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ORIGINAL RESEARCH

Controlled Evaluation of a Method to Assist Recruitment of Participants Into Treatment Outcome Research and Engage Student-Athletes Into Substance Abuse Intervention

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Recruitment of participants into treatment outcome studies is an important and often challenging aspect of human research. Yet, there have been very few controlled trials that have examined methods of recruiting participants into clinical trials, particularly in populations that may be reluctant to pursue mental health intervention, such as athletes. In this study, 79 NCAA Division I, Club, and Intramural student-athletes volunteered to participate in a study to determine their interest in participating in one of two goal-oriented programs representing two arms in a clinical trial. These programs were aimed at reducing substance abuse and sexually transmitted infections, and improving mental health, relationships, and sport performance. The participants were randomly assigned to Standard Recruitment (SR) or Recruitment Engagement (RE). RE included a review of the aforementioned outcome study and implementation of strategies that were developed to motivate participants to engage in treatment. The SR condition involved a review of the aforementioned treatment outcome study only. After the recruitment interventions were implemented, participants were queried to report any negative consequences that may have occurred from their use of illicit drugs or alcohol. Participants who reported negative consequences were invited to participate in baseline assessment of the aforementioned outcome study. Results indicated that 11 (25.0%) of the participants in the RE condition provided their consent to participate, 9 (20.5%) of whom subsequently completed baseline assessment; only 2 (5.7%) of the SR participants provided their study consent and subsequently participated in baseline assessment for the clinical trial ($p < .05$). After the respective recruitment intervention was implemented, participants were administered psychometrically validated instruments to assess their overall psychiatric functioning and the extent to which their sport performance was negatively impacted by dysfunctional thoughts and

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stress. Participants in RE were more likely to report greater dysfunctional thoughts and stress interfering with their sport performance (and, to a lesser extent, greater psychiatric problems) than SR participants, suggesting RE may influence greater disclosure of problem behavior than SR, permitting the interviewers opportunities to empathize with the participants' concerns. Results are discussed in light of their implications to treatment outcome research and clinical and counseling practice involving student-athletes.

Keywords: athlete; recruitment; engagement; substance abuse; clinical trial

The recruitment of participants into treatment outcome studies is one of the most important and often challenging aspects of research (Blanton et al., 2006; McDonald et al., 2006), particularly in populations that may be reluctant to pursue mental health services, such as collegiate athletes. Indeed, between 60 and 85% of clinical trials either continue past their proposed study termination date due to having an insufficient number of participants or never achieve the proposed number of participants (McDonald et al., 2006; Watson & Torgerson, 2006). Moreover, up to 30% of planned clinical trials fail to recruit even a single participant (Blanton et al., 2006). Results of the aforementioned studies have real-world implications, as problems in the recruitment and engagement of participants into clinical trials compromise availability of validated treatment options for practitioners in mental health settings (Watson & Torgerson, 2006). Moreover, recruitment and engagement procedures for use in treatment outcome studies should ideally reflect real-world clinical practice scenarios to better assist external validity (Kazdin, 2008).

It is difficult to recruit individuals into behavioral treatment programs when they perceive negative feelings toward mental health services (Luoma et al., 2014). Along these lines, there are several factors that have been identified to influence individuals to avoid participation in treatment outcome studies (and clinical practice), including concerns that reporting illicit behavior will result in legal consequences (Harrison, 1997), social stigmatization (Watson, 2005), believing the interventions will not be helpful (Chandra & Paul, 2003), and being unaware of psychiatric symptoms that may warrant treatment (Gulliver, Griffiths, & Christensen, 2012). These factors are especially relevant in collegiate athletes who pursue substance abuse treatment (Donohue et al., 2013).

