NOTE: The following proposals are meant to provide examples of high quality proposal design, but the format below is NOT identical to the format required in the current Call for Proposals (CFP). Please pay close attention to this year’s CFP and follow the current guidelines when preparing your proposal for submission.

**NCAA Innovations in Research and Practice Grant Program**

**Examples of Funded Proposals**

**2015 Proposal Examples**

Promoting Identity Development in Student-Athletes: There’s An App for That *(Harris)*

*Moving On!: A Physical Activity Transition Program for Student-Athletes* *(Reifsteck)*

**2014 Proposal Examples**

Developing and Evaluating a Model Program for Supporting the Mental Health of Student Athletes *(Eisenberg)*

Injured athlete support group: Evaluation of a pilot program *(Post/Simpson)*

Mental Health Referral for Student-Athletes: Web-Based Education and Training *(Van Raalte)*
Promoting Identity Development in Student Athletes: There’s An App for That

Problem Statement

The need for support of collegiate student-athletes’ identity development is readily apparent. Emerging adults are engaged in a variety of developmental tasks such as identity formation, becoming personally competent, developing interpersonal relationships, and planning for the future. Playing a sport adds an unexpectedly complex layer to these stage-related tasks (Heird & Steinfeldt, 2013). Gayles (in press) noted that student-athletes must balance a unique set of circumstances, such as balancing athletic and academic endeavors, social activities with the isolation of athletic pursuits, athletic success or lack of success with maintenance of mental equilibrium, physical health and injuries with the need to keep playing, the demands of various relationships, and reconciling the termination of an athletic career with setting goals for the future. As such, the degree to which one exclusively identifies with the athletic role, also known as athletic identity, can have a variety of implications. Specifically, over-identification with the athletic role has been tied to harmful outcomes, such as decreased college success and lower rates of completion (Harris, 2012; Comeaux, 2013; Kelly & Dixon, 2014). There is a critical need for interventions that promote student athletes’ healthy identity development.

New technologies open opportunities for innovative approaches to developing healthy identities for student-athletes. The use of technology offers the opportunity for creating high impact and time efficient interventions, which are critical given the time demands already placed on student-athletes. One promising new technology for communicating information to students is the software application (app), particularly those apps designed for mobile devices. The use of an app that can be installed on any mobile device can allow student athletes to instantly and conveniently access guidance on a variety of topics. This study proposes using an app to promote healthy identity development in student athletes at the University of Virginia. The application will allow student-athletes to instantly and conveniently access guidance on a variety of topics related to healthy identity development, and allow the research team to measure changes in the identity development of student athletes using the application. The primary research question is: Do regularly delivered messages through a mobile app positively influence the identity development of student athletes?

Project Aims

Aim 1: Develop a series of messages that promotes the healthy identity development of collegiate student-athletes.

Aim 2: Integrate the intervention into a mobile app that can be accessible to any collegiate student-athlete.

Aim 3: Measure the impact of the intervention through administering the Athletic Identity Measurement Scale (AIMS) and semi-structured interviews.
**Conceptual Framework**

Athletic identity, defined as the degree to which an individual identifies with the athlete role (Brewer, Raalte, & Linder, 1993), is a concept that has been discussed for several years. A salient athletic identity has been linked to a variety of outcomes, and can be potentially both helpful and hurtful (Heird & Steinfeldt, 2013). For example, student-athletes with a high athletic identity may be more likely to engage in long-term exercise behaviors, have more superior athletic performance, have higher self esteem, and perhaps even better social relationships and confidence. Alternatively, student-athletes with a high athletic identity could potentially ascribe so much of their time, energy, and effort to their athletic identity, that their athletic and self-identity become synonymous. Over-identification with the athlete role might lead to dysfunctional practices within the athlete role, such as overtraining, anxiety when not training, disordered eating, or substance abuse (Carter, 2009; Ford, 2007). The challenge is to maintain a healthy identity, one that values the importance of the role of athlete, while also valuing and developing and being empowered in other roles assumed as well. Such a multidimensional sense of self has been found to protect one’s self-concept in the event of failure in one dimension (Heird & Steinfeldt, 2013).

Given the unique time demands that student-athletes endure, a mobile app creates a unique mechanism through which such identity development can efficiently occur. The use of technology maximizes instructional time, which is critical given the time demands already placed on student-athletes (Walker, 2011). Using a mobile app can facilitate and enhance individual and collaborative learning experiences independent of time and place (Biden & Ziden, 2013).

**Data and Methodology**

**Data Collection**

The goal of this project is to develop and assess the impact of an informational intervention designed to promote the healthy athletic identity development of student athletes. The intervention will be delivered through a mobile app that will alert participants to daily messages for 10 weeks.

Participants in this pilot study will include at least 60 student athletes from the University of Virginia (UVA). At no time in the process will student athletes feel compelled or coerced to participate. Athletics personnel, for example, are only involved to help develop content for the app.

The majority of student athlete participants will be recruited through a course taught by a co-investigator entitled “Athletics in the University.” While the participants for the study will be recruited from this course, the study and the course are not otherwise linked. This course had an enrollment of 235 students in the fall 2014, 40% of which were student-athletes. Similar enrollment is expected for the fall 2015 semester. At least sixty (60) student-athletes from the course who volunteer to participate in this study will be randomly assigned to either a treatment or a control group. At least thirty (30) participants in the treatment group will have access to the app and will be sent messages related to identity development on Mondays, Wednesdays, and Fridays throughout the semester, both for message retrieval and for survey administration. At least thirty (30) participants in the control group will also have access to a mobile app, but will receive placebo messages.

Specifically, on Mondays, the treatment group participants will receive an “Awareness” message that highlights some aspect of identity development. On Wednesdays, the experimental group will receive an “Advice” message that provides a suggestion for how they can operationalize Monday’s “Awareness” message in their own lives, with the intent of maximizing their ownership of their
athletic identity development. On Friday, an “Advance” message will provide encouragement and reinforcement that will extend Wednesday’s “Advice” message. The participants in the control group will have access to the app, but will be sent messages unrelated to athletic identity development. Each group will also be administered the AIMS through the app.

Data Analysis
The Athletic Identity Measurement Scale (AIMS) survey will be administered 2 times throughout the 8 weeks (pre and post intervention). We intend to use a slightly abbreviated 7-item version of the AIMS survey to assess athletic identity (Brewer et al., 1993). The measure includes the subscales of social, identity, exclusivity, and negative affectivity (Visek, Hurst, Maxwell, & Watson, 2008). Social identity reflects the extent to which student-athletes view themselves as occupying social recognized roles; exclusivity represents the extent to which individuals perceive that their self-worth and identity are determined only by performance in the athletic role; and negative affectivity refers to the extent to which individuals experience negative affect in response to undesirable outcomes in the athletic domain (Martin & Horn, 2013). Independent t-tests will be conducted to determine the significance of the mean group differences.

The researchers will also utilize a limited number of in-depth, semi-structured interviews with all participants to further understand athletic identity development in general, and the impact of the intervention on the participants. Open-ended questions with prompts and follow-up questions will be employed in order to elicit both breadth and depth in responses (Breakwell, 1995). Interviews will be conducted until saturation has been achieved in responses to each question. The interviews will be recorded and transcribed, after which the researchers will employ a thematic analysis, a foundational method for qualitative analysis (Braun & Clarke, 2006).

The following steps will be taken by the research team in conducting the thematic analysis: 1) Read through the entire data set at least once prior to coding; 2) After producing a list of ideas about what is in the data, generate initial codes from the data, coding for as many potential themes/patterns as possible; 3) Sort the codes into identified potential themes; 4) Review the themes, collapsing themes into others where appropriate, and ensure that data within themes are consistent; and 5) Further refinement and naming of themes through peer debriefing and member checking (Creswell, 2007). Sample questions are provided in the Appendix.

