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Many college students experience poor wellbeing (e.g., loneliness, depression, anxiety, and stress), have low levels of physical activity (PA) engagement, and engage in behaviors that threaten wellbeing. Academic PA and wellness courses can promote not just physical health but assist students in developing sustainable solutions to improve wellbeing. There is limited information on the short and long-term impact these types of courses have on both PA engagement and wellbeing in the lives of college students. Additionally, systematic evaluation and collection of student feedback is not currently conducted but is needed to contribute towards the development of evidence-based practices (EBP) for these courses to optimize their impact.

The purpose of this study was to examine changes in physical activity engagement and wellbeing among students enrolled in an instructional physical activity program and identify student feedback on the program. Students enrolled in the physical activity and wellness course ($N= 612$) completed questionnaires on physical activity engagement and wellbeing at the start, middle, and end of the semester and provided feedback every two weeks and at the end of the semester. There were significant improvements on two mental health wellbeing subscales from pre to post ($p < .05$, $d = .17$, $d = .24$) and 30-day physical activity from pre to post ($p < .01$, $d = .26$). The majority of students strongly agreed (60.4%) or somewhat agreed (28.2%) the course promotes lifelong physical activity. Students also strongly agreed (60.4%) or somewhat agreed (26.4%) the course promotes whole person wellbeing. Identified areas for improvement included providing more choice and facilitating more interaction. Responsively, this research contributes to assessment in physical activity and wellness courses and supports their value from a student perspective.

PHYSICAL ACTIVITY ENGAGEMENT AND WELLBEING IN AN
INSTRUCTIONAL PHYSICAL ACTIVITY
PROGRAM

by

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DEDICATION

This dissertation is dedicated to my grandmother, Doris Bissette, my wonderful husband, Rev. Russ Nanney, my son, Boone Nanney, and my encouraging mom, Elizabeth Winborne.

APPROVAL PAGE

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CHAPTER I: PROJECT OVERVIEW

Many US college students experience aspects of poor wellbeing, which can negatively impact their college and adult lives (American College Health Association, 2022; 2021; 2019; Bart et al., 2018; Healthy Minds Network, 2022). Literature supports that physical activity (PA) engagement is an avenue for improving wellbeing (USDHHS, 2018; Gill et al., 2013), but evidence-based practices (EBP) need to be identified to help college students realize the holistic benefits of PA for improving their wellbeing (Berstein and McNally, 2018; Cardinal & Casebolt, 2022; Grasdalsmoen et al, 2020; Gibson, 2018; Russell & Sampson Moore, 2022; Short et al, 2022; Winzer et al., 2018). During traditional college age (18-25 years), students transition away from an adolescent experience– marked by dependence on their caretakers for their beliefs and behaviors– to emerging adulthood that is characterized by establishing their own beliefs, values, behaviors, and habits (Arnett, 2000; Hochberg & Konner, 2020; Müftüler & İnce, 2015; Wilson et al., 2021). Colleges and universities across the United States offer elective or required academic PA and wellness courses that can facilitate PA engagement and high-level wellbeing during this critical developmental period (Stapleton et al., 2017). These courses have the potential to reach more students than other wellbeing campus promoting (e.g., counseling services, campus recreation, Greek life) and equip a large number of students to experience the holistic impact of PA on wellbeing. It is essential to evaluate the impact and effectiveness of these courses while ensuring they are relevant, valuable, and identify areas of improvement (Cardinal, 2020; Casebolt et al., 2017; Cho et al., 2020; NASPE, 2007; Stapleton et al., 2017). Through evaluation of the impact of courses of PA and wellbeing and collection of student perspective of impact, EBP for promoting PA and wellbeing can be identified to optimize the value and effectiveness these courses offer students and their institutions (Cobler et al., 2019;

Kim & Cardinal, 2019; SHAPE, 2022). These types of programs need established practices and norms for assessment, evaluation, and collection of student feedback. This research lays the foundation to change practices in these programs to include necessary data collection, optimize the programs for impact and to create EBP.

Review of Relevant Literature

This review of literature will address holistic wellbeing and PA engagement among the college student population. The literature on college and university instructional PA programs and PA courses will also be reviewed with a particular emphasis on the impact of these courses on college student holistic wellbeing and PA engagement. In the context of this paper, wellbeing will be operationalized as judging life positively and feeling good, based on the definition from the CDC: “the presence of positive emotions, absence of negative emotions, satisfaction with life, fulfillment and positive functioning” (National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health, 2018). Wellbeing will be used as a holistic umbrella term to include health-related quality of life and various dimensions (i.e. mental, physical).

