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Adapting an evidence-supported optimization program for mental health and sport performance in collegiate athletes to fit youth from ethnic/racial minority and low-income neighborhoods: A National Institutes of Health stage model feasibility study

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Abstract

The current study addresses the need to empirically develop effective mental health interventions for youth from ethnic/racial minority and low-income neighborhoods. Using Stage Model evaluation methods supported by the National Institutes of Health in the US to address underutilization of mental healthcare among racial/ethnic minority youth, this feasibility study demonstrates empirical adaptation of an innovative sport-specific psychological intervention for use in youth from ethnic/racial minority and low-income neighborhoods. An international group of professionals familiar with sport performance and mental health intervention serving the target population experientially examined the adapted intervention protocols in workshops and provided feedback. Survey results indicated the professionals found the intervention components were easy to administer and likely to be safe, enjoyable, engaging and efficacious for youth mental health and sport performance. The protocols were revised based on feedback from these professionals and the intervention was examined in a case trial involving an Asian American youth who evidenced Social Anxiety Disorder. Case study results indicated the intervention could be implemented with integrity, and severity of psychiatric symptoms and factors interfering with sport performance decreased after intervention implementation. The participant's relationships with family, coaches and teammates were also improved.

Keywords

mental health, ethnic/race, sport, treatment, healthcare disparity

There is a lack of quality mental health intervention available for youth from ethnic/racial minority and low-income neighborhoods despite these youth having significantly greater need for such services than youth from ethnic/racial majority and higher-income neighborhoods.[1,2] Addressing this healthcare disparity through intervention development is a is a global priority.[3–5] Since the mid-1800s organizations such as the Young Men's Christian Association (YMCA) and Boys & Girls Clubs of America have used sport participation to engage youth from ethnic/racial minority and low-income neighborhoods into programming that is designed to assist physical and mental wellness.[6] Using sport to engage young people in health promotion programs has gained traction in recent years as 53% of high school students in the United States are estimated to be involved in organized sports with sport participation in ethnic/racial minority groups disproportionately increasing.[7]

When mental health disorders are recognized, cognitive behavior therapies have been indicated to be relatively successful in mainstream society.[8] However, their adaptation to youth from ethnic/racial minority and low-income neighborhoods has been relatively poor.[9] Therefore, adapting evidence-based cognitive behavior therapies to incorporate sport participation may be an effective strategy to reduce healthcare disparities in youth from ethnic/racial minority and low-income neighborhoods.[10,11]

Stage development of an optimization program for use in collegiate athletes

The Optimum Performance Program in Sports (TOPPS) was formally adapted from Family Behavior Therapy (FBT), an evidence supported treatment for substance abuse,[12] to concurrently address sport performance and mental health in diverse collegiate athletes.[13] The adaptation followed the Stage Model of intervention development,[14] which is widely accepted among reviewers of research within the National Institutes of Health in the United States.[15] The model includes 6 stages of development: Stage 0 (basic research), Stage 1 (intervention generation/refinement/feasibility and pilot testing), Stage II (efficacy in research clinics), Stage III (efficacy in community clinics), Stage IV (effectiveness research in community settings), and Stage V (implementation and dissemination outcome research).

Thus far, the development of TOPPS in collegiate athletes has included stages 0, I and II. Stage 0 and IA included manual development; adapting Family Behavior Therapy intervention protocols to fit collegiate athletes based on the results of focus groups and iterative role-playing with experts to establish its reliability. Stage 1B was supported in an uncontrolled pre/post group evaluation of seven athletes who were diagnosed with substance use disorder,[16] with 29% of these athletes evidencing comorbid mental health disorders (i.e. usually mood or anxiety disorders). This stage of development also included several case trial examinations involving collegiate athletes with[17–19] and without[20] at least one diagnosed mental health condition (most often substance use, mood or anxiety disorders). In these trials no adverse events were found (suggesting TOPPS content and delivery was safe), intervention integrity of providers and intervention satisfaction of participants was rated very high, and mental health, substance use, relationship quality, and factors that directly interfere with sport performance outcomes were improved from baseline up to five-months post-baseline. Standardized intervention prompting checklists, and training workshop protocols were developed and assessed to be implemented with greater than 80% protocol adherence. Methods of recruitment and engagement were also standardized and determined to be preliminarily efficacious.[21]