The most commonly used study recruitment strategies (i.e., advertisements through newspapers, radio, television, posters, brochures) are considered nonoptimal methods (Blanton et al., 2006; McDonald et al., 2006), usually because these strategies delay or prevent participants from reviewing potential concerns with study personnel and often result in misconceptions about the trial (Howard et al., 2009). Environmental approaches have been found to assist participant recruitment in clinical trials by emphasizing methods of developing clinics with strong infrastructures to assist accessibility of services (Swanson, Ward, & Ward, 1995). For instance, in conducting an alcohol-prevention study in collegiate students, Donohue, Allen, et al. (2004) established a clinic for substance abuse in the center of a university campus to make it easier for students to attend alcohol-prevention meetings. However, clinics are often difficult to implement in convenient locations. Financial reimbursement is an incentive for study participation (Howard et al., 2009; Spaar et al., 2009). However, this strategy lowers external validity and is

unrealistic in most clinical practice situations. An alternative method to motivate student-athletes to pursue applied research studies involves the provision of course credit for study participation time. Although this strategy is limited to collegiate students, this method is both practical and incentivizing for student athletes to pursue mental health interventions through their participation in clinical trials.

In randomized clinical trials, semistructured interviews have been used to enhance participation in behavioral treatment (Fairhurst, & Dowrick, 1996; Mason, Allmark, & Euricon Study Group, 2000; Reijnders et al., 2008). Indeed, in their extensive review of the outcome literature specific to attendance improvement interventions, Lefforge, Donohue, and Strada (2007) found personal interaction was critically important to assist in treatment engagement. Therefore, in the engagement of research participants (and clients in clinical settings), it is important to emphasize semistructured interviews that are designed to facilitate assessment of unique circumstances and provide opportunities to empathize with personal concerns (Blanton et al., 2006; Donohue et al., 1999; Pinkerton, Hinz, & Barrow, 1989). When participants are reluctant to provide information about themselves, *norming* statements (interpreting problematic behaviors as being representative of the majority population) and self-disclosure of problem behavior (Knox, Hess, Petersen, & Hill, 1997) by interviewers may assist engagement. These strategies convey that difficult experiences may be discussed without judgment or negative consequences (Oetting & Beauvais, 1987).

Studies have shown that disclosure of substance abuse in collegiate athletes is influenced by normative beliefs about the prevalence of substance use in other athletes, and that objective and empathic feedback about these beliefs may be effective in the prevention of substance misuse (Larimer & Cronce, 2007). This is important because scientists have consistently reported that alcohol misuse and illicit drug use is a public health concern for collegiate athletes, and collegiate athletes have been indicated to use alcohol and some illicit drugs about the same as, or more than, collegiate nonathletes (e.g., Barry, Howell, Riplinger, & Piazza-Gardner, 2015; Bovard, 2008; Ford, 2007; Hildebrand, Johnson, & Bogle, 2001; Lisha & Sussman, 2010; Martens, Dams-O'Connor, & Beck, 2006; Marzell, Morrison, Mair, Moynihan, & Gruenewald, 2015; Zhou, O'Brien, & Heim, 2014).

In the most extensive assessment of alcohol use rates involving nonathlete collegiate students and National Collegiate Athletic Association (NCAA), club, and intramural collegiate athletes, Marzell et al. (2015) reported that differing drinking patterns between these groups indicate the need to specify competition level when studying collegiate athletes, and consistent with others (Barry et al., 2015; Ward & Gryczynski, 2007), also reported that non-NCAA collegiate athletes are an important and under-researched group. Nelson and Wechsler (2001) indicated that campus officials overlook club and intramural collegiate athletes when resources are allocated to assist substance abuse prevention and intervention programs. Andes, Poet, and McWilliams (2012) reported that intramural and club sport athletes are growing in numbers in college campuses, and college health educators need to develop health education programs that are focused on this population.

Collegiate athletes have less positive attitudes about mental health services than do nonathletes (Watson, 2005). However, they are referred to campus counseling centers more than nonathlete peers (Pinkerton, Hinz, & Barrow, 1989). Negative