Confidentiality
The data collected from students will be confidential. Since the institution will be identified, the researchers will take all necessary steps to ensure that data cannot be linked to individuals. Approval will be obtained from the university Institutional Review Board prior to the beginning of the study.

Campus Level Programming Implications
The researchers hope that the findings from this study will be applicable to efforts to enhance the identity development of student athletes in other colleges and universities. If found to be effective, the app can be incorporated into the practices of life skills coordinators, sport psychologists, student affairs administrations, and any other campus level personnel for whom the identity development of student athletes is a priority. At UVA, outlets for such campus level programming include, but are not limited to, the athletics life skills program, sport psychology services, and the associate dean for student-athletes in the College of Arts and Sciences. The information can be quickly and easily accessed, as any interested party will be able to download it from a designated internet site, or it
can be limited to those with password protected access. Further, the potential for the app’s content is limitless. Content can easily be expanded and updated to align with institutional programs designed to meet the needs of current student-athletes. It also has the potential to greatly enhance the efficiency of the delivery of services already received by student athletes. It will then enable advisors, instructors, and other stakeholders to maximize personal time spent with student-athletes, building on the content delivered by the application. Further, the use of an application and the findings of this study will enable researchers to more closely examine the athletic identity development of student-athletes, and to analyze the relationship between athletic identity and other outcomes (e.g., identity foreclosure, career maturity, etc.) of interest to those promoting healthy student identity development. See Appendix for examples of messages, and the AIMS.
References


Moving On!: A Physical Activity Transition Program for Student-Athletes

Proposal Narrative

Problem Statement

Many student-athletes fail to maintain healthy physical activity (PA) participation after transitioning out of competitive sports, and former student-athlete alumni are no more active than non-athlete college alumni (Reifsteck et al., 2013; Sorenson et al., 2014). Despite the severe health consequences (e.g., development of cardiovascular and metabolic risk factors) of dropping from high activity to inactivity (Witkowski & Spangenburg, 2008), programs that promote lifestyle PA among transitioning college student-athletes are rare. Whereas extensive research exists on emotional and career transitions after retirement from sport (e.g., Douglas & Carless, 2009; Houle, Brewer, & Kluck, 2010; Lally & Kerr, 2005; Lavallee, Gordon, & Grove, 1997; Stambulova, Alfermann, Statler, & Cote, 2009; Taylor & Ogilvie, 1994), few research studies focus on how college athletes transition to physically active lifestyles (Reifsteck et al., 2013).

Many athletic programs offer life skills programs, but they are largely targeted at the transition into college and maintaining eligibility (e.g., study skills, time management, substance abuse prevention). Services related to the transition to life after college athletics are not as common and usually focus on career transition. The common perception is that student-athletes value health and PA and will continue to be active throughout their lives, but the evidence suggests otherwise (Reifsteck et al. 2013; Sorenson et al., 2014). Therefore, the proposed research project improves existing practices by helping college student-athletes transition from highly structured and competitive collegiate athletics to lifetime PA. This research is significant and, to our knowledge, the first to develop an intervention to promote PA among transitioning student-athletes. An evidence-based PA transition program to enhance the long-term health and well-being of student-athletes fits with the NCAA’s holistic approach to developing student-athletes during their college careers and beyond.

Research suggests that individuals are more likely to maintain PA when exercise behavior is integrated into self-identity (Springer et al., 2013). Maintenance of PA is further enhanced when it is motivated by self-determined reasons (e.g., value and enjoy activity; Strachan et al., 2012). The objective of the proposed project is to pilot test Moving On!, a PA transition program for student-athletes that is theory-based and incorporates evidence-based cognitive-behavioral strategies to promote lifetime PA. The specific aims are as follows:

Aim 1: To pilot test a PA transition program that targets the link between identity, motivation, and PA for transitioning student-athletes. Moving On! is grounded in a theory-based conceptual model connecting identity, motivation, and PA. The goals of the pilot test are to: 1) implement Moving On! to demonstrate the feasibility of offering the 4-session program to student-athletes who are transitioning out of college, 2) investigate the appeal/demand of the program to student-athletes and athletic administrators, and 3) identify program content and instructional strategies that need revision. Primary outcome measures to assess the effective implementation of Moving On! include post-session ratings of the program as well as focus group interviews with participants, former student-athletes, and athletic department administrators.

Aim 2: To assess the extent to which the PA transition program changes relevant theoretical constructs in student-athlete participants. Moving On! is designed to target theory-based constructs (i.e., exercise identity and self-determined motivation) that impact PA behaviors (Reifsteck, 2014; Reifsteck et al., 2013). Pre, post, and follow-up survey measures of identity and motivation will be the primary outcomes used to determine whether the program was successful at targeting these constructs. Secondary outcome measures of related constructs, including intentions to exercise, self-efficacy for exercise, and actual PA behavior, will also be assessed in pre, post, and follow-up surveys. See Data and Methodology section for details of outcome measures.

To achieve these aims, student-athletes who are in their final year of eligibility will participate in the pilot study of Moving On!. The program will first be reviewed by former student-athletes and their feedback/recommendations will be collected during a focus group interview. Following any revisions, the 4-week program will be implemented with current student-athletes, and evaluated through ratings and post-program focus group interviews. Our central hypothesis is that participation in Moving On! will increase identity and self-determined motivation for PA among transitioning student-athletes. Considerable research indicates that PA-related identity, motivation, and participation can be changed through targeted interventions (e.g., Caruso & Gill, 1992; Strachan et al., 2012; Strachan & Whaley, 2013; Ryan et al., 2009). This approach also reflects the American College of Sports Medicine guidelines for promoting adherence (ACSM, 2013). Completion of this...
work will demonstrate the feasibility of a PA transition program, and provide a blueprint for implementing larger-scale programming to promote the long-term health of all student-athletes. The physical and mental health benefits of PA participation depend upon maintaining activity throughout the lifespan (Sarna et al., 1993; Sorenson et al., 2014). Participating in programs like the one proposed in this study can help student-athletes avoid the abrupt changes that occur through detraining (Gill et al., 2008; Liu et al., 2008) following a competitive sport career, and thus promote the physical and mental health benefits of continued regular PA for student-athletes (USDHHS, 2008).

Conceptual Framework

According to identity theory (Burke et al., 2003; Burke & Reitzes, 1981; Stryker & Burke, 2000), identity functions to self-regulate behavior. When sport, exercise, and PA are central to a person’s self-identity, s/he is more likely to engage in those activities (Brewer et al., 1993; Kendzierski & Morganstein, 2009; Reifsteck, et al., 2013, Strachan et al., 2005). When exercise identity is a valued component of an individual’s self-concept, it plays an important role in maintaining exercise behavior (Anderson et al., 1994; 2001; Strachan et al., 2012; Vlachopoulos et al, 2011). However, “athlete” identity is not necessarily the same as “exerciser” identity. Athletic identity, which is rooted more specifically in competitive sport, is often the primary source of self-identity for competitive athletes (Brewer et al., 1993). As such, athletic identity may be related to participation in competitive sport training, but may not relate strongly to lifetime PA participation (Reifsteck, 2014). Thus, transitioning from a narrow, sport-specific athletic identity to a broader exercise identity may be key to promoting lifelong PA.