Wellbeing in College Students

The psychological wellbeing of many college students in the United States is suffering. In 2020, the National Survey on Drug Use and Health found the college age population (18-25 years old) had the highest prevalence (30.6%, 10.2 million people) of self-reported mental, behavioral, or emotional illness (i.e., Any Mental Illness [AMI]) among all age groups. In addition to having the highest prevalence of AMI, they also self-reported the lowest rates of seeking mental health services (42.1%) for their AMI (Substance Abuse and Mental Health

Services Administration, 2021). Thus, many college students are experiencing threats to their mental health and not necessarily seeking care.

The National College Health Assessment (NCHA) is a national survey that offers comprehensive data on the health status of college students in the country (ACHA, 2022, 2021, 2020, 2019). According to the NCHA III, depression, anxiety and stress are negatively impacting academic performance of college students and the prevalence of students experiencing moderate to serious distress has more than double since Fall 2020. The prevalence of challenges to wellbeing have increased among college students and demonstrates a need for colleges and universities to identify the best opportunities to improve student wellbeing.

Additionally, the Healthy Minds Study (2022) assesses aspects of wellbeing, particularly mental health, across up to 450 college campuses. During the 2021-2022 academic year, around a quarter of a sample of 95,860 college students reported symptoms of severe depression or symptoms of anxiety disorder. More than a quarter of these students felt isolated from others and nearly a quarter reported a lack of companionship, two factors that contribute to social wellbeing. This data suggests college students are in distress and academic courses may be a prime intervention for both mental and social wellbeing.

These data suggest that threats to wellbeing are impacting college students. If wellbeing is not improved among students, there is a strong likelihood it can harm their college life and spillover to later adulthood (American College Health Association, 2022; 2021; 2019; Bart et al., 2018). In a study by Bezyak and Clark (2016), students disclosed interest in learning how to improve their wellness. Colleges and universities can consider the best ways to promote sustainable wellbeing among the student body and academic courses may be the most effective avenue (Bruffaerts et al., 2018; Gibson, 2018; Grasdalsmoen et al., 2020; Ma, 2020; Ridner et

al., 2016; Winzer et al., 2018;). Emerging adulthood, the developmental stage of the traditionally aged college student (i.e., 18-25) is a time when individuals are developing their own beliefs, identities, values, commitments, routines, and habits (Arnett, 2000; Hochberg & Konner, 2020). Thus, the college years are an ideal time to educate and equip students to live a life of high-level wellbeing that is sustainable and provides opportunities to explore wellness activities that will best serve them to be active adults which can occur in wellness and PA academic courses.

Physical Activity and Wellbeing

According to the World Health Organization (WHO), PA is any movement created by the body's skeletal muscles that requires energy expenditure above resting (WHO, 2020). The PA Guidelines for Americans, published by the US Department of Health and Human Services (2018), recommend that adults (i.e., anyone over the age of 18) engage in at least 150 minutes of moderate intensity or 75 minutes of vigorous intensity (or equivalent combination) aerobic exercise across three to five days each week. In addition to the aerobic exercise recommendations, individuals are advised to engage in muscle strengthening activities for all major muscle groups at least two days per week (USDHHS, 2018). Many adults, including college students, do not meet these recommendations. In Fall 2022, results from the NCHA indicated that only 40% of college students were meeting PA recommendations (ACHA, 2022). Wilson and colleagues found similar results using the global PA questionnaire and also found a decline in PA during the transition to college from high school (Wilson et al. 2019; 2021). The Healthy Minds Study (2022) revealed that 29% of respondents engaged in less than one hour of at least moderate intensity exercise each week. Therefore, the transition to college is a vulnerable period when students may have difficulty meeting wellbeing-promoting PA guidelines, marking a critical opportunity for colleges and universities to intervene.

Benefits of Physical Activity

The advantages of PA are strongly supported by the literature and many benefits are evolving with more research. The 2018 PA Guidelines Advisory Committee Scientific Report (2018) assessed the research and the strength of the posited benefits. The 2018 PA Guidelines for Americans (USDHHS, 2018) summarizes those benefits for practitioners and the general population. Regular engagement in PA, particularly at a volume meeting the PA guidelines, can improve all-cause mortality, cardiovascular disease, type 2 diabetes, obesity, bone health, balance, activities of daily living, cholesterol, blood pressure, cancer, body weight, sleep quality, physical fitness, and overall quality of life.