Stage II was supported in a randomized clinical trial comparing TOPPS and campus counseling services as usual (SAU[22]) in 74 athletes; 59 (80%) evidenced a current or past mental health disorder (most often substance use, mood, and anxiety disorder). Providers were clinical psychology doctoral candidates. The trial incorporated (a) psychometrically validated interviews to assist diagnostic assessment, (b) urinalysis and hair follicle testing to assess illicit drug use, (c) structured interviews to assess therapeutic expectations, (d) intervention integrity assessment, (e) assessors blind to experimental assignment of participants, (f) intent to treat management of missing data, (g) assessment of postintervention consumer satisfaction/social validity, (h) and follow-up assessment up to 8-months post-randomization. The results of this trial demonstrated that participants in TOPPS significantly decreased psychiatric symptoms, factors interfering with performance in sport competition, training, and life outside of sport, and improved mood, overall happiness with significant others and contributions of significant others to sport performance more than participants in traditional campus counseling up to 8-months post-randomization (TOPPS was also more efficacious in decreasing substance use while in the program and consumer satisfaction and attendance). There were no between intervention group differences in the extent to which safe sexual behavior improved.

Promise for TOPPS in youth from ethnic/racial minority and low-income neighborhoods

As indicated above, the intervention components of TOPPS are based in an evidenced-supported intervention (FBT) and this intervention has demonstrated greater effectiveness in youth than adults in reducing substance use and behavioral misconduct and improving school/work attendance and family relationships. The protocol of TOPPS includes strategies that have explicitly been indicated to increase access to behavioral healthcare in ethnic/racial minority youth and youth from low-income neighborhoods.[23] Family-based treatments have also been shown to do particularly well in ethnic/racial minority populations,[24,25] and scientists have stressed the importance of family involvement in athletes' mental health.[26–29] Therefore, TOPPS may be a viable intervention for youth from ethnic/racial minority and low-income backgrounds.

Stage 1A TOPPS manual development for youth athletes

The first step in developing TOPPS for youth athletes involved refinement of its intervention protocols. Consistent with Goldstein et al.,[30] Stage 1A research methods involved two of the developers of TOPPS (1st and 19th authors) revising the TOPPS intervention facilitator manual that was effectively used in collegiate athletes to be conceptually relevant and developmentally sensitive for youth athletes. The manual includes 13 intervention protocols. Each protocol

checklist is used by providers to guide intervention implementation and includes a rationale for intervention, implementation instructions, and worksheets required to be completed during session. The protocols are used to instruct facilitator initiatives during intervention sessions and to assess the adherence of providers to protocol (i.e., percentage of intervention steps performed as per provider and independent rater). Research assistants with competitive sport backgrounds (2nd, 3rd, 4th, 6th authors) assisted the developers in this first phase of intervention adaptation (see Table 1 for intervention protocol content and prescribed content changes).

Stage 1A adaptation of TOPPS manual for youth based on implementation experience of professionals

The adapted protocols were formally examined in two demonstrations, lasting three and four days, respectively. The first demonstration included a Sport and Exercise Psychologists from Northern Ireland (5th author) and England (16th author), and a professional coach from Cirque du Soleil in the United States (18th author). The second demonstration included 2 psychiatrists (12th, 13th) and a neurologist (14th author) from Brazil, a Sport and Exercise Psychologist from England (15th author), and an amateur and professional coach with experience as a former amateur world champion in karate from the United States (17th author). Consistent with Basch,[32] diverse backgrounds of professionals from different countries were sought to provide important practical, cultural, and developmental insights for recommended adaptations of TOPPS protocols for youth athletes, inherently offering perspectives that can identify problems, explanations and solutions that might not have been considered otherwise.

Each demonstration involved the TOPPS developer providing an overview of the adapted intervention for youth using PowerPoint presentation and theoretical discussion and sequentially modeling each intervention protocol in the role of provider while professionals, along with research assistants, enacted youth athletes and their significant others. Professionals subsequently attempted each intervention component in groups consisting of the other professionals and research assistants enacting the role of youth athletes and their significant others. Step by step protocol checklists were used to maintain integrity and improve feedback about the intervention process.[33] Professionals were encouraged to suggest modifications at any time and noted by a scribe. The protocol checklists were modified based on the notes after initial discussion, culminating in group consensus. The developer initiated a brainstorming exercise after all intervention protocols were formally reviewed to generate any additional modification suggestions suitable for youth athletes.

In addition to qualitative review as described above, and consistent with Bowen et al.,[34] questionnaires were completed by the professionals to formally assess the extent to which they agreed or disagreed the refined youth athlete

Table 1. Intervention component changes by developer prior to experiential demonstrations with professionals.