Self-determination theory (SDT; Deci & Ryan, 1985; Ryan et al., 2009) posits that motivation exists along a continuum from totally external to self-determined and volitional. Fulfilling the basic psychological needs of autonomy, competence, and relatedness can move individuals up the motivation continuum toward more self-determined motivation (Edmunds et al., 2006). Specifically, a person is likely to have higher self-determined motivation if they feel in control, competent, and connected to others through the activity. Considerable research supports the tenets of SDT and the importance of self-determined motivation in exercise contexts (e.g., Edmunds et al., 2006; Markland & Tobin, 2004; Thorgersen-Ntoumani & Ntoumanis, 2006).

In general, people are less motivated to participate in exercise compared to sport (Ryan et al., 2009). This is especially likely to be an issue for student-athletes who are transitioning out of college sport and losing other motivators to be active (e.g., scholarships, coaches, teammates). Stephan and colleagues (2003a; 2003b) argued that implementing transitional programs might prevent an abrupt change in physical activity that could threaten an athlete’s identity, self-worth, and long-term health. Our proposed research project tests the feasibility of one such program. As illustrated in Figure 1, the ultimate goal of the program is to increase physical activity behaviors of student-athletes after they leave college. The short-term goal is to foster exercise identity and self-determined motivation, which in turn influence physical activity participation.

Figure 1. Conceptual Model of Physical Activity Transition Program for College Athletes

The proposed program focuses on helping student-athletes transition from a sport-specific identity to a broader exercise identity. The program also includes cognitive-behavioral strategies that enhance self-determined motivation for physical activity and help student-athletes plan for lifetime physical activity after college.

The Moving On! program content and specific strategies are carefully designed to foster a broader active-based identity and self-determined motivation for PA (see Table 1).
Table 1. Program Components and Strategies

<table>
<thead>
<tr>
<th>Component</th>
<th>Objectives</th>
<th>Program Strategies</th>
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<tbody>
<tr>
<td>Identity</td>
<td>Transition from a narrow, sport-specific identity (i.e., athletic identity) to a broader active-based identity (i.e., exercise identity).</td>
<td>Reflection activity followed by group discussion provides the opportunity to explore likely identity changes through the transition. Student-athletes are prompted to consider their “current” selves, “hoped for” selves, and “feared” for selves. Example prompts include: What words best describe you as an athlete? as a person? What do you hope to achieve as an athlete? as a person?</td>
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<tr>
<td>Self-Determined Motivation: Competence</td>
<td>Develop competence in a wider range of lifetime physical activities and build self-efficacy for maintaining physical activity after college.</td>
<td>Each session includes a 20-minute guided physical activity session with activities that are transferable to life after college and require minimal equipment or resources. Examples include yoga, tai chi, resistance band exercises, and recreational games such as kickball. Activities are designed to be fun, develop new skills, and low to moderate intensity to promote intrinsic enjoyment.</td>
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<td>Self-Determined Motivation: Autonomy</td>
<td>Encourage choice in activities to promote personal agency in developing a physically active lifestyle.</td>
<td>Activities are guided by the facilitator but emphasize student-athletes’ self-determination by choosing their own goals and developing their own action plans for physical activity.</td>
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<tr>
<td>Self-Determined Motivation: Relatedness</td>
<td>Encourage social support and create connections to others through physical activity participation in order to increase self-determined motivation.</td>
<td>Sessions are interactive and group-based. Physical activities are designed to promote interaction among the student-athletes. For instance, student-athletes periodically stop to monitor their heart rate and ask a partner a question about their plans after graduation during the opening session walking activity.</td>
</tr>
<tr>
<td>Increase Knowledge about PA Guidelines</td>
<td>Increase knowledge about physical activity guidelines and benefits to promote greater intentions to participate in long-term physical activity.</td>
<td>Student-athlete workbooks include a physical activity fact sheet. An interactive presentation will test student-athletes’ current knowledge about the benefits of regular physical activity and risks of inactivity. Student-athletes will learn more information about how exercise intensity is measured and will have the opportunity to practice measuring their heart rate during one of the physical activity sessions.</td>
</tr>
<tr>
<td>Goal Setting and PA Promotion Strategies</td>
<td>Adopt effective goal setting practices; Create action plans that identify potential barriers to maintaining physical activity and behavioral strategies to overcome barriers.</td>
<td>Student-athletes are provided with guidelines on “SMART” goal setting strategies. Through worksheets in the workbook, student-athletes practice setting weekly activity goals and recording their activity in an exercise log. Guided activities also challenge student-athletes to create an action plan for how they will integrate physical activity in the future.</td>
</tr>
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</table>

Data and Methodology

The purpose of this study is to develop and pilot test a physical activity transition program for NCAA student-athletes. Our project consists of three phases: (1) development; (2) implementation; and (3) data analysis/program revision. A focus group of 4-6 former student-athletes will review materials in the development phase. In the implementation phase, 10 current NCAA student-athletes in their last year of eligibility will voluntarily participate in the program. These 10 participants and 3-5 athletic administrators will review the program and provide feedback in the data analysis/program revision phase. Current student-athletes and administrators will be recruited from The University of North Carolina at Greensboro athletics department. Former college athletes will be recruited from the wider Greensboro community through UNCG athletic department contacts. The small sample in the pilot study allows for rich, in-depth review of the program by the participants. Because statistical significance tests are affected by small sample size, they will not be used to assess program effects. However, effect size, which is not affected by the sample size, can be used to assess differences when sample sizes are small and power is low (Kramer & Rosenthal, 1999). Therefore, we will report and evaluate potential changes in the outcome measures in terms of effect sizes (Cohen’s d).

Prior to beginning the program, each program participant will complete established measures (pretest) of PA-related identity, motivation, participation, self-efficacy, and future intentions (see Table 2). Participants will complete these measures immediately upon completion of the program (posttest) and also one month later (follow-up). Ratings of each program session will be provided by participants at the conclusion of each session. After the program is completed, participants will provide ratings and feedback about their overall experience with Moving On! Participants will also be invited to participate in a focus group interview where they will be asked about their experience overall as well as with specific program components. Athletic department administrators will review the program during a focus group interview to provide feedback about the program’s fit with the department’s mission and support structure.
Phase 1: Development (in process) Content and materials for the Moving On! program, including a student-athlete workbook with discussion activities, have been developed. A focus group of 4-6 former student-athletes will review the program in December 2014 and provide insights about their own transition experiences. Former student-athletes will be asked about how their PA has changed since leaving college, why they are active or inactive, and especially how they would design a program to increase PA participation in transitioning student-athletes. Feedback from the former student-athletes will be incorporated into the program prior to implementation.

Phase 2: Implementation (Feb - Mar 2015). Moving On! will be piloted on UNCG's campus during the spring 2015 semester. The program will consist of four one-hour sessions over four weeks (1 session per week). The first session will include an overview of physical activity benefits and risks, recommendations, and goal-setting. Session 2 will focus on current identities, likely identity changes through the transition, and strategies to facilitate the transition from a narrow “athlete” identity to a broader “exerciser/physically active” identity. Session 3 will emphasize revised goal-setting and strategies for overcoming barriers. Session 4 will review previous sessions and focus on planning for the transition out of college and staying physically active. Physical activities will be built into each of the four sessions to provide active experience with varied lifetime physical activities (e.g., yoga, tai chi, light resistance training, etc). Activity sessions will include choice and skill development to promote autonomy and competence. To foster relatedness, all sessions will have group-based activities.