feelings toward mental health services may put collegiate athletes at particular risk, as they may resist substance abuse services when needed (Donohue et al., 2013; Martens, 2012; Pinkerton et al., 1989). Personalized normative feedback interventions have caused significant reductions in alcohol misuse in collegiate athletes relative to control conditions (Cimini et al., 2015; Doumas, Haustveit, & Coll, 2010; LaBrie et al., 2009; Martens et al., 2010; Perkins & Craig, 2006). However, alcohol use norming has yet to be examined as a method to assist recruitment in treatment outcome studies. As reported in their extensive review of the literature, Gulliver, Griffiths, and Christensen (2012) discovered that stigma, embarrassment, and failing to recognize mental health symptoms have been found to dissuade young people from pursuing mental health counseling programs, whereas social support and encouragement from others may facilitate such behavior. Two trials have examined methods of improving health-seeking behavior in collegiate athletes in randomized clinical trials. Donohue, Covassin, et al. (2004) determined that reviewing positive aspects of sport psychology significantly increased participants' interest in pursuing sport psychology intervention. However, participants who were assigned to this condition were no more likely to pursue sport psychology intervention than control participants. Along a similar vein, Gulliver, Griffiths, Christensen, et al. (2012) determined that Internet-based feedback interventions were no more effective than a no-intervention control condition in the enhancement of help-seeking attitudes, intentions, and behavior in athletes.

While there is abundant literature reviewing common lore on how to assist study recruitment (Garton et al., 1992; Koo & Skinner, 2005; Leader & Neuwirth, 1978; Watson & Torgerson, 2006), controlled evaluations of intervention recruitment and engagement strategies in randomized clinical trials are lacking (Blanton et al., 2006; Howard et al., 2009; Spaar et al., 2009; Watson & Torgerson, 2006). Therefore, the current study was conducted to initially evaluate a method of recruiting and engaging participants into treatment outcome research. This method was designed to be applicable for clinical practice.

Three types of collegiate athletes (i.e., intramural, club, and NCAA) were recruited from various sources to determine their interest in participating in a treatment outcome study that was focused on the optimization of relationships, mental health, and sport performance while reducing substance use and risk behaviors associated with sexually transmitted diseases. The participants were not required to evidence a substance use disorder to participate in the recruitment/engagement study. However, participants were required to evidence a substance use disorder to participate in the treatment outcome study due to the nature of funding and because the treatment outcome study was chiefly focused on the mitigation of substance use disorder in collegiate athletes.

It was hypothesized that collegiate athletes who were randomly assigned to a recruitment and engagement interview, as compared with participants who were assigned to a standard recruitment and engagement interview, would (1) be more likely to disclose a higher severity of mental health concerns in response to the respective interview that was implemented, (2) more often consent to be a participant in the treatment outcome study, and (3) more often qualify for the treatment outcome study by reporting symptoms that were consistent with substance abuse or dependence.

Method

Participants

Participants were 79 intramural ($n = 42$, 53%), club sport ($n = 11$, 14%), and NCAA Division I ($n = 26$, 33%) student-athletes from a southwestern state university who were interested in determining if they would like to participate in an intervention outcome study aimed at evaluating two goal-oriented programs. Athletes were referred to the study in several ways, including direct referral from a compliance officer in the Athletics Department of the university ($n = 3$); self-referrals after their participation in a performance workshop that was conducted by a research assistant during an athletic event ($n = 3$); self-referral due to learning about the study from class presentations, friends, coaches, teammates, or other source ($n = 24$); and self-referral after completing course credit specific to a psychology course ($n = 49$). In regard to the latter course credit method of recruitment, 31 (63%) of the participants were intramural, 8 (16%) were club sport, and 10 (20%) were NCAA. Participant demographic characteristics are presented in Table 1. All study activities were approved by the appropriate institutional review board.

Procedure

The current study was advertised in several ways. First, the study was posted on the psychology department's list of active studies that psychology students had the option of participating in to receive course credit with essentially no restrictions on study participation other than being at least 18 years old and an athlete at the university (i.e., intramural athletics, club sport, or NCAA Division I). Referrals also occurred due to testing positive for illicit drugs in random tests conducted by the Athletics Department, responding to brochures about the study that were distributed in high-traffic locations throughout the campus, and presentations about the study consequent to sport performance workshops at athletic team meetings. After study consent, participants completed a demographic questionnaire and were subsequently randomly assigned by a coin flip to one of two interview conditions (i.e., Recruitment Engagement, RE; or Standard Recruitment, SR). Upon randomization, a trained doctoral student was instructed to implement the respective interview utilizing a standardized instructional checklist. The interviewers reported to the participants that the interviews were designed to assist in determining if the participants in this recruitment evaluation study were willing and qualified to participate in a randomized treatment outcome study. They were told that this treatment outcome study was being conducted to evaluate the efficacy of two goal-oriented intervention programs that were developed to improve performance in sports and life.

