of practice assignments, optimum sport performance, avoidance of substance use and gambling, maintenance of optimal relationships with others, and assure condom use in the event of sexual activity) each week. Program goals were broad to assist flexibility in discussing goal-oriented behaviors and cognitions, and contingencies were specified each week through negotiation between Maria and attending SOs. Personal goals were recorded and reviewed within the context of each program goal that appeared most relevant. Personal goals included restructuring negative thoughts, becoming more praiseworthy of self by noting positive aspects of performance and confidence, improving time-management (e.g., limiting social media, using a calendar), and establishing performance enhancement strategies with the PC (i.e., mental preparation routines, pre-performance stretching, utilization of focus statements, and relaxation strategies/diaphragmatic breathing). For instance, during meetings, the PC assisted her imagination of successful performance prior to in vivo sport events, academic tests, and difficult interactions, as well as to utilize descriptive keywords and objective statements to maintain focus. Relationship enhancement goals involved utilization of assertiveness skills and effective communication through utilization of the Positive Request intervention (see below).

To aid goal accomplishment, Maria's coach, two teammates, and an athletic staff member provided her with support that could be provided at any time of the week, and rewards that were commensurate with her goal achievement. Support included passionate encouragement during meetings, motivational text messages spontaneously provided between meetings (e.g., "Focus on

the task at hand in today's practice—"You're going to dominate!"), and review of goal progress throughout the week. Rewards included one-on-one coaching, lunch with a coach, a positive letter from an upperclassman, and access to social media (time determined by the coach based on the percentage of goals completed).

As early as the second meeting, Maria accomplished all program goals and many of her personal goals. She showed progress in her ability to notice and restructure negative thoughts and communicate effectively with family members and non-teammate friends. Maria maintained high goal achievement (95%), with highest achievement occurring in the last few meetings. In these meetings, Maria noted that she was capable of achieving all of her goals without external motivation (i.e., rewards), but enjoyed the support. Maria brought her completed goals worksheet every week for review.

*Performance Planning (Meeting 3).* Performance Planning is a collaborative intervention that permits the participant to determine the priority of intervention implementation from a menu of intervention options (see Appendix). This consumer-driven strategy is aimed at increasing participant motivation and engagement. Performance Planning was implemented in the third meeting with Maria and her coach. The PC briefly explained all TOPPS interventions and queried Maria and her coach about the perceived helpfulness of each intervention component. Participants ranked interventions in the order of perceived helpfulness. Maria and her coach's rankings were consistent and, based on the summative ranking, indicated the following order: Self-Control, Positive Request, Reciprocity Awareness, Environmental Control, Financial Management, Job-Getting Skills Training (not implemented due to time), and Career Planning. Interventions were implemented successively and cumulatively in that the top ranked intervention was implemented first, and subsequently reviewed in latter sessions to a progressively lesser extent. The second ranked intervention was implemented next, and in latter meetings to a progressively lesser extent, and so on. This method of administration was important because each intervention component requires more time to review and practice skill development during role-plays in the initial meeting than latter sessions. For instance, Self-Control required almost the entire meeting the first time it was implemented, but required only a few minutes during a subsequent meeting.

*Meeting Conclusions (Meetings 3-11).* Meetings three through 11 ended with a structured meeting conclusion. The PC provided descriptive positive feedback about Maria's performance in each meeting, reviewed her practice assignments to assure she would be able to complete the assignments, and prepared for the upcoming meeting, including scheduling and collaboratively determining SOs who could be involved in the next meeting based on the planned intervention components to be implemented.

*Self-Control (Meetings 4 and 6).* Self-Control is designed to teach participants to recognize and manage triggers that lead to undesired impulsive behaviors through a step-by-step process. Maria learned to image a series of thoughts and actions relevant to (a) identifying triggers to undesired behaviors through backward chaining (progressively going backward in time to determine the very first thought, image, or desire associated with the undesired behavior to make it easier to terminate the undesired association earlier in the response chain); (b) using thought stopping; (c) stating negative consequences of performing the undesired behavior for self and others; (d) relaxing (i.e., diaphragmatic breathing); (e) generating alternative solutions (assisted by SOs); (f) reviewing pros and cons of these solutions; and (g) imagining optimum performance of the selected solution(s). Self-Control was implemented twice, with her coach and teammate present, to prevent "overinvestment" in romantic relationships by

preventing impulsive texting, and to reduce the risk of a sport-related injury (i.e., going to practice without stretching). Following initial modeling by the PC, Maria demonstrated good relaxation and problem-solving skills. Maria and the PC systematically discussed what was liked about each step and what could be enhanced, and assessed the likelihood of an undesired behavior before and after Self-Control. The most effective step was judged by Maria to be solution generation, and she was encouraged to emphasize this step in real-world situations when practicing all steps is not feasible (e.g., due to time constraints). Maria completed all of her assigned Self-Control practice assignments and agreed to add generated solutions to her goals worksheet for daily monitoring. Maria demonstrated skill generalization to other situations (e.g., stopping negative thoughts about performance).