Phase 3: Data Analysis/Program Revision (Apr - Dec 2015). Analysis of primary and secondary outcome measures and program feedback will be used to guide revisions and enhance the program for implementation with larger groups of student-athletes the following year. If specific components of the sessions receive low ratings by participants, or if empirical data for the primary outcome measures suggest that the program did not change identity or motivational variables of interest, then we will revise the instructional strategies to better influence the targeted mediator. Afterward, a facilitator guide and revised student-athlete workbook will be developed to help promote adoption and sustainability of the program and enable program content and materials to be implemented at other universities.

Data Analyses. Survey data will be analyzed using repeated measures ANOVA and effect size (Cohen's d) to track changes over time from pre, post, and follow-up. Descriptive statistics will be used to summarize participant ratings of the program. The focus group sessions with former and current student-athletes and athletic department administrators will be recorded, transcribed, and analyzed for common emergent themes. See Table 3 for depiction of how data sources will meet the evaluation goals of the project.

Implications for Campus-Level Programming

Retirement from sports after college is inevitable for most NCAA student-athletes, but programs do not typically promote PA and health behaviors for student-athletes beyond their collegiate career. This research promotes the NCAA Division I Manual’s Principle 2.2, “The Principle of Student-Athlete Well-Being,” which mandates that: “Intercollegiate athletics programs shall be conducted in a manner designed to protect and enhance the physical and educational well-being of student athletes” (p.2). Current practices fall short of this principle in relation to PA for health and well-being of student-athletes across the lifespan. NCAA institutions can fulfill their commitment to the holistic development of student-athletes by implementing educational programming and incorporating specific strategies to promote lifelong PA among student-athletes. This research directly meets this need by providing student-athletes with education and evidence-based cognitive-behavioral strategies to promote and maintain PA for life. Following the pilot implementation, evaluation, and revision of this program, a facilitator guide and revised student-athlete workbook will be.

<table>
<thead>
<tr>
<th>Table 2. Description of Survey Measures</th>
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<tbody>
<tr>
<td><strong>Primary outcome measures-Identity</strong></td>
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<tr>
<td>Athletic Identity: Athletic Identity Measurement Scale (Brewer et al., 1993), α=.82 (Reifsteck, 2014)</td>
</tr>
<tr>
<td>Exercise Identity: Exercise Identity Scale (Anderson &amp; Cychosz, 1994) α= .92 (Reifsteck, 2014)</td>
</tr>
<tr>
<td><strong>Primary outcome measures-Self-Determined Motivation</strong></td>
</tr>
<tr>
<td>Motivation Continuum: Behavioral Regulation for Exercise Questionnaire-2 (Markland &amp; Tobin, 2004), α=.74-.90 for subscales (Reifsteck, 2014)</td>
</tr>
<tr>
<td>Perceived Competence, Autonomy, and Relatedness: Psychological Need Satisfaction Exercise Scale (Wilson et al., 2006), α=.90-.91 for subscales (Wilson et al., 2006)</td>
</tr>
<tr>
<td><strong>Secondary outcome measures-Physical Activity Intentions, Self-Efficacy, and Participation</strong></td>
</tr>
<tr>
<td>Weekly Physical Activity Participation: Godin Leisure Time Exercise Questionnaire (Godin &amp; Shephard, 1985; Godin, 2011), r=.62-.81 (Godin &amp; Shephard, 1997)</td>
</tr>
<tr>
<td>Self-Efficacy for Exercise: e.g., How confident are you that you could be physically active when: ...I feel that I don’t have time; When I am in tired; etc. (Marcus &amp; Forsyth, 2009); r=.90 (Marcus et al., 1992)</td>
</tr>
<tr>
<td>Intention to Exercise in the Future: e.g., I intend to exercise regularly for the rest of the semester; I intend to exercise regularly after college</td>
</tr>
</tbody>
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Phase 1: Development (in process) Content and materials for the Moving On! program, including a student-athlete workbook with discussion activities, have been developed. A focus group of 4-6 former student-athletes will review the program in December 2014 and provide insights about their own transition experiences. Former student-athletes will be asked about how their PA has changed since leaving college, why they are active or inactive, and especially how they would design a program to increase PA participation in transitioning student-athletes. Feedback from the former student-athletes will be incorporated into the program prior to implementation.

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developed so that administrators at other NCAA institutions can be trained to facilitate *Moving On!* on their campus. The development and packaging of the student-athlete workbook and facilitator guide will help ensure the sustainability and wider reach of the program so that it may be adopted and adapted for use at a range of NCAA member institutions.

Table 3. Data Sources Used to Meet Evaluation Goals

<table>
<thead>
<tr>
<th>Evaluation Goals</th>
<th>Data Sources</th>
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<tbody>
<tr>
<td></td>
<td>Former student-athlete focus group (pre-program implementation)</td>
</tr>
<tr>
<td>Demonstrate the appeal of <em>Moving On!</em> to student-athletes and athletic dept. administrators</td>
<td>X</td>
</tr>
<tr>
<td>Identify program structure and session content/strategies needing revision</td>
<td>X</td>
</tr>
<tr>
<td>Investigate extent to which <em>Moving On!</em> affects theoretical constructs (e.g., identity, motivation)</td>
<td>X</td>
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<td>Determine the effect of the program on physical activity intentions, self-efficacy, and behavior</td>
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References


I. **Problem Statement**

In college student populations mental health problems are highly prevalent (Eisenberg, 2007), appear to be increasing (Twenge, 2010), and are typically untreated (Blanco, 2008). Roughly one-third of undergraduates screen positive for a mental health problem including depression, anxiety disorders, suicidal ideation, and self-injury (Eisenberg, 2013).

These issues are also highly prevalent among student athletes. Specifically, over 20% report symptoms indicative of depression, and there are several factors that might exacerbate the risks beyond that of a typical college student (Yang et al., 2007). Athletes face intense pressure, both externally and internally imposed, to succeed not only in the classroom but also in athletic competition. The sports culture of toughness and fighting through pain can also heighten stigma and impede help-seeking, preventing athletes from receiving support until mental health problems develop into crises (Watson, 2006).

Although college settings present an ideal opportunity to promote help-seeking behavior and link students to supportive resources, there is limited evidence about which types of community-level programs and interventions are most effective (Eisenberg et al., 2012). Evidence specific to student-athlete populations is even more limited. In light of this gap, this project will **develop and rigorously evaluate a multi-faceted program designed to increase help-seeking behavior and supportive bystander behaviors among student athletes**. The project will be a multidisciplinary partnership at the University of Michigan between the Depression Center, the School of Public Health, and the Department of Athletics.

The program will consist of two complementary and integrated components:

1. We will develop and evaluate a **brief video series based on the story of a student athlete**, Will Heininger (defensive lineman for the Michigan football team, 2007-2011). This story will provide a positive example of help-seeking and bystander intervention for athletes struggling with depression.

2. We will develop and evaluate a **model for support groups tailored for student athletes**, which use the videos as part of their activities.

II. **Conceptual Framework and Previous Work**

The Transtheoretical Model of Behavior Change (TTM) and motivational interviewing (MI) will serve as the underlying principles for the support groups and video intervention. The TTM posits that behavior change unfolds through a series of stages, ranging from precontemplation (no intention to take action) through maintenance (engaged in the behavior for at least six months), and that processes of change are internal and external activities that individuals engage in to progress through the stages (Prochaska, Redding, and Evers, 2008). Both the videos and support groups can facilitate these processes of change, such as consciousness raising (increasing awareness of depression, resources, and management strategies), dramatic relief (personal testimonies), self-reevaluation (healthy role models, imagery), counterconditioning (learning healthier behaviors), and helping relationships (peer social support provided in the support groups). MI will also be used...
to increase individual’s readiness to change (i.e., seeking help and engaging in self-management techniques). MI has a strong and growing research base supporting its effectiveness in promoting behavior change (Miller and Rollnick, 2013), and emphasizes intrinsic motivations for change as in Self Determination Theory (Deci and Ryan, 1985; Janz, Champion, and Strecher, 2002).