Utilizing standardized protocols, interviewers in RE reviewed general rates of substance use in athletes, solicited potential negative consequences of the participants' use of illicit drugs or alcohol (if substance use was endorsed), mentioned famous athletes who had reportedly benefitted from mental health interventions, and reviewed the controlled treatment outcome study. Participants in RE were also referred to a standard list of negative consequences that sometimes result from illicit drug and alcohol use (e.g., "hangover," being late for class, arguments).

Table 1 Demographic Characteristics of Participants With Numbers Shown as Mean (*SD*) or Frequency (%)

Characteristics	Total (*n* = 79)	RE (*n* = 44)	SR (*n* = 35)
Mean Age (*SD*)	19.41 (1.4)	19.36 (1.2)	19.46 (1.6)
Gender			
Female	40 (50.6)	21 (47.7)	19 (54.3)
Male	39 (49.4)	23 (52.3)	16 (45.7)
Ethnicity			
White	34 (43.0)	18 (40.9)	16 (45.7)
Black/African American	12 (15.2)	7 (15.9)	5 (14.3)
Hispanic/Latino	9 (11.4)	8 (18.2)	1 (2.9)
Asian American	7 (8.9)	3 (6.8)	4 (11.4)
Pacific Islander	3 (3.8)	1 (2.3)	2 (5.7)
Multiple/Other	14 (17.7)	7 (15.9)	7 (20.0)
Year in School			
Freshman	29 (36.7)	17 (38.6)	12 (34.3)
Sophomore	29 (36.7)	14 (31.8)	15 (42.9)
Junior	17 (21.5)	11 (25.0)	6 (17.1)
Senior	4 (5.1)	2 (4.5)	2 (5.7)
Sport Status			
NCAA	26 (32.9)	15 (34.1)	11 (31.4)
Club	11 (13.9)	6 (13.6)	5 (14.3)
Intramural	42 (53.2)	23 (52.3)	19 (54.3)

Note. RE = Recruitment Engagement; SR = Standard Recruitment.

Participants were asked to review this list and discuss which of the items they may have experienced, if any. The RE protocols focused on substance use because participation in the treatment outcome study for which they were being recruited required them to disclose symptoms that were consistent with a substance use disorder in a standardized measure.

Standard recruitment (SR) involved a review of the aforementioned outcome study. The standardized protocol checklists for SR regarding the review of this treatment outcome study were the same as those prescribed in the RE condition.

Immediately after the respective recruitment and engagement interview was implemented, all participants were administered the Symptom Checklist—90 Revised (SCL-90-R; Derogatis, 1994) and the Sports Interference Checklist (SIC; Donohue, Silver, Dickens, Covassin, & Lancer, 2007) to assess their self-reports of mental health symptoms and factors that have been indicated to interfere with

sport performance in training and competition, respectively (see Measures section below for a full description). It was hypothesized that RE participants, as compared with SR participants, would report greater severity of symptoms on these measures because they were primed by the intervention techniques to feel more comfortable disclosing intimate information with the interviewers.

Participants in both conditions were then queried, utilizing standardized prompts, if they were interested in being randomly assigned to participate in one of two goal-oriented programs as part of the aforementioned controlled treatment outcome study. Interested participants were scheduled within the week to meet with an interviewer to review study consent for the treatment outcome study, and to determine if they reported symptoms that were consistent with substance use disorder according to their responses to the Structured Clinical Interview for DSM-IV (First, Spitzer, Gibbon, & Williams, 1996).

Method of Retaining Participants in the Study. Figure 1 depicts how participants entered and were retained or exited from the study. All 79 of the qualifying participants were randomly assigned to one of the recruitment conditions by a coin flip (44 in RE, 35 in SR) and included in the final analyses.