*Positive Request (Meetings 5-6 and 8-10).* The Positive Request intervention teaches participants positive communication skills that increase the likelihood of getting what is requested from another person without arguments. Utilizing a series of nine steps, Maria was taught to (a) make a specific request using please and when the action was desired, (b) acknowledge how it might be difficult for another person to complete the request, (c) mention the expected benefits for both self and (d) the other person, (e) offer help in completing the requested action and (f) offer something that can be done instead of the requested action that would be satisfactory (alternative), (g) state appreciation for completion of the requested action, (h) suggest an alternative action, and (i) invite the recipient to suggest an alternative that is satisfactory.

The initial meeting utilized modeling and role-plays to assure skill acquisition, and subsequent meetings reviewed in vivo practice assignments. Maria utilized Positive Request to solicit positive performance feedback from teammates and parents, and invite SOs to social and athletic events. Maria's SOs, including her coach, teammate, and an athletic staff member, reported Maria appeared more confident during her requests and that it improved their relationships.

*Reciprocity Awareness (Meetings 6, 10, and 11).* The Reciprocity Awareness intervention was aimed at enhancing Maria's relationships with her coaches, teammates, family members, and non-teammate friends by having them express what they liked, admired, or respected about one another. This included both in-session positive exchanges guided by the PC and assignments to practice positive exchanges in vivo. Maria described a significant improvement in her relationship with her sister who, for the first time, started spending more time with Maria, hugged her, and expressed that she loved her. She also indicated that this intervention was helpful, and that it felt good to appreciate her parents and coaches. All SOs had the opportunity to participate in this intervention.

*Environmental Control (Meetings 7-10).* The Environmental Control intervention involves restructuring the environment so that more time is spent with goal-compatible cues (or stimuli) and less time with stimuli that are incompatible with goals. During the initial meeting, the PC explained that certain environmental stimuli make goal attainment more or less likely to occur. Then, Maria and her coach developed a list of cues (i.e., people, places, and situations) that facilitated Maria's goal attainment and a similar list of cues that hindered her goal attainment. Maria identified specific teammates and non-teammate friends, community events, homework and reading, as positive influences, whereas her ex-boyfriend, parties, and being bored were hindrances to goal achievement. Maria and her coach then brainstormed ways to increase time and enjoyment with cues associated with goal accomplishment and to decrease time with cues that were incompatible with goal achievement. Maria and her coach, teammates, and an athletic staff member also scheduled several fun activities prior to each subsequent meeting, like

hiking with her coach and bike riding with her teammate. Maria monitored how she spent her time each week and reported her accomplishments with cues in subsequent meetings. With each future implementation of Environmental Control, Maria reported spending progressively less time with goal-incompatible cues and more time with goal-compatible cues, indicating improved environmental control.

*Career Planning (Meeting 9).* This intervention was designed to prepare Maria for her dream career. The PC solicited important aspects of her most desired career (e.g., financial situation, travel, benefits, flexibility) and generated steps that would be necessary to make her dream career happen. Maria and her coach identified important educational prerequisites, qualifications, and specific people (including SOs) who can assist in achieving her dream job. In addition, Maria was encouraged to add these ideas to her goals worksheet and reported progress toward her dream career through establishing networking relationships with individuals employed in a relevant field.

*Financial Management (Meeting 11).* This intervention involved Maria learning to increase income and decrease expenses. Using a financial management worksheet, Maria and her coach and teammate first identified monthly expenses within different domains (e.g., school, living, sport) and monthly income from various sources. Maria and the PC calculated the difference between her income and expenses, revealing that Maria was in a financial deficit. Maria, her PC, coach, and teammate collaboratively brainstormed ways to decrease expenses and increase income and calculated the projected amount of extra income. Using these strategies, Maria could increase her income by US\$670 per month, thereby projecting a surplus. Maria and her coach and teammate developed plans to implement money-saving and income-generating strategies and added them to her goals worksheet for daily monitoring.