The videos will present an engaging and real story about a protagonist (Mr. Heininger) who experiences MI-consistent listening and encouragement from a peer or other trusted figure, such as an athletic trainer, which then leads to a successful experience in mental health care. This could yield increase viewers’ openness to seek help for themselves, and the modeling of appropriate support by a peer or other bystander could encourage and assist students in providing more supportive gatekeeper (bystander) behaviors. Finally, pairing the videos with a support group facilitator, who also adheres to the principles of MI, can further increase student motivation and progression through the stages of change.

**Preliminary work**

This project will build naturally on our previous work related to college student mental health. Through the University of Michigan Depression Center (www.depressioncenter.org) and the Healthy Minds Network (www.healthymindsnetwork.org), we have developed a rich array of research projects and campus programs to support student mental health. Below we describe two of these projects that are most directly related to the present proposal.

First, we have been developing and evaluating brief videos to promote student mental health under the umbrella of the *inkblots video series* (examples: [http://www.inkblots.tv/trapped](http://www.inkblots.tv/trapped) and [https://www.youtube.com/watch?v=el676eMUNbo](https://www.youtube.com/watch?v=el676eMUNbo)). The videos were initially developed by a father-son team of Blake Wagner, Jr. (father) and Blake Wagner, III (son), and focus on coping skills, self-efficacy, and help-seeking behavior, drawing on principles from cognitive-behavioral therapy (CBT), acceptance and commitment therapy (ACT), motivational interviewing (MI), and other clinically proven methods. Based on data from focus groups and surveys of college students, the videos emphasize five attributes: *engaging* (e.g., humor, music, and fast pace); *relevant* (e.g., peer-aged narrators and actors, and issues with broad impact such as relationships, self-esteem, and anxiety); *convenient/brief* (e.g., at most a few minutes, accessible any time and place); *confidential and anonymous* (e.g., available online); and *practical* (e.g., skills and next steps presented in a simple, clear manner). Preliminary assessments of the videos have been conducted with several college classes (including hundreds of students in aggregate), and the feedback has been very favorable, with over 90% reporting the videos to be relevant, useful, and engaging.

Second, starting in 2009 the Depression Center launched the *Campus Mind Works program* to support student mental health at the University of Michigan. The website ([www.campusmindworks.org](http://www.campusmindworks.org)) is designed to provide tailored support for U-M students with mental health disorders through educational and self-care tools and resources. In 2010 the Depression Center collaborated with the College of Engineering to add support groups to the Campus Mind Works program for U-M students with depression, anxiety, and bipolar disorder. These groups were initiated in response to staff members’ concerns regarding students who exhibited distress yet who did not feel comfortable seeking treatment through traditional channels. Each Campus Mind Works Support Group meeting includes an initial 45-minute segment devoted to an educational forum and discussion, followed by a 45-minute support group session facilitated by a psychiatric nurse practitioner. The educational presentations focus on mental health topics such as the importance of sleep, the connections between
exercise and mood, coping with stress through mindfulness, and self-care strategies to maintain wellness. The support group portion encourages students to share successful strategies for managing their illness in the context of college life. For quality assurance, students are asked to complete evaluation forms at the conclusion of each group in order to monitor participant satisfaction, identify areas of interest for future presentations, and focus on strategies to improve outcomes.

While many of the student participants identify themselves as having a mental disorder, the majority (up to 73%) report that they are not currently receiving formal treatment. The support groups are not meant to be a replacement for clinical treatment, but can serve as a first step for individuals who may not be sure whether they should seek treatment or who may not feel comfortable seeking treatment due to stigma. The groups can also serve as a booster session for students who are seeing a clinician, but can still benefit from sharing concerns and strategies with other students who are experiencing similar challenges.

In the proposed project, we will weave together the inkblots videos and the Campus Mind Works support groups as part of a new initiative in collaboration with the Athletic Department. Over the past 12 months, the Depression Center Manager for Outreach and Education, Trish Meyer, and Athletic Department Counselor, Barb Hansen, have been discussing possible collaborations to reduce stigma and encourage mental health help-seeking among student athletes. These conversations began following the March 2013 U-M Depression on College Campuses Conference, where Will Heininger, a former U-M football player who was diagnosed with depression during his college career, spoke publicly about his struggles with depression and the life-changing support he received from Ms. Hansen. Seeing the impact of Mr. Heininger’s presentation at the conference convinced our team that sharing his story more widely has the potential to break down barriers and encourage other student athletes to learn more about depressive illnesses and seek treatment if they are struggling emotionally. Mr. Heininger has become actively involved in mental health advocacy work, and is eager for the opportunity to collaborate with the University of Michigan on this pilot initiative.

III. Data and Methodology

Focus groups

To inform the development of the videos and support groups, we will solicit extensive feedback through focus groups with student athletes and other stakeholders at the university and in the athletic department. We will recruit a diverse set of 15-20 student athletes. To recruit these athletes we will work through our partners in the athletic department, who in turn will recruit students through direct contact and also through coaches and trainers. Participation will be strictly voluntary and will be encouraged by appealing to the importance of the issues and the opportunity to help the athletic community. We will also hold focus groups with 5-10 campus mental health clinicians, administrators, and support personnel in the Athletic Department and Student Affairs.

The focus groups will proceed in two phases. In the first phase, the research team will meet with the groups to discuss areas of concern related to student-athlete mental health, including barriers to help-seeking. This feedback will help inform the content for the videos as well as the protocol for the support groups. In the second phase, after a draft of each video script and a preliminary protocol for the support groups have been developed, the focus groups will reconvene to offer additional feedback. Focus groups will also be convened a final time for the screening of the first cut of each video.
Evaluation of pilot support groups

Using the existing groups in Campus Mindworks as an initial template, we will develop and offer education and support groups tailored to student athletes, in a non-clinical and low stigma setting (e.g., a classroom in an Athletic Campus building). Data from the focus groups will inform the selection of topics for presentation during the groups. Additionally, we will pilot the use of the customized videos during the support groups, to test whether this medium can increase positive outcomes in this setting. A feasibility trial will determine whether athletes find education and support groups in non-clinical settings acceptable, and choose to attend. We will raise awareness of the groups through screenings of the videos based on Mr. Heininger’s story, presentations, flyers, e-mail messages, and other outreach efforts targeted to trainers, coaches, students, and staff. Attendance will be voluntary and non-incentivized (other than the provision of food during the groups).

Group attendance will be recorded as one measure of feasibility. Students will be asked whether they saw the video, and whether it helped convince them to attend the group. A pre- and post-evaluation survey will measure changes in knowledge/awareness of mental illnesses; changes in attitudes/stigma related to these illnesses; stress-management and self-care skills; barriers to help-seeking; intentions to engage in self-care activities; and readiness to seek formal mental health care if needed. In addition, interviews will be conducted with a volunteer sample of 10-15 attendees to learn more about their perceptions of the beneficial aspects of the groups, reasons why they attended and perceived reasons why some of their fellow athletes did not attend, and how the groups can be improved.