Therapeutic style and protocol components	Prescribed content changes
Therapeutic Style: Passionate encouragement, descriptive praise for actions and character attributes, ignore undesired behavior, use humor, behavioral rehearsal, achievement-orientation.	None.
Meeting agendas: Athletes determine which intervention components to prioritize with input from significant others; skill-based exercise performed to assist optimal preparation for an upcoming important event	Significant others (particularly adults) have greater say in intervention selection and decision making and more modeling of desired behavior.
Performance Orientation: Content of each intervention and general meeting structure/format reviewed, communication guidelines established, optimization approach to performance conceptualized, review ambitions & expectancies.	Communication guidelines adapted to facilitate greater deference to adults, explanation of optimization model simplified, less emphasis on specific expectations and more emphasis on general ambitions.
Cultural enlightenment: Semi-Structured Interview for Ethnic and/or Sport Consideration in Therapy Scale (SSIECTS/SSIESCTS)[31] reviewed to appreciate how ethnic and sport culture impact intervention.	Greater encouragement from adult significant others to provide cultural input about earlier generations, and greater self-disclosure from provider.
Dynamic goals and rewards: Assessment findings reviewed to generate goals that are monitored and contingently reinforced by significant otherss.	Appendix added, including generic examples of goals likely to be acceptable to parents and youth (e.g., goal to "avoid drug use" changed to "maintaining optimum intake")
Performance planning: Athletes and significant others prioritize intervention components to be delivered in subsequent meetings sequentially and cumulatively based on priority.	None
Goal inspiration: Athletes review negative consequences of undesired thoughts and behaviors while provider empathize and prompt positive consequences for goal achievement	Only positive consequences reviewed
Communication skills training: Athletes and significant others prompted to exchange	Forms adjusted to include > significant other input

(continued)

Table 1. Continued.

Therapeutic style and protocol components	Prescribed content changes
statements of appreciation and to initiate positive requests when disagreements or desired actions occur	
Dream Job: Athletes assisted in originating "dream job," potential goals & resources generated to assist ambitions, positive aspects of dream job reviewed.	Focus more on developing aspects of dream job and prompting significant others to generate resources to assist youth in career development.
Job-getting skills training: Athletes taught to solicit job interviews utilizing effective strategies and to enhance job interviewing and application skills.	More rationale specific to importance of soliciting job interviews, greater modeling and behavioral rehearsal of potential conversations regarding job solicitation calls and interviews.
Financial management: Athletes taught to determine their income and expenses using a financial worksheet, & taught to increase income and decrease expenses immediately and in future.	Adult significant others relied upon more heavily to clarify financial facts and provide meaningful realistic solutions.
Environmental control: Athletes brainstorm and record people, places, activities and emotions compatible and incompatible with goal attainment. Future meetings review optimum actions and thoughts that occurred or could have occurred.	No changes in content although some prompts are developmentally different in worksheets used to generate scenarios (e.g., bars not applicable).
Self-control: Athletes taught to identify initial thoughts that eventually lead to undesired actions and engage in a series of alternative actions that facilitate goal accomplishment, including reviewing negative consequences associated with performance of undesired actions, cue-controlled relaxation and diaphragmatic breathing, generation of goal-oriented actions.	There is greater emphasis on reviewing positive consequences for goal accomplishment and eliminating negative consequences associated with undesired actions.
Meeting conclusion: At the end of each meeting athletes review beneficial aspects of skills practiced in meeting, methods of assuring completion of practice assignments, and how and who should be involved in next meeting.	None.

version of TOPPS would be engaging, effective for enhancing sport performance and mental health, enjoyable to implement, safe to implement, and easy to administer. Ratings were completed using a Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). As indicated in Table 2, these results were positive, with mean scores ranging from 6.11 to 6.97 agreement (between very much and extremely agree). Professionals extremely agreed their feedback was considered during the demonstrations ($M = 6.73$, $SD = 0.56$). Scores were noticeably lower in regards to their confidence to use ($M = 5.4$, $SD = 0.55$) and implement ($M = 5.4$, $SD = 0.55$) the protocols, and financial protocols (Dream Job, Job Getting Skills Training, Financial Management) were relatively low as compared with other intervention protocols in regards to expectations for sport performance efficacy ($M = 5.6$ to 5.8). Collectively, these results suggest the interventions were appropriate for youth athletes, and that more intensive training may be necessary to assure protocol use in real-world settings. Although financial interventions were rated as being relatively low in expected sport performance efficacy, it is important to consider youth from low-income neighborhoods are likely to benefit from financial skill development, and these interventions may have indirect benefits on sport performance if financial concerns are successfully managed.[35,36] It is also important to indicate the standard deviations were relatively low across ratings, suggesting professionals reliably agreed with one another.