*Last Meeting: Intervention Generalization (Meeting 12).* This intervention involved the following steps: (a) reviewing overall progress in optimizing performance within specific target areas, including relationships, sport performance, mental health, avoidance of substance use, and prevention of sexually transmitted infections (STIs) and risk factors for HIV; (b) establishing ways Maria could maintain progress in the future, including which specific skills or information reviewed during the program can be used; and (c) to end the program on a positive note, exchanging what was loved, admired, respected, or appreciated about all persons involved into Maria's optimization process, including the PC.

Maria self-reported improved relationships with her teammates, non-teammate friends, and family through improved communication and social activities. Maria was able to increase positive interactions with non-teammate friends and reduce interactions with those who affected her life in a negative way, which led to abstinence with regard to HIV/STI risk behaviors and alcohol use. The support from teammates and coaches influenced improvements in sport performance (e.g., qualifying for National Championships), optimum cognitive appraisals of feedback, and improved confidence and focus. Maria acknowledged that enhanced relationships contributed the most to the desire to push herself during training and competition. Maria's coach summarized that Maria achieved an optimal balance between sport, academics, and social life.

*Intervention integrity.* Clinical data and audio recordings were reviewed to assess intervention integrity. The PC indicated that her percentage of intervention steps successfully implemented across the 12 meetings was 99.36% ( $SD = 2.5\%$ , range = 85%-100%). All meetings were audiotape recorded. Ten percent of the meetings were randomly selected and scored by independent

raters to determine interrater reliability. Reliability ratings between the PC and independent raters indicated an average reliability of 97.78% ( $SD = 6.67\%$ , range = 80%-100%), indicating that the PC rated her performance very consistently with independent raters and that her ratings reflected high treatment integrity.

*Consumer satisfaction and compliance ratings.* Maria rated all intervention components to be “extremely helpful” on a scale of 1 (*extremely unhelpful*) to 7 (*extremely helpful*), and she was rated by her PC as “extremely compliant” during the meetings on a scale of 1 (*extremely noncompliant*) to 7 (*extremely compliant*). Compliance ratings were based on attendance, participation/performance during meetings, and completion of performance assignments. In addition, Maria’s responses to the Consumer Satisfaction Questionnaire–8 revealed that she was highly satisfied with the intervention.

### **Post-intervention Assessment Results**

Maria completed a post-intervention assessment 5 days after intervention. All SIC, SARI, SCL90-R, and BDI scores are depicted in Table 1, whereas Table 2 includes Maria’s post-intervention results for the TLFB. Most notable improvements (greater than 50%) on the SIC subscales at post-assessment included Dysfunctional Thoughts and Stress, Poor Team Relationships, and Injury Concerns in training, and Lack of Motivation, Injury Concerns, and Dysfunctional Thoughts and Stress in competition. SARI results confirmed that Maria considerably reduced problems in her relationships with teammates, family members, coaches, and peers. Pertaining to her mental health, SCL90-R scores were noticeably lower in somatization, obsessive–compulsive, interpersonal sensitivity, depression, anxiety, phobic anxiety, paranoid ideation, psychoticism, and the GSI, and her BDI Total score was reduced from 9 to 0. During the 120-day intervention period, Maria reported complete abstinence from alcohol use and increased working hours from 272 hours at baseline to 408 hours. Following the completion of TOPPS, Maria and her team won a National Championship. She reported that her participation in TOPPS greatly assisted her performance during the competition, and that this was the highest level of achievement in her sport up to that time.

## **8 Complicating Factors**

TOPPS is a SO-based program; PCs attempt to recruit as many SOs as possible to participate in meetings with athletes. Unfortunately, Maria’s family members were not able to attend meetings due to scheduling conflicts. To assist in this regard, they were involved during telephone calls, and they actively participated in Maria’s practice assignments.

There is a shortage of bi-directional assessment measures that are capable of assessing progress beyond the absence of pathology. This is a concern when assessing the impact of optimization programs, such as the current evaluation. Maria’s baseline scores on the SIC, SARI, BDI, and TLFB suggested that she did not evidence psychopathology as measured by these scales. However, it is not possible to determine the extent to which her noted improvements on these scales were optimized. Along these lines, the development and utilization of optimization scales is warranted.