Recruitment Conditions

Recruitment Engagement (RE). Participants in RE were first asked what they thought they did particularly well in their sport and life outside of sports, and what they thought could be improved/optimized in those areas. These questions were used to orient participants to the study and provide an opportunity for the interviewers to build rapport and establish a need for intervention. Norming strategies were then used to encourage participants to disclose information about their use of substances. In doing so, a series of evidence-supported facts that were pertinent to the relatively high rate of substance use in athletes was read to the participants (i.e., 75% of student-athletes in one study reported binge drinking at least once in the previous two weeks; student-athletes have been found in studies to report more use of marijuana, stimulants, prescription drugs, and steroids than nonathlete students). Participants were also informed that student-athletes evidence relatively more severe negative consequences due to substance use, as compared with nonathlete students; and they were told that several famous professional athletes used psychological services. Following each research-supported statement, the participants were asked if they were aware of the finding and why they thought the findings were true. Participants were provided a list of negative consequences commonly experienced by SAs due to substance use. The interviewer disclosed having experienced one of the listed negative consequences (but not necessarily due to substance use), and participants were asked which of the listed consequences they personally experienced due to substance use at any point in their life. Interviewers provided empathy when negative consequences were experienced.

Interviewers read a statement that was designed to increase their willingness to endorse greater severity of symptoms on the SIC and SCL-90-R scales (i.e., "Many elite athletes are able to recognize the things they do well, and the things that interfere with their optimum performance, and are willing to share these things with people who are in a position to assist them."), and they were asked what they liked about this perspective. Participants were subsequently administered the SIC

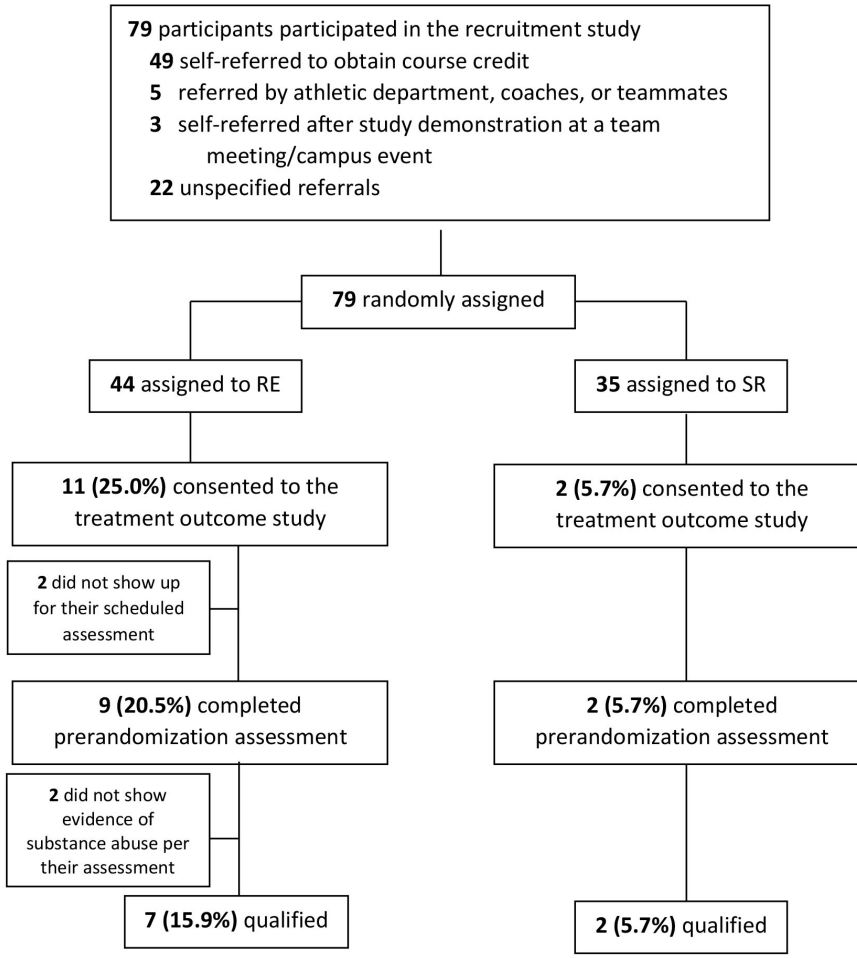

Figure 1 — Flow of participants through study. RE = Recruitment Engagement; SR = Standard Recruitment.

and SCL-90-R. They were queried to indicate if they had experienced at least one past or present negative consequence due to substance use from a list of common negative consequences. If so, the treatment outcome study was described, and all participants who disclosed at least one negative consequence due to substance use from the standardized list of common consequences were queried if they wanted to participate in the treatment outcome study. Those who were interested were scheduled to complete study consent.