Stage 1A adaptation of TOPPS manual for youth based on implementation experience of professionals with youth from ethnic/racial minority and low-income neighborhoods

To facilitate determination of community acceptability and demand,[34] 12 African American mental healthcare providers in the United States employed in a mental health agency (H.E.R.O.S. Advocacy Group, Las Vegas) were provided an overview of the TOPPS protocols for youth by one of the developers (1st author) using Microsoft PowerPoint presentation and theoretical discussion. After the presentation all providers reported that TOPPS appeared to be appropriate for youth in ethnic/racial minority and low-income neighborhoods, and the attendees agreed to sample the protocols with African American youth who participated in sports from low-income neighborhoods. Two research assistants then trained four of these professionals in performance orientation, dynamic goals and rewards, performance planning, appreciation exchange, goal inspiration, financial management and performance timeline interventions using the youth adapted protocol checklists, modeling and behavioral rehearsal. The professionals subsequently implemented these intervention protocols with four African American youth in their facility (located in a low-income neighborhood). A research assistant assessed the professionals' intervention integrity by dividing the number of intervention steps performed during implementation

Table 2. Professional evaluations of TOPPS protocol post-demonstrations (N = 5).

Intervention component	This intervention component is likely to be enjoyable to implement with youth athletes		This intervention component is likely to engage youth athletes		This intervention component is likely to be effective with youth athlete mental health		This intervention component is likely to be effective with youth athlete sport performance		This intervention component is likely to be safe with youth athletes		This intervention component is likely to be easily administered with youth athletes		I feel my feedback was taken into consideration in the improvement of this intervention component		Average total for each intervention component	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Appreciation Exchange	7.00	0.00	6.80	0.45	6.80	0.55	6.40	0.45	6.80	0.45	6.60	0.55	6.60	0.55	6.71	0.20
Dream Job Development	6.20	0.84	6.60	1.22	6.00	1.30	5.80	0.45	6.80	0.45	6.80	0.45	6.40	0.89	6.37	0.39
Dynamic Goals and Rewards	6.80	0.45	6.40	0.89	6.40	0.89	6.60	0.89	6.60	0.89	7.00	0.00	6.80	0.45	6.66	0.22
Environmental Control	6.60	0.55	6.80	0.55	6.60	0.45	6.80	0.00	7.00	0.00	7.00	0.00	6.80	0.45	6.80	0.16
Financial Management	5.80	0.84	5.80	0.84	6.20	1.14	5.60	0.89	6.40	0.89	6.80	0.45	6.20	0.84	6.11	0.41
Goal Inspiration	6.80	0.45	6.80	0.55	6.40	0.55	6.60	0.89	6.60	0.89	6.80	0.45	6.40	0.89	6.63	0.18
Job Getting Skills	6.00	1.00	6.00	0.45	6.80	1.95	5.60	0.89	6.60	0.89	6.80	0.45	6.60	0.89	6.34	0.47
Performance Planning	7.00	0.00	7.00	0.45	6.80	0.00	7.00	0.00	7.00	0.00	7.00	0.00	7.00	0.00	6.97	0.08
Performance Timeline	6.80	0.45	7.00	0.55	6.60	0.45	6.80	0.00	7.00	0.00	7.00	0.00	6.80	0.45	6.86	0.15
Performance Orientation	6.80	0.45	6.80	0.45	6.80	0.45	6.80	0.00	7.00	0.00	7.00	0.00	7.00	0.00	6.89	0.11
Positive Request	6.40	0.89	6.40	0.55	6.40	0.55	6.40	0.89	6.40	0.89	6.40	0.89	6.80	0.45	6.46	0.15
Self-Control	6.80	0.45	6.80	0.45	6.80	0.45	6.80	0.00	7.00	0.00	6.80	0.45	7.00	0.00	6.86	0.10
Last Meeting Generalization	6.80	0.45	6.80	0.00	7.00	0.00	7.00	0.00	7.00	0.00	7.00	0.00	6.80	0.45	6.91	0.11
Performance Progress Review	6.60	0.55	6.80	0.45	6.80	0.55	6.60	0.00	7.00	0.00	6.80	0.45	7.00	0.00	6.80	0.16

by the total number of intervention steps possible and multiplying this dividend by 100. The percentage of items performed for each intervention ranged from 83 to 100%, and reliability scores were acceptable (all scores >.80% agreement), demonstrating providers could implement TOPPS with integrity, demonstrating providers could implement TOPPS with integrity. No adverse events were reported, indicating the intervention could be implemented safely.