## **9 Access and Barriers to Care**

One of the greatest barriers for athletes receiving psychological care is stigma, lack of knowledge about available programs, and lack of culture-sensitive intervention programs for

student-athletes (Gulliver, Griffiths, & Christensen, 2012). Use of culturally sensitive and client-centered adaptations in evidence-based practices is continually cited as essential for optimal care (Zigarelli, Jones, Palomino, & Kawamura, 2016). These barriers can be minimized through non-stigmatizing team workshops that are focused on performance and administrations of questionnaires that assess psychologically relevant factors. These strategies may lead athletes to realize that mental health programs are capable of assisting them in athletic performance optimization. The use of engagement strategies is another tool that may increase referrals to psychologically based optimization programs (Donohue et al., in press). Indeed, it will be important for professional organizations to proactively adopt such practices while mandating athletes to participate in psychometrically validated mental health screening procedures that are aimed at identifying athletes who either evidence mental health conditions, or are at risk to develop them. Along this vein, the implementation of optimization programs, such as TOPPS, may assist service utilization through greater motivation to pursue intervention.

## **10 Follow-Up**

Maria completed two follow-up assessments 41 and 141 days after intervention. Greater than 50% reductions on the SIC, SARI, SCL90-R, and BDI were maintained (see Table 1). Maria's SIC results indicated maintenance of treatment gains at both follow-ups and continued improvements in some domains. The SARI scores indicated that the quality of Maria's relationships and psychiatric symptoms (SCL90-R) were maintained in all domains. The BDI scores reflected minimal symptom endorsement at both follow-ups. On the TLFB, Maria reported 1 day of alcohol use at the 1-month follow-up and 3 days at the 5-month follow-up (see Table 2). Although she did not demonstrate complete abstinence at follow-up, she maintained 0 days of binge drinking. The amount of hours worked gradually reduced due to Maria having to increase her hours in sport participation.

## **11 Intervention Implications of the Case**

The results of this examination suggest optimization programs may be useful in substantially improving mental health, sport performance, and relationships with coaches, teammates, family members, and peers in athletes who do not evidence significant pathology or impairments in functioning. This finding is particularly relevant to the student-athlete population because these programs reduce stigma that is associated with traditional psychological treatment programs (Corrigan, 2004; López & Levy, 2013).

## **12 Recommendations to Clinicians and Students**

It is highly recommended that clinicians, students, and amateur and professional sport league administrators (a) screen athletes for mental health, (b) become more aware of evidence-based programs for student-athletes that can concurrently target mental health and sport performance, (c) provide opportunities to assist empirical evaluation and implementation of programs like TOPPS, (d) concentrate on engagement strategies and stigma reduction methods to make it easier for athletes to utilize mental health services, (e) contribute to the development of sport-culture specific programming, (f) and hire sport psychologists who are licensed clinical and counseling psychologists. We hope that these experience-based recommendations inspire professionals, students, and administrators to focus their attention not only on the sport performance realm but also on the driving force behind athletes' performance—their mental health.



## Appendix

### FBT Interventions Menu.

Intervention components	Intervention purpose
1. Orientation	Formal orientation to TOPPS
2. Cultural Enlightenment	Determining the extent to which ethnic and sport culture will be considered in meetings
3. Dynamic Goals and Rewards	Setting and maintaining performance goals and establishing contingent rewards for goal accomplishment
4. Performance Planning	Reviewing a menu of intervention options and subsequently ranking these options to determine their priority
6. Positive Request	Communication skills training specific to learning to optimally settle disagreements and request things from others
7. Reciprocity Awareness	Establishing strong relationships with supportive others
8. Environmental Control	Determining and managing goal consistent and inconsistent stimuli interfering with or facilitating goal accomplishment
9. Self-Control	A cognitive method of terminating impulsive problem behaviors, generating solutions, and visualizing selected plans
10. Job-Getting Skills Training <sup>a</sup>	Developing skills to achieve optimum employment
11. Financial Management	Learning how to decrease expenses and increase income
12. Career Planning	Determining an optimum career plan, including how to prepare for a dream job
13. Goal Inspiration <sup>b</sup>	Inspiring motivation for goals by reviewing positive consequences of goal accomplishment
14. Performance Timeline <sup>b</sup>	Determining when and how to enhance factors that contribute to optimum performance in sport and life situations/events
15. Preperformance Mind-Set Training <sup>b</sup>	Establishing optimum mind-set prior to important events
16. Postperformance Mind-Set Training <sup>b</sup>	Establishing optimum mind-set after events

Note. FBT = Family Behavior Therapy; TOPPS = The Optimum Performance Program in Sports.

<sup>a</sup>Job-Getting Skills Training intervention was not implemented due to time.

<sup>b</sup>Goal Inspiration, Performance Timeline, and Pre- and Postperformance Mind-Set Training interventions were not yet developed at the time of this study. These components are being currently evaluated in a clinical trial with student-athletes.

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