Standard Recruitment (SR). Similar to the RE condition, participants in SR were first asked what they thought they did particularly well in their sport and in

their life outside of sports, and what they thought could be improved/optimized in those areas. Subsequently, participants read the standard instructions for the SIC and SCL-90-R and were administered these scales. Interviewers described the treatment outcome study, and all SR participants who indicated at least one past or current negative consequence due to substance use from the list of common negative consequences were invited to participate in the treatment outcome study. If interested, they were scheduled to complete study consent.

Measures

Demographic Interview. A structured interview was used to obtain demographic and background information about the participants, including the participant's age, gender, ethnicity, sport level (i.e., NCAA Division I, club, or intramural), sport type (i.e., basketball, soccer, or football), and current year in school.

Structured Clinical Interview DSM-IV (SCID-IV). Structured Clinical Interview for DSM-IV (First, Spitzer, Gibbon, & Williams, 1996) is a structured diagnostic interview used to assess DSM-IV disorders. In this study, the SCID-IV was used to determine the presence of substance abuse or dependence diagnosis.

Symptom Checklist-90-Revised (SCL-90-R). The SCL-90-R (Derogatis, 1994) is a 90-item self-report questionnaire that measures nine dimensions of psychiatric functioning—namely, somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. The SCL-90-R also includes the Global Severity Index (GSI), which measures psychological distress. The current study used the GSI for analyses (Todd, Deane, & McKenna, 1997). Scores on the GSI were converted to gender-specific *t* scores (see Derogatis, 1994) to normalize differences consistently found between genders on the SCL-90-R (Todd, Deane, & McKenna, 1997). Psychometric support for the GSI is very good (Horowitz et al., 1988).

The Sports Interference Checklist (SIC). The SIC (Donohue et al., 2007) is a 26-item self-report measure that is used to assess cognitive and behavioral problems that have been indicated to interfere with sport performance in both training and competition. The SIC includes three scales—Problems in Sports Training Scale (PSTS), Problems in Sports Competition Scale (PSCS), and Desire for Sport Psychology Scale (DSPS)—each with their own subscales. The current study used the Dysfunctional Thoughts and Stress subscales of the PSTS. The SIC has shown good psychometric properties (Donohue et al., 2007).

Results

Comparison of Recruitment Conditions at Baseline

Separate chi-square analyses were conducted to assess potential baseline differences between experimental and control interview conditions in discontinuous demographic variables (i.e., gender, ethnicity, sport level, type of referral), and ANOVAs were conducted to do the same for continuous demographic variables (age, year in school). The results indicated that there were no significant baseline differences between conditions in these variables ($ps > .05$).

Comparison Between Athlete Types at Baseline

Separate chi square analyses were conducted to assess potential baseline differences between athlete types (i.e., NCAA, club, or intramural) in discontinuous demographic variables (i.e., gender, ethnicity, sport level, type of referral), and ANOVAs were conducted to do the same for continuous demographic variables (age, year in school). The results indicated that there were no significant baseline differences between athlete types (*p*s >. 05).

Primary Analyses

Comparison Between Recruitment Conditions on Study Consent, Baseline Assessment Completion, and Study Qualification.
Three individual chi-square analyses were conducted to assess efficacy of the interview formats in recruiting the participants into the treatment outcome study. The first chi-square analysis showed that participants in RE were more likely to be motivated to complete informed consent than participants in SR, χ^2 (1, N = 79) = 5.27, p = .02. The second chi-square analysis was conducted to determine whether participants in RE, relative to SR, were more likely to pursue the treatment outcome study by attending its baseline assessment after their initial interview. This chi-square analysis showed that participants in RE were more likely to complete this assessment, χ^2 (1, N = 79) = 3.534, p = .03. The final chi-square analysis was conducted to determine whether RE participants would qualify for the treatment outcome study more so than SR participants (i.e., evidence a substance use disorder according to SCID). Results indicated that RE participants did not significantly qualify for the treatment outcome study more than SR participants. However, the observed chi-square approached significance, χ^2 (1, N = 79) = 2.01, p = .08.