Feedback was obtained from three of the four professionals after implementation. The research team adapted the protocols until consensus with providers was obtained. At the conclusion of intervention implementation, providers completed the same evaluation that was administered after the previous demonstration with the other professionals. As can be seen in Table 3, the intervention protocols were rated positively and consistently with the previous group of professionals; with mean scores for all intervention protocols between 5.52 and 6.94 in agreement (agree to extremely agree). Revisions to protocol were performed consistent with both verbally expressed and qualitative statements.

Stage 1B, case trial with an Asian American youth evidencing a mental health condition

To assess safety, implementation adherence and initial efficacy of the youth protocol a single case trial was performed.[34] This trial involved 4-months of TOPPS with an Asian American 16-year-old athlete and her parents (pre-, post-, 1-month follow-up case trial design; 12 intervention sessions each scheduled to last 60 minutes).

Baseline assessment. The participant's primary concern was "anxiety in social situations and extreme shyness," as reported by the participant's parent. Baseline consisted of a semi-structured clinical interview (Kiddie Schedule for Affective Disorders and Schizophrenia)[37] that was adapted for the Diagnostic and Statistical Manual for Mental Health Disorders 5th edition,[38] and a battery of validated measures of psychiatric symptomology, factors interfering with sport performance, youth internalizing and externalizing behavior disorders, mood, and suicidal ideation (see left column of Table 4 for outcome measures).

Throughout the baseline interview the participant was extremely polite, reserved, and evidenced diminished eye contact with the assessor. The participant reported that she had very few friends, and her mother reported that this was due to their family "moving a lot" to accommodate her father's participation in the military. Indeed, her mother reported that she had restricted opportunities to establish intimate friendships with other children and was often bullied by classmates. The participant reported feelings of isolation, and she frequently ruminated about her faults in relating with other teenagers. Her father was frequently absent from the home, and within a month before

Table 3. Results of professionals' evaluations of TOPPS protocol post-implementation with youth in community setting (N = 3).

Intervention component	This intervention component is likely to be enjoyable to implement with youth athletes		This intervention component is likely to engage youth athletes		This intervention component is likely to be effective with youth athlete mental health		This intervention component is likely to be effective with youth athlete sport performance		This intervention component is likely to be safe with youth athletes		This intervention component is likely to be easily administered with youth athletes		I feel my feedback was taken into consideration in the improvement of this intervention component		Average total for each intervention component		Qualitative responses
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	
Performance Orientation	6.33	1.15	6.33	1.15	7.00	0.00	6.67	0.58	7.00	0.00	5.67	2.31	7.00	0.00	6.57	0.50	-Protocol was efficient, very clear cut, and precise -Performance professionals did a good job at teaching. –They elaborated, which made it easier to understand -I enjoy learning the new ways for our youth and the performance professionals to push themselves -Protocol was perfect. -The kids were heavily involved."
Dynamic Goals and Rewards	6.00	1.00	5.67	2.31	6.33	1.15	6.00	1.00	6.67	0.58	5.67	2.31	6.33	0.58	6.11	0.40	-The training protocol flows just as smooth. The detail plus the simplicity is what I like most about it. -The style of the teachings works best for me because I don't feel like I'm just being talked to. I get to role play it and interact to get further

(continued)

Table 3. Continued.

Intervention component	This intervention component is likely to be enjoyable to implement with youth athletes		This intervention component is likely to engage youth athletes		This intervention component is likely to be effective with youth athlete mental health		This intervention component is likely to be effective with youth athlete sport performance		This intervention component is likely to be safe with youth athletes		This intervention component is likely to be easily administered with youth athletes		I feel my feedback was taken into consideration in the improvement of this intervention component		Average total for each intervention component		Qualitative responses
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	
																	understanding of what is needed from me as a performance professional. -The list was very easy to go over and implement with the kids. -The kids responded well to the protocol. The kids were well engaged and active.
Performance Planning	6.00	1.00	5.67	2.31	7.00	0.00	6.67	0.58	6.67	0.58	6.33	0.58	7.00	0.00	6.48	0.50	-The protocol was self-explanatory. -Everything was great, the performance professional explained it thoroughly.
Goal Inspiration	5.67	1.15	5.67	1.52	6.67	0.58	7.00	0.00	7.00	0.00	6.67	0.58	7.00	0.00	6.53	0.60	N/A
Appreciation Exchange	7.00	0.00	7.00	0.00	7.00	0.00	7.00	0.00	7.00	0.00	7.00	0.00	7.00	0.00	7.00	0.00	-The packet was very simple to understand. The instructor did well to explain. -Everything was great. -Very easy and simple. -Possibly need more boxes for more names. -The kids responded very well, just needed a little extra explaining for the younger kids.