Additionally, the report and several other studies (Berstein & McNally, 2018; Ma, 2020; Murphy, 2018) identify the mental health benefits of engaging in PA, including reducing the prevalence and severity of depression, anxiety, and stress, among other mental health outcomes. The literature also confirms that PA can benefit quality of life, perceived health, and happiness. Engagement in PA is widely accepted as an effective way to promote not just one's physical wellbeing but multidimensional, whole person wellbeing as well (Berstein & McNally, 2018; Ma, 2020, Murphy, 2018). PA and wellness courses could provide an opportunity for whole person wellbeing promotion among college students.

Gill et al. (2013) asked college students ($n=142$) and community members ($n=142$) how they felt PA contributed to their quality of life. Both groups felt that PA contributed to all aspects of quality of life and felt there was a strong connection between engagement in PA and quality of life. Grasdalsmoen et al. (2020) found that psychological distress had a dose-response negative association with exercise. Self-reported depressive disorders were also negatively associated with exercise, again with a dose-response relationship. As PA demonstrates the ability to

improve these factors, colleges need to find ways to educate students on the benefits of regular PA and help them reduce barriers (e.g., such as time) so they can engage in PA and limit prolonged sitting.

The literature is clear about the widespread benefits of PA, yet studies still indicate that many college students struggle to be adequately active (Moulin et al., 2021). PA and wellness courses offered at colleges/universities can be an avenue for improving PA engagement.

College/University Instructional PA Programs

College/University Instructional PA Programs (IPAP) and courses within those programs, offer students an opportunity to engage in PA for academic credit and are a potential intervention opportunity for PA engagement and wellbeing promotion in college students. While some colleges and universities require these courses for their undergraduate students to graduate, others offer them on an elective basis. All involve engagement in PA and the instruction needed to be successful at that engagement. Some of these courses within IPAP are activity or skill-based and focused on engagement in the associated activity, while others are conceptual-based classes (CPE). The latter can include a variety of topics such as: sustainable engagement in PA, behavior change, fitness, stress management, and nutrition (Cardinal et al., 2012; Strand, Egeberg & Mozumdar, 2010).

Many colleges and universities have IPAPs that can be leveraged to promote PA and, in turn, wellbeing among students. At four-year institutions, these types of courses made their debut in 1861 at Amherst College in Massachusetts because of Edward Hitchcock's vision to promote health among students for the sake of reaching peak intellectual productivity (Cardinal et al., 2012; Cardinal & Casebolt, 2022). As these types of courses evolved, IPAPs began offering a wide variety of formats and curricula with a robust number of physical activities covered.

Though the occurrence of IPAPs remains widespread, their prevalence and enrollment has declined over the last several decades due to funding, curriculum changes, buy-in, and pressure to speed up graduation (Cardinal & Casebolt, 2022; Kim et al, 2015). In the 1920s, 97% of four-year colleges/universities offered PA courses. In the 1960s and 1970s, over 90% of colleges and universities offered PA courses and around 80% were required for graduation (Cardinal et al., 2012, Crawford et al., 2007, Hardin et al., 2009). In 2010, around 86% of colleges and universities offered PA courses and about 42% were required for graduation (Strand et al., 2010), yet the latest data in the literature shows that only 39.55% of four-year institutions require PA credits for undergraduate graduation (Cardinal et al., 2012). Available data suggests that only one third of IPAPs are even evaluated (Bjerke, 2013). It is a pivotal time to assess and optimize these programs to ensure impact and highlight their value to administration, students, faculty, staff, and parents to sustain and increase widespread offerings (Cardinal et al., 2012; Short et al., 2022).

Organizations and researchers have provided recommendations and minimum guidelines for IPAP (Russell & Sampson Moore, 2022). For example, SHAPE America (2022) updated their Appropriate Instructional Practice Guidelines for Higher Education Physical Activity Programs and included minimum recommendations for administration and support, program staffing, professionalism, curriculum, learning environments, instructor strategies, and assessment. Kim et al. (2015) also provided recommendations for IPAPs and encourages colleges to better differentiate their curriculum from K-12 Physical Education and Health through a strong educational focus, that includes meaningful and relevant material that can be implemented and pursued for a lifetime. This can be achieved through PA curricula with

conceptual PA education through lecture/labs and experiments, such as that recommended by Keating et al. (2012).

Further, Short et al. (2022) published seven recommendations for stability and growth in IPAP. Among the recommendations, communicating wellness benefits of the program to students, making a case for the whole person wellness benefits of PA, and increasing research that investigates the effects of IPAP were included. Among these recommendations, evidence-based and gold standard practices are not currently available (SHAPE, 2022). To make the most of the opportunity to promote PA and wellbeing among enrolled students, assessment of the impact of the course and evaluation of best practices through evidence and theory-based strategies needs to occur (Cardinal & Casebolt, 2022).