Evaluation of Videos with a RCT

Because the videos also have potential to be disseminated as a standalone intervention, we will also conduct a pilot randomized control trial (RCT) of the videos by themselves. The RCT will be conducted online and the invited sample will include all student athletes (n=716) at the University of Michigan. The student athletes will be recruited by email, and after a brief (2-minute) baseline survey assessment participants will be randomized to a web page with the videos or a web page with links to text articles on similar topics from well-regarded sources (e.g., WebMD). Assuming 20% of the initial sample population completes the screen (based on our experience with this type of study in college samples), we will randomize approximately 70 participants to each condition (intervention and control). One month after viewing the videos or text articles, participants will be recruited again by email (with $20 incentives) to complete a brief online assessment including depressive symptoms (PHQ-9; Kroenke et al., 2001), anxiety symptoms (GAD-7; Spitzer et al., 2006), readiness to seek help (King et al., 2014), and actual help-seeking behavior and use of services (including the support groups) (Eisenberg et al., 2011).

For the group of students that meet clinical criteria based on baseline assessment data, the primary outcome is a measure of readiness to seek help, which we have used and validated in previous work (King et al., 2014). For the lower risk group, the primary outcome will be self-reported self-efficacy to provide gatekeeper support, which we have also used in prior work (Lipson et al., 2013). Based on previous online survey studies offering $20 for follow-up assessments, we expect to have complete data for 100 students (50 experimental group, 50 control group) (i.e., 80% response). A power analysis based on a two-sided, two-sample t-test was used to estimate the required sample size matching our Linear Mixed Model analysis of the primary aim. Based on a Type-I error rate of 0.05 and 80% power, this sample size is sufficient to detect a medium effect size (Cohen's
d=0.50) for the primary outcome among each group. Sensitivity analyses will address missing data with multiple imputations and alternative assumptions about non-responders.

IV. Campus-level Programming Implications

If shown to be feasible and effective with student-athletes, the unique combination of non-traditional education and support group services, enhanced with compelling story-based videos, could be implemented at other universities at a relatively low cost. We will write a detailed protocol that can be used as a guide to setting up and running the support groups. Following the pilot year, team members from the Depression Center, School of Public Health, and Athletic Department will disseminate this collaborative model via presentations at a variety of national conferences, including: the Depression on College Campuses Conference; National Athletic Training Association Conference and regional ATA conferences; Big Sky Sports Psychology Conference; NASPA Conference for Student Affairs Administrators in Higher Education; and the American College Health Association Conference.

Also, once the videos have been refined and their efficacy has been established, the potential for reaching large numbers of students is almost limitless because of the brief and engaging design. It might even be possible to disseminate the video intervention “virally”—through referrals between social networks in student athlete communities and beyond—if young people find the videos sufficiently compelling and helpful.

V. Timeline

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References


Injured athlete support group: Evaluation of a pilot program

Investigators: Lisa Post, Ph.D. & Norah Simpson, Ph.D.

Institution: Stanford University

Problem statement:
There is a critical need for support for injured athletes at the collegiate level. However, access to these services is limited and there are little data demonstrating how best to help support this vulnerable population. Injured athletes are in need of additional resources to improve their psychosocial functioning and effective coping, and to facilitate their recovery. This need has been recognized by Stanford University, which recently funded Dr. Lisa Post (Chief of Sports Medicine in Psychiatry) to conduct a one-year pilot program for an injured athlete support group. Assessing the specific benefits of this pilot program and identifying ways to strengthen it for the future has the potential to broaden the scope and impact of this work. The current proposal requests funding to address two essential questions: 1) how effective is an injured athlete support program in improving psychosocial functioning and adaptive coping skills and 2) are student-athlete needs being met with this service? Findings from this research have the potential to improve the well-being of student athletes at Stanford University as well as at other NCAA-affiliated institutions.

Literature review:
There is increasing evidence that athletes require increased support following injury and that this burden of care often falls on coaches, trainers, and other medical staff (Yang et al., 2010). Anecdotal evidence at Stanford University suggests that there is a need for additional support services for injured athletes, as evidenced by early-stage Facebook groups (for student-based support) and direct requests from athletes to medical and training staff.

There is a range of psychological responses to injury among athletes. A recent study of rehabilitated athletes found that anxiety about re-injury and return to previous level of performance, feelings of isolation, lack of an athlete identity, and perceived inadequate social support were common (Podlog et al., 2011). A survey of sports medicine physicians reports that fears about re-injury and lack of patience with recovery/rehabilitation were the most frequently reported psychological concerns (Mann et al., 2007). The psychological impact of injury among competitive athletes may be greater than for recreational athletes, with one study finding higher levels of mood disturbance in competitive (compared to recreational) athletes at two weeks and two months post-injury (Morrey et al., 1999).

Individuals who strongly identify with the athlete role are at increased risk for adjustment difficulties following sports injuries (Manual et al., 2002) or medical retirement from sport (Webb et al., 1998). The presence of high levels of athletic identity after injury has been associated with depressive symptoms -- even after accounting for injury severity -- while higher levels of social support were associated with lower depressive symptoms (Manual et al., 2002). Perceived social support has been associated better psychological outcomes (e.g., well-being, stress) and increased rehabilitation behaviors following injury in multiple studies (Lu & Hsu et al., 2013; Mitchell et al., 2013; Clement & Shannon, 2011).

Psychological factors also play a key role in return-to-sport outcomes. Good psychological functioning in athletes is associated with appropriate utilization of, and benefit from, physical
Research suggesting that empirically-based psychological interventions are effective when utilized with athletes. In one study, written emotional disclosure was found to increase personal understanding of an injury and attenuate athletes’ grief-related responses (Mankad & Gordon, 2010). A cognitive behavioral intervention designed to impact postsurgical recovery among injured athletes found that participants in the treatment group demonstrated significantly less postsurgical pain and anxiety during rehabilitation and required fewer days to return to play compared to athletes provided a control treatment (Ross & Berger, 1996). Additionally, in one double-blind cognitive behavioral stress management intervention (CBSM), athletes randomly assigned to the CBSM group experienced significant reductions in the number of illness and injury days compared to athletes in the control group (Perna et al., 2003).

Together, this literature demonstrates that injured athletes are in need of additional resources to improve their psychosocial functioning and to facilitate their recovery. Data also suggests that psychological interventions may help improve a range of outcomes following injury. This application proposes research that will assess the effects of an injured athlete support group on psychosocial functioning and adaptive coping skills among student-athletes at Stanford University.

**Conceptual Framework:**
This proposed research will dovetail with the one-year pilot program for clinical services that has already been funded by the Department of Athletics at Stanford University. Injured athletes will be identified for potential enrollment in the group by a range of methods: self-identification, through psycho-educational materials provided to athletes, or referral by coaches or training staff. Interested injured student-athletes will be assessed by a clinical psychologist in an initial meeting before joining the group. Participation in the group will not be limited to those who choose to enroll in the research study; student-athletes will be aware that participation in the research study is entirely voluntary. Athletes who enroll in the study will complete a packet of research measures before and after the 8-week group. Program data will be analyzed using quantitative and qualitative methods to assess: 1) the efficacy of the program (on psychosocial functioning and adaptive coping) and 2) how well student-athlete needs are being met.