(continued)

Table 3. Continued.

Intervention component	This intervention component is likely to be enjoyable to implement with youth athletes		This intervention component is likely to engage youth athletes		This intervention component is likely to be effective with youth athlete mental health		This intervention component is likely to be effective with youth athlete sport performance		This intervention component is likely to be safe with youth athletes		This intervention component is likely to be easily administered with youth athletes		I feel my feedback was taken into consideration in the improvement of this intervention component		Average total for each intervention component		Qualitative responses
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	
Performance Timeline	6.33	0.58	6.67	0.58	6.33	0.58	7.00	0.00	7.00	0.00	7.00	0.00	7.00	0.00	6.76	0.32	N/A
Financial Management	4.33	1.15	6.00	1.00	5.33	0.58	5.00	1.73	6.33	1.15	4.67	1.53	7.00	0.00	5.52	0.96	-The protocol flowed great. -It is very simple and understandable. -May be difficult for younger youth to comprehend.
Environmental Control	6.67	0.58	7.00	0.00	7.00	0.00	7.00	0.00	7.00	0.00	7.00	0.00	7.00	0.00	6.95	0.12	N/A
Self-Control	6.67	0.58	6.67	0.58	7.00	0.00	7.00	0.00	7.00	0.00	6.67	0.58	7.00	0.00	6.86	0.18	N/A
Positive Request	6.67	0.58	7.00	0.00	6.67	0.58	6.67	0.58	7.00	0.00	6.67	0.58	7.00	0.00	6.81	0.18	N/A
Semi-Structured Interview for Choice Culture	6.67	0.58	6.67	0.58	7.00	0.00	7.00	0.00	7.00	0.00	7.00	0.00	7.00	0.00	6.91	0.16	N/A

Note: M = Mean. *SD* = Standard Deviation.

Table 4. Pre, post, and 1-month follow-up results for outcome measures in case trial.

Variable	Pre-intervention	Post-intervention	1 month follow-up
Symptoms check-list-90-Rev.[39]			
Psychoticism	74	44	44
Obsessive-compulsive	72 (Clinical range)	52	40
Paranoid ideation	72	49	49
Interpersonal sensitivity	72 (Clinical range)	47	53
Anxiety	72 (Clinical range)	37	44
Phobic anxiety	68	44	54
Depression	64	34	42
Hostility	63	40	40
Somatization	45	45	35
Global Severity Index	69	40	43
Beck Depress. Inv. II[40]			
Total	19 (mild)	1 (minimal)	1 (minimal)
Suicide Probability Scale (SPS)[41]			
Probability score	11 (Subclinical range)	10 (Subclinical range)	11 (Subclinical range)
Youth self report[42]			
Activities	34 (Borderline clinical range)	49	65
Social	48	50	54
Total competence	38 (Borderline clinical range)	52	63
Anxious/depressed	84 (Clinical range)	50	51
Withdrawn/depressed	66 (Borderline clinical range)	55	55
Somatic complaints	51	50	50
Social problems	58	50	50
Thought problems	69 (Borderline clinical range)	51	52
Attention problems	60	54	53
Rule-breaking behavior	50	50	50
Aggressive behavior	60	50	50
Internalizing problems	69 (Clinical range)	45	47
Externalizing problems	54	42	40
Total problems	65 (Clinical range)	42	42
Affective problems	66 (Borderline clinical range)	50	50
Anxiety problems	73 (Clinical)	50	52
Somatic problems	51	50	50
Attention deficit/hyperactivity problems	54	52	51
Oppositional defiant problems	60	52	51
Conduct problems	50	50	50
Obsessive-compulsive problems	80 (Clinical range)	52	58

(continued)

Table 4. Continued.