IPAP Wellbeing and PA Engagement

Marinero et al. (2022) assessed the impact of a 15-week IPAP on student perceived wellness outcomes. Students demonstrated improvements in overall wellness and emotional wellness with a small effect size and physical wellness with a large effect size from the beginning to end of the semester, thus supporting the positive impact of IPAP, particularly within a lecture/lab (i.e., CPE) format.

Annesi et al. (2017) assessed the association among university instructional PA courses, changes in PA levels, and negative mood. The treatment group significantly increased engagement in PA and reported improved mood compared to the comparison group. The more PA was self-reported, the better the self-reported mood (Bjerke, 2013). Sukys et al. (2019) found that leisure time PA was significantly correlated to the number of health-related classes per week a student took, suggesting that providing opportunities for students to enroll in health-related classes, such as those in IPAPs, can equip them to engage in more leisure time PA.

While the overall evidence is promising, there is also research that does not support the positive impact of IPAP courses on PA engagement (Agans et al., 2020). As previously mentioned, due to the great variety in the delivery and curriculum of these courses and programs, details of course and program operation will need consideration. Given the effectiveness of even simple short-term strategies to promote PA, a semester long course provides great potential (Dougall et al., 2011).

Beyond these isolated studies, ongoing evaluation of a conceptual PA lab coupled with a holistic wellness lecture course delivered to undergraduate students at a university in the southeastern US has informed much of the existing literature on IPAP and holistic wellness (Lothes, 2020; Lothes et al., 2020; Lothes & Kantor, 2021). Each semester of assessment, Lothes and colleagues (2020; 2021) found significant increases in twelve dimensions of wellness and motivation from the beginning to the end of the semester among undergraduate college students enrolled in the IPAP course. All changes had statistically significant medium to large effect sizes with male and female students both experiencing significant changes across each dimension. These data suggest this course was effective at equipping students to move to a higher level of wellness and increasing their motivation to change. However, in previous evaluations of this IPAP, wellness has only been assessed using the Wellness Inventory, which assesses wellness behaviors, and motivation for those behaviors, across twelve dimensions of wellness. Additionally, the PA lab portion of the IPAP has received limited attention, and changes in PA engagement have not been formally assessed. The present evaluation builds on the previous work by addressing these limitations as well as incorporating data on the students' perceptions of the course's impact.

Purpose and Aims

The purpose of this study was to examine the impact of a PA and wellness course on student PA engagement and wellbeing, and to collect student feedback on PA and wellbeing promotion in the course. The aims for this study are as follows:

Aim #1: Determine changes in PA engagement among students enrolled in an IPAP.

Aim #2: Determine changes in wellbeing among students enrolled in an IPAP.

Aim #3: Identify student feedback on the usefulness of an IPAP in promoting student PA and wellbeing.

Methods

The purpose and aims of this study were addressed via online surveys, including bi-weekly and summative feedback, completed by current students in a required IPAP program.

Participants

Participants were drawn from the 1539 undergraduate students enrolled in a PA lab course within the IPAP at a medium size liberal arts university with an undergraduate enrollment of 14,294 in southeastern US during Fall 2022. Students were from all class standings (e.g., freshman, sophomore, junior, senior, other) and majors across the university. Participants were excluded from data analysis if they had previously taken the course (i.e., failed), were high school students enrolled in the university early college program, declined to have their data used for the study, or did not enter a valid participant key. Exclusion data can be found in Appendix A. Over 50% were removed for a final sample of a maximum of 612 participants (63.7% female, 89.3% white, 97.1% 18-25 years old) for data analysis. See Appendix B for full summary of participant demographics.

Measures

Four categories of data were collected: demographics, perceived wellbeing, self-reported PA, and course feedback. Data collection occurred via online surveys delivered through Qualtrics. Demographic and general data were collected at the start of the semester (See Appendix C). Information collected included gender identity, race, class standing, major, if they were a first-generation student and/or transfer student, perceived academic status, and perceived health status. Students were also asked in which type of PA lab they were enrolled.

Wellbeing

Two surveys were used to assess wellbeing (Appendix D). The Public Health Surveillance Well-Being (PHS-WB) scale (Bann et al. 2012) was used as a low burden assessment of wellbeing. The PHS-WB assesses the well-being status of a community, across physical, mental, and social well-being dimensions in individuals. The questionnaire includes items about mental wellbeing, life satisfaction, meaning in life, self-rule, competence, relativity, and positive and negative affective status. This survey is ten questions. The four mental health items were averaged together, and four social health items were averaged together for those subscales. Physical health items were assessed separately