Disclosure Analyses. It was hypothesized that RE participants, relative to SR participants would report greater severity of dysfunctional thinking patterns and stress specific to sport performance (Dysfunctional Thoughts and Stress subscale of SIC) and general psychiatric symptoms (Global Severity Index of SCL-90-R). Confirmation of this hypothesis was important to understanding mechanisms by which RE may have influenced relatively greater rates of recruitment, as this finding would suggest RE participants may have been influenced to feel more comfortable reporting higher levels of pathology than SR participants, permitting opportunities for interviewers to both norm and provide empathy with expressed concerns. The ANOVAs revealed that participants in RE tended to report greater severity of psychiatric symptoms, although this result was not statistically significant, F(1, 77) = 1.603, p = .11. Participants who were assigned to RE did report higher levels of dysfunctional thoughts and stress in sport specific training, F(1, 77) = 4.791, p = .03, as compared with SR participants, suggesting that RE may enhance disclosure of problem areas that are specific to sport performance.

Discussion

Recruiting individuals to participate in treatment outcome studies and clinical practice is a critical component in the establishment of evidence-based practices. Indeed, many studies fail, or must be extended beyond the originally proposed termination

date, due to low participation. Much of the current literature regarding participant recruitment is descriptive in nature and lacks adherence to experimental standards associated with randomized controlled trial methodology. Therefore, the current controlled outcome study was conducted to empirically develop an intervention capable of motivating research participants to participate in a randomized clinical trial that required participants to endorse symptoms that were consistent with a substance use disorder. Students who were found to engage in university-organized sport (NCAA Division 1, club, or intramural) were chosen to participate in the current study because this population has been identified to evidence relatively high rates of substance use, including other mental health symptoms, while there is some support to suggest they may be reluctant to pursue psychological intervention (Watson & Kissinger, 2007). The RE condition that was examined in this study was designed to encourage disclosure of problem behavior and motivation to pursue intervention through priming in substance use normalization and empathic responses when participants reported that they had experienced negative consequences due to their use of substances. It was hypothesized that this approach would lead participants to report greater severity of dysfunctional thoughts and stress associated with their sport, and poorer psychiatric functioning, which in turn would lead to greater interest to pursue participation in the treatment outcome study due to the reaction of interviewers, as compared with control group participants.

Results indicated that participants in RE were more likely than SR participants to complete informed consent for the treatment outcome study, suggesting RE increased their initial commitment to pursue goal-oriented intervention offered in the treatment outcome study. Recruitment engagement participants were also significantly more likely than SR participants to complete their scheduled assessment after the initial engagement interview to determine if they formally met criteria for the clinical trial involving an evaluation of goal-oriented programs. This suggests RE may have increased both immediate and sustained motivation for RE participants to actively pursue treatment programming specific to mental health issues. This is important because student athletes have been found to underreport mental health problems (Bonci et al., 2008; Pinkerton, Hinz, & Barrow, 1989; Reardon & Factor, 2010) and underutilize mental health services (Watson, 2005).

There was a trend for participants in RE to be more likely than SR participants to qualify for the treatment outcome study by reporting symptoms that were consistent with substance use disorder, although this finding was not significant (p = .08). This finding was consistent with the finding that participants in RE tended to nonsignificantly report more severe psychiatric symptoms (p = .11) and reported significantly greater severity in dysfunctional thoughts and stress in sport training (p = .03) than did participants in SR. Together, these results suggest RE may assist disclosure of intimate problems to some extent. Given that negative consequences from substance use in college are predictive of substance use disorders later in life (Jennison, 2004), these findings have practical implications for mental health professionals in the identification and recruitment of student-athletes who might benefit from mental health treatment, particularly those who are reluctant to pursue, or engage in, treatment. It is also important to point out that participants in the current study were being recruited to participate in one of two goal-oriented programs, suggesting RE may be potentially incorporated into treatment outcome studies that are focused on substance use disorder and, potentially, other psychiatric conditions.