Variable	Pre-intervention	Post-intervention	1 month follow-up
Post-traumatic stress problems	68 (Borderline clinical range)	50	50
Positive qualities	53	63	51
Sport Interference Checklist[43]			
Interference with Sport Training	76	42	46
Interference with Sport Competition	60	46	46

presenting to the program her older sister (with whom she was close) left for college, and she was experiencing difficulties adjusting to new classmates in her transition to high school.

Informal role-plays and observations suggested the participant evidenced non-optimal social skills, particularly regarding intimacy in relationships. She felt incompetent in her social skills, which was particularly anxiety-provoking because she wanted to be accepted and do well for herself and others. She reported feelings associated with insecurity and anxiety due to not meeting the high demands of her very successful family. Her anxiety was negatively reinforced in several ways, including trips to her bedroom and bathroom when anxious to cope with distressful thoughts and hyperventilation, and sometimes being comforted by her mother after leaving school prematurely due to difficult social situations (Along these lines, attempting to understand and prevent errors during social interactions inherently desensitized her from feeling anxious). Her family also had a tendency of increasing their support when she cried.

Her responses to the K-SADS were consistent with a diagnosis of Social Anxiety Disorder. As seen in Table 4, several SCL90-R scores (a measure of psychiatric symptomology) were in the clinically significant range, including Psychoticism, Obsessive-Compulsive, Paranoid Ideation, Interpersonal Sensitivity, and Anxiety. Difficulties with flexible thinking and thought management were substantiated in her responses to the Youth Self Report, including elevations in Anxious/Depressed, Thought Problems, and Anxiety Problems, and Obsessive-Compulsive Problems. Her mood (as per BDI-II) was assessed to be in the Mild range of depressive symptomology, and she demonstrated subclinical suicidality (SPS). She reported worrisome thoughts, feeling she needed to be perfect, guilt, fear, nervousness, and worthlessness. She often spent time feeling the expectations of her parents were not being met. Her responses to the Sport Interference Checklist indicated relationship and mental health factors negatively impacted her sport performance in training, but not performance in competition. Her responses to the remaining subscales

were assessed to be in the non-clinical range. Some of her assessed positive character traits included standing up for the rights of others, fairness, and good sense of humor. She was significantly engaged in Taekwondo as a black belt and club sport soccer.

Case conceptualization and meeting approach. Performance meetings were based on a plan that was focused on teaching her both positive assertion (effectively requesting things that are desired) and negative assertion (responding competently in difficult or upsetting situations) through modeling and behavioral rehearsal, and assignments to gradually expose herself to increasingly anxiety-provoking social situations, within and outside of sports. Intervention protocols were essentially the same across scenarios in sport (e.g., coach on playing field) and general life (e.g., mother at home, classmate at school), both focusing on performance optimization within cultural context. Prior to treatment her family and coach were encouraged to provide her tangible rewards and descriptive praise when she exposed herself to novel social situations and practiced objective thinking. The plan involved teaching her to recognize early triggers to ruminating thoughts about negative experiences and manage dysfunctional thoughts with problem solving and cognitive restructuring exercises (i.e., Self-Control). Thus, it was planned to refocus her contingencies of reinforcement on skill development and rumination about positive thoughts and behaviors that were performed competently.

Meetings primarily focused on performance optimization in sports, mental health, relationships, doing well for others, and healthy intake (see Table 5 for intervention overview). Across interventions, the participant engaged in social skills training to assist behavioral and cognitive preparation in upcoming social situations. Initial assignments were focused in doing pleasant social activities. During these situations the participant practiced positive and objective thinking patterns and reinforcing her efforts with self-praise. Her family (mother, father, sister, brother) provided encouragement and reinforcement for any exposure-based efforts. As she developed confidence during social activities her exposure-based goals shifted to more difficult social activities (e.g., relevant to her goal to optimize sport performance she practiced giving directives while yelling during games).

Post- and follow-up assessments. Intervention integrity checks completed by the provider indicated that she provided the interventions with a high degree of fidelity ($> 90\%$ protocol adherence for all interventions). The participant's post-intervention assessments (immediately post-intervention, 1-month follow-up) indicated that she no longer evidenced DSM-V diagnostic criteria for Social Anxiety Disorder, as per the K-SADS, outcome measures were all in the non-clinical range (see Table 4), and her mean score for post-intervention helpfulness was 6.7 (1 = extremely not helpful, 7 = extremely helpful). Therefore, the results

Table 5. Intervention structure and participant/family reactions during case trial.