**Data and Methodology:**

**Intervention Format**
Each injured athlete support group will meet weekly for 8 weeks. We anticipate that we will be able to complete four 8-week groups during the proposed funding period. Dr. Lisa Post will conduct all of the group meetings. Each group meeting will be 90 minutes and will include 30 minutes of psycho-education followed by a check in by group members (15 minutes) and a peer-centered discussion (45 minutes). Groups will take place in the Sports Medicine Center on campus. The topics covered in each group are described below.
Group Syllabus:

Session 1: Orientation
   Introduction of the “athlete identity”

Session 2: Introduction to Cognitive Behavioral Therapy (CBT)
   Connect to injury/response

Session 3: Social support & connectedness during rehabilitation/recovery
   Depression (signs, symptoms, treatment options)

Session 4: Effective communication skills

Session 5: Resilience (emotion regulation, distress-tolerance, and mindfulness)
   Eating Disorders (signs, symptoms, treatment options)

Session 6: Sleep, stress, substance use
   Focus on adaptive coping and optimizing health behaviors

Session 7: Anxiety and fear (performance and other)
   Use of imagery, CBT skills, and other treatment options

Session 8: Goal setting, including return to sport or retirement

Recruitment:
There are approximately 800 student-athletes at Stanford University. Currently, approximately 10 athletes per months self-refer or are referred by medical or training staff for individual treatment in the Sports Psychology Clinic. The number of athletes who are injured at any one time is significantly higher. We anticipate that with appropriate education about this resource for injured-athletes, we will draw a significantly larger pool of students interested in the group compared to those who are motivated to seek individual psychotherapy. Our estimates for higher levels of interest in group services are in part based on interest from the Cardinal Counsel, a student-led organization of Stanford athletes, which last year voted to award you the financial support to pilot an injured athlete support group.

When injured athletes express interest in the injured athlete support group, either Dr. Post or Dr. Simpson will conduct an initial intake interview to determine psychiatric diagnoses (if any) and appropriateness for the group. Athletes with any physical injury will be eligible for participation; the only exclusion criterion for participation is the presence of a psychiatric disorder requiring more intensive (e.g., inpatient) treatment, such as a significant eating or substance use disorder. We are estimating that we will be able to run approximately four eight-week groups over the duration of the funding period, with an average group size of 8-12 athletes. Our total estimated enrollment is 40 student athletes.

Data Collection:
A graduate student in the Psy.D program (PGSP-Stanford Consortium) will approach each student-athlete enrolled in the injured athlete support group to assess interest in participation in the study. If interested, the graduate student will obtain informed consent, and supervise online completion of the pre- and post- group assessment packets (see below for measures). The graduate student will also organize all data into a database created with SPSS (Statistical Package for the Social Sciences).
Domains of Interest/Measures

1. Athletic Identity
   - Athletic Identity Measurement Scale (AIMS: Brewer & Cornelius 2001)

2. Rehabilitation progress
   - Assessed with a single item on which participants rate their percent rehabilitated (from 0-100%; McDonald & Hardy)

3. Depression
   - The Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001)

4. Anxiety
   - Generalized Anxiety Disorder-7 (GAD-7; Spitzer et al., 2006)

5. Sleep Quality/Disturbances
   - Pittsburgh Sleep Quality Index (PSQI; Buysse et al., 1989)

6. Coping Style
   - The Brief COPE (Carver, 1997)

7. Perceived Stress
   - The Perceived Stress Scale (PSS; Cohen et al., 1983)

8. Perceived Support (in Sport)
   - The Perceived Available Support in Sport Questionnaire (PASS-Q; Freeman et al., 2011).

Two questionnaires that we have developed will also be administered. The first questionnaire assesses demographics, baseline injury status, and co-morbid medical and psychiatric diagnoses. The second questionnaire will collect information about changes in recovery/medical status and return to sport. This second questionnaire will also assess satisfaction with individual components of the support program, as well solicit overall feedback, including any desired changes.

Study Payment:
Students who enroll in the group will receive $40 dollars for completion of pre- and post-group measures. Partial payment will be provided for participants who do not complete both assessments. Participants who complete all measures will be eligible for iPad drawings (two total) that will be conducted at the mid-point and end-point of enrollment.

Data Analysis & Dissemination:
The research measures completed before and after treatment will allow us to better quantify the impact of this intervention on student athletes and provide information that will allow us to maximize program effectiveness. Analyses will be completed comparing pre- and post-measures, using appropriate covariates as needed. Findings from this research will be submitted for publication in peer-reviewed journals, as well as presented at the annual NCAA convention. If our intervention is found to have significant positive effects on psychosocial functioning following injury, a formal treatment manual will be developed and tested on a larger scale. It will also made available to other NCAA institutions interested in implementing similar programs.

Campus-level Programming Implications
This proposal will provide funding that will allow for the qualitative and quantitative assessment of an injured-athlete support group at Stanford University. This funding has the potential to directly improve student-athlete well being at our individual campus, and also has more long-range potential to develop a formal intervention with demonstrated impact that could be disseminated across NCAA institutions.
References


Mental Health Referral for Student-Athletes: Web-Based Education and Training

Judy L. Van Raalte, Ph.D.
Springfield College

Problem statement

Physically and mentally healthy student-athletes are in a good position to thrive academically, socially, and athletically. Unfortunately, many student-athletes fail to get the mental health help they need due to lack of knowledge and/or concerns about mental health stigma. The purpose of this innovation in practice program is to educate NCAA student-athletes via a multimedia, interactive website to enable student-athletes to gain the necessary knowledge, confidence, and skills to make effective mental health referrals. Because this program is web-based, it has the potential to affect student-athlete well-being and mental health across NCAA divisions, geographic regions, and resource availability levels.

Literature review

The U.S. Substance Abuse and Mental Health Services Administration reported that 45.9 million adults over the age of 18 experienced a mental illness in 2010, with 30% of those in the 18- to 25-year-old range reporting mental illness in the past year. NCAA student-athletes face stresses beyond those of their non-athlete peers, including regimented schedules, physical stress and fatigue, practice and game commitments, stereotyping by the media and faculty, and students, and the dual role of student and athlete (Brewer & Petrie, 2014; Martin & Andersen, 2014; Van Rensburg, Surujlal, & Dhurup, 2011). Sometimes, these additional pressures contribute to deadly outcomes. From 2004 to 2008, suicide was the third-leading cause of death for NCAA student-athletes (Noren, 2014). The NCAA and National Athletic Trainers Association are making efforts to address the mental health concerns of student-athletes (Neal, Diamond, Goldman, et al., 2013; Noren, 2014), but progress in this area is complicated by mental health stigma (Corrigan et al., 2008). Although research indicates that NCAA student-athletes vary in stigmatizing attitudes related to those who seek mental health help (Linder, Brewer, Van Raalte, & DeLange, 1991; Steinfeldt & Steinfeldt, 2012) and do not tend to derogate athletes who consult sport psychologists, they do hold negative attitudes toward athletes who consult psychiatrists (Van Raalte, Brewer, Brewer, & Linder, 1992).

To address the mental health needs of students, many colleges and universities have created and offer preventive psychoeducational workshops (Conley, Durlak, & Dickson, 2013). Psychoeducational programs that are interactive and include cognitive interventions to affect maladaptive attitudes and behaviors have been shown to reduce symptoms and risk factors for psychological disorders (Stice & Shaw, 2004; Stice, Shaw, & Burton, 2006). Mental health interventions that target specific psychological processes and include feedback have also been shown to be particularly effective (Donohue, Pitts, Gavrilova, Ayarza, & Cintron 2013; Scott-Sheldon, Carey, Elliott, Garey, & Carey, 2014; Walton, 2014).

Addressing the mental health needs of NCAA student-athletes via psychoeducational workshops can be difficult, however, because of scheduling challenges and because only a limited number of student-athletes can participate in any given workshop. Further, shame and
secrecy often associated with mental health concerns can serve as a barrier to attendance and treatment seeking (Garvin & Striegel-Moore, 2001).