Moreover, RE norming statements that are specific to the prevalence of substance use and its negative consequences in student-athletes can be modified to include research findings that are relevant to other problem behaviors when conducting treatment outcome research. The results of this study are particularly encouraging for professionals who work with athletes (i.e., administrators and sport performance professionals in athletic settings), as it suggests the strategies used in RE may act to prime collegiate athletes to be more receptive to substance abuse treatment and, to a lesser extent, to factors that compromise mental health.

Overall, this study represents a significant advancement in support of recruitment and engagement procedures that may be used in treatment outcome research and clinical practice, both in terms of methodology and application to real-world settings. The results of this study suggest semistructured recruitment engagement strategies, such as RE, are worthy of further exploration within the context of treatment outcome research. The application of these methods to behavioral treatment in nonresearch clinical settings is undetermined, albeit promising, because both interventions were vaguely described as goal-oriented programs focused on enhanced performance in sport and life outside of sport. It is recommended that investigators of similar studies obtain baseline measurement of mental health and substance use to provide stronger evidence that elevated scores postengagement are definitively the result of RE methods.

This investigation provides support for the use of population-specific norming strategies within the context of semistructured interviews to assist recruitment of participants into clinical trials. Findings support that student-athletes are more likely to participate in goal-oriented treatment services after interviewers have attempted to both norm and empathize with their reports of substances. Thus, the current study preliminarily supports the efficacy of RE strategies in the facilitation of recruitment of NCAA Division I, club, and intramural athletes in treatment outcome research for substance abuse, and sets the groundwork for the application of similar recruitment strategies in other clinical populations that are often guarded and hesitant to pursue mental health services.

Study Limitations and Future Directions

The current study revealed for the first time a novel clinical approach capable of engaging student athletes into treatment outcome research. Although the participants in this study were required to evidence substance abuse to receive intervention, it should be emphasized that the participants were informed that they could receive one of two goal-oriented programs that were chiefly aimed at accomplishing goals in both sport and life outside of sport. Therefore, RE may be appropriate for use as an interview to assist motivation of athletes into evidence-supported treatment programs that do not explicitly target substance use disorder. Along these lines, we encourage other researchers to conduct clinical trials similar to the one currently examined with athletes in other populations that are resistant to mental health treatment. We also recommend that these clinical trials include measures of receptivity to mental health intervention. In this study, using measures of receptivity to psychological interventions would have permitted us to (1) better understand how receptivity influences athletes to initiate intervention, (2) covary receptivity if it differed across experimental treatments, and (3) enter receptivity scores into urn

randomization procedures when assigning participants to experimental groups. Possible examples include the Self-Stigma of Seeking Help Scale, the Stigma Scale for Receiving Psychological Help, the Distress Disclosure Index, or the Disclosure Expectations Scale, the Sport Interference Checklist, and specific to sport psychology, the Attitudes Toward Sport Psychology Consultation Questionnaire.

The participants in this study often reported that their primary reason for study participation was to determine how the goal-oriented programs might assist their sport performance, but that assertion has only anecdotal value. To assist in reducing stigma that is often associated with mental illness, the interviewers were trained to acknowledge the importance of incorporating sport performance enhancement skills training into programs that are focused on mental health optimization (Donohue et al., 2015).

Finally, it is important to emphasize that a mixed sample of NCAA Division I, club, and intramural student athletes was used in the current study. Representation of three distinct and formalized athlete groups may assist external validity in this study, particularly since these groups were equivalent on several important demographic factors, and collegiate club sport athletes and NCAA Division 1 athletes have been found to evidence similar severity in mental health symptoms according to SCL-90-R (Donohue, Covassin, et al., 2004). On the other hand, however, there may be inherent differences between the student-athlete groups that were examined in this study, such as time demands, physical characteristics, and extent of academic support, that were not assessed but may have influenced the results. Similarly, perceived roles, identities, or responsibilities of participants were not assessed or addressed in this study. Certainly, these factors may be quite different between and among the assessed student-athlete groups, and knowledge of this information may have been useful. Investigators will need to conduct future studies to better assess the relevance of these factors in regard to intervention engagement of formalized athlete groups, including professional athletes.

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