Intervention structure (meeting number; persons involved)	Participant/family reaction to intervention components
Performance orientation (meeting 1, participant, mother)	Participant reserved but excited, enjoyed cultural review (many things liked about her ethnic culture, disagreed her ethnic culture was a big part of her life, she had experienced offensive remarks relative to her ethnic culture but did not want to address her culture in programming). Participant & parent reported appreciation w/ review.
Dynamic goals and rewards (meetings 1–12. participant, mother, father, brother)	Interested in learning assessment results. Participant enjoyed reviewing her goal accomplishments and receiving rewards from parents (e.g., money, pins, time together w/ mother, visits from friends, trips hiking, praise).
Performance planning (meeting 2, participant, mother)	Enthusiastically ranked each intervention for helpfulness to prioritize interventions. Interventions ranked in following order, beginning with most desired: Self-Control, Reciprocity Awareness, Environmental Control, Positive Request, Goal Inspiration, Performance Timeline, Job-Getting Skills Training, Financial Management, Dream Job Development, Cultural Enlightenment. Components subsequently implemented successively and cumulatively based on this order.
Reciprocity awareness (meetings 2–3, 10, participant, parents)	Participant and mother teary eyed during exchange of things loved about one another, father told participant he loved her humor and wit and appreciated mother's dedication to family.
Self-control (meetings 3–4, participant, mother)	Participant enjoyed learning to identify early triggers to anxiety and ruminating thoughts, diaphragmatic breathing to achieve calmness, solution generation, and imagery associated with doing selected solutions. She reported solution generation was most important skill. Mother assisted sophisticated solutions.
Environmental control (meetings 4–5, participant, mother, brother	Participant adept in reviewing stimuli that increased anxiety and its management. Goal consistent activities stressed participation with her mother and friends and martial arts, whereas goal inconsistent activities included shopping, eating unhealthy, and negative thinking.
Positive request (meetings 5–6; participant & mother)	Requests focused on her relationships (e.g. mother to listen more often, father to increase allowance), and she often smiled and reported the role-plays were fun.

(continued)

Table 5. Continued.

Intervention structure (meeting number; persons involved)	Participant/family reaction to intervention components
Goal inspiration (meetings 6–7, participant, mother, brother)	Participant interested in being praiseworthy of self in training and life outside of sport and she and her mother enjoyed brainstorming possible positive consequences of goal accomplishment (e.g. feeling better about self, decreased stress, better sleep, assertiveness).
Performance timeline (meetings 7–8, participant, mother)	Participant chose to optimize her thoughts/perceptions and training strategies immediately before her 2nd degree black-belt training. She used Self-Control component to establish neutral and positive thoughts to accomplish this skill during trials in office and at home.
Job-getting skills training (meeting 8–9, participant, mother)	Participant enjoyed role-playing calls to potential employers and soliciting job interviews. Mother helped brainstorm potential employers and create resume.
Dream job development (meetings 9–10, participant, parents)	Desirable aspects of participant's dream job included love for art, theatre, humor, need to be fun, higher pay than teacher, travel, vacation days, 40 hours a week, personal office, higher education requirement, retirement at age 60, being her own boss. Mother provided supportive comments. Ultimately decided on art therapy, which was inspired by her participation in TOPPS.
Financial management (meeting 11, participant, parents)	Family liked standardized prompts to assist decreasing expenses and increasing income (e.g. extra chores, strategic purchases, improvements in time management). Participant appreciated budgeting for allowance and reviewing long-term financial goals. Family created financial bonuses for increased work around house.
Last meeting: intervention generalization (meeting 12, participant, parents)	Progress in relationships, sport performance, mental health, and avoidance of substances reviewed, including openness to new social experiences, communication skills, self-confidence/compassion.

of this case trial preliminarily support the safety and efficacy of TOPPS in an Asian American youth who presented with Social Anxiety Disorder.

Future directions

The aforementioned Stage 0 and I studies suggest TOPPS may be a promising intervention for optimizing mental health and sport performance for youth from ethnic/racial minority and low-income neighborhoods. Stage II research will

involve assessment of stakeholders' (i.e., government officials, school administrators, parents, teachers) interest in supporting a controlled clinical evaluation of TOPPS in youth from predominately ethnic racial/minority and low-income neighborhoods.[44] Preliminary informal discussions with school administrators and granting institutions suggest a controlled clinical trial comparing this experimental condition to counseling services as usual is particularly warranted given the importance of recently publicized civic inequalities in the United States and other nations.

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