Web-based psychoeducational interventions offer solutions to some of the limitations of face-to-face approaches to mental health education. That is, web-based programs can offer rich content, tailored to student needs, in a cost-effective, confidential, and anonymous manner (Rhodes, Fishbein, & Reis, 1997). A meta-analysis involving over 11,000 participants conducted by Wantland, Portillo, Holzemer, Slaughter, and McGhee (2004) compared the effectiveness of web-based and non-web-based interventions and found significant improvement in outcomes for individuals using web-based interventions. Lustria et al. (2013) conducted a meta-analysis of web-based interventions (over 20,000 participants) and found that those tailored for particular populations led to significantly greater improvements in health outcomes than did control conditions. The web-based intervention developed by Gulliver et al. (2012) tailored for elite athletes showed a trend indicative of increased mental health literacy and destigmatization relative to a control group. Thus, web-based, tailored programming related to referral for mental health issues may be a promising approach for NCAA student-athletes.

In summary, student-athletes have mental health issues that have led to troubling outcomes including high suicide rates. Tailored, web-based programs have been found to positively affect health outcomes (Lustria et al, 2013; Wantland et al., 2004). Therefore, web-based interventions may be an effective way to reach NCAA student-athletes with regard to mental health issues and to help them gain the necessary knowledge, confidence, and skills to make effective mental health referrals. Further, web-based programming constitutes an economical option that can impact student-athlete mental health across NCAA divisions, geographic regions, and resource availability levels.

**Conceptual framework**

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*Figure 1. Conceptual framework for proposed research.*

Individuals who are knowledgeable about referrals for mental health concerns are in a better position to help others than are those without knowledge and efficacy (Neal et al., 2013). Knowledge pertaining to referral skills can be conveyed via didactic and interactive techniques (Stanton, Atherton, Toriello, & Hodgson, 2013). Athletes also learn by watching and modeling the behavior of similar others (McCullagh, Ste-Marie, & Law, 2014). Indeed, Bandura (1986) noted that modeling is one of the most effective means of transmitting patterns of thought and behavior. Buckley and Malouff (2005) proposed that the Social Learning Theory principles, such as vicarious reinforcement, explain the positive attitudinal changes toward mental health treatment that result from viewing tailored videos. As shown in Figure 1, a mental health website that uses didactic, interactive, and modeling approaches can build upon Social Learning Theory principles, and be used to deliver effective programming for NCAA student-athletes to facilitate mental health referrals.
Data and methodology

The proposed project timeline (see Figure 2) is May 1, 2014 through January 17, 2015. Web-based mental health referral programming for NCAA student-athletes will be developed and evaluated via one-to-one testing, expert evaluation, and a field trial (in accord with Institutional Review Board (IRB) guidelines).

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*Figure 2. NCAA student-athlete referral website development and evaluation timetable.*

**Content Development**

Website content will be developed by Dr. Nancy Diehl, an expert in mental health referral who has experience in multimedia development and with NCAA student-athletes and coaching. Program content will include interactive exercises, photographic images, text to complement existing materials (such as the NCAA handbook, *Managing Student-Athlete Mental Health*), and video clips depicting student-athletes making referrals for substance abuse, eating disorders, depression, anxiety, and other mental health issues (see sample video clip: [http://vbvideo.com/referral/video-referral.html](http://vbvideo.com/referral/video-referral.html)).

The accuracy and usability of the materials will be examined by the Springfield College counseling center director, athletic director, coaches, and student-athletes. Information that is not deemed accurate, scientifically valid, and appropriate for the NCAA student-athletes will be updated, or removed. Alpha testing of the website will be completed to ensure the technology works as intended.
Study 1

The purpose of Study 1 is to conduct one-to-one testing with the website prototype. Information gleaned from Study 1 will enable the investigative team to ensure that members of the target population can use the website as intended and to identify aspects of the prototype in need of clarification or modification.

Participants
Participants will be 10 NCAA student-athletes attending NCAA member institutions. Institutions have been contacted and have agreed to allow their athletes to participate.

Procedure
Student-athletes will attend individual sessions. After giving informed consent, they will navigate through the prototype website. Consistent with one-to-one testing methodology (Dick & Carey, 1990; Gagne, Briggs, & Wager, 1992), a researcher will sit behind participants and observe them to ensure that they are using the website as intended and will ask questions to make sure that participants understand the website organization and material. The researcher will record observations and will probe participants for additional comments following their experience with the website.

Data Analysis
The researcher will prepare a summary of observations from the one-to-one testing sessions. Modifications to the website will be made in accordance with the report prior to conducting Study 2.

Study 2

In Study 2, athletic directors and coaches -- those professionals most likely to facilitate use of the website by their student-athletes -- will review the online program and complete a written evaluation of the program’s perceived effectiveness. Athletic directors and coaches have been contacted and have agreed to participate in the study.

Participants
Participants will be 10 athletic directors and 10 college coaches at NCAA member institutions. Participants will be selected to represent public and private colleges across the United States to enhance generalizability of the results.

Procedure
Athletic directors and coaches will complete an online informed consent document and will be directed via an Internet link to the website. After reviewing the online referral program, participants will complete the Treatment Acceptability Questionnaire (TAQ; Hunsley, 1992) with reference to the NCAA student-athletes they serve. Participants will also be asked open- and closed-ended questions with regard to the content, ease of use, and applicability of the website for NCAA student-athletes.
Data Analysis
Descriptive statistics will be calculated for the TAQ and closed-ended questions regarding the content, ease of use, and applicability of the online program for NCAA student-athletes. Participants’ qualitative responses will be examined to assess receptiveness to having their student-athletes use the website and to identify areas of the program in need of further development. Modifications to the website will be made based upon the feedback from Study 2.

Study 3
The website will be subjected to field trial in Study 3 to gain an understanding of the extent to which the program is acceptable and effective in practice, specifically in producing the desired changes in knowledge, resource/professional identification efficacy, and peer assistance/referral efficacy.

Participants
Participants will be 100 college student-athletes from across NCAA divisions and geographical regions who are randomly assigned to experimental (web-based referral program) and control groups. NCAA member institutions have been contacted and have agreed to allow interested student-athletes to participate in the study.

Procedure
After giving informed consent, NCAA student-athletes will provide demographic information (i.e., age, gender, race/ethnicity, and sport), complete questionnaires assessing their knowledge of the referral process, resource/professional identification efficacy, and peer assistance/referral efficacy, and will be randomly assigned to the experimental or control group. Resource/professional identification and peer assistance/referral efficacy items include: How confident are you that you can: (a) find resources related to mental health referrals? (b) find a professional who can help with a mental health problem? (c) help a friend who has a mental health problem? (d) refer a friend to a professional for help with mental health issues? Cronbach’s alpha coefficients of .85 for resource identification efficacy and .87 for referral efficacy have been found in previous research. Next, experimental group participants will view the referral website. Control group participants will view an unrelated website. Upon completion of their online sessions, participants will complete referral knowledge, identification and efficacy, program content, ease of use, and applicability questionnaires (Hunsley, 1992).

Data Analysis
Descriptive statistics will be calculated for all variables. Multivariate analysis of covariance (MANCOVA) will be performed to compare the experimental and control groups in terms of knowledge, resource/professional identification efficacy, and peer assistance/referral efficacy after exposure to the online programs. Pretest scores will serve as covariates. It is expected that this program will be considered acceptable by NCAA student-athletes, and that their knowledge of mental health referral, resource/professional identification efficacy, and peer assistance/referral efficacy will increase after using the website.
Campus-level programming implications

Research indicates that web-based mental health programming is effective. An online program designed to increase the knowledge and self-efficacy of NCAA student-athletes with regard to mental health referral can be incorporated into athletic department and other campus programming. Further, the creation of web-based materials can result in high quality, effective mental health referral information being made freely available to athletes at NCAA member institutions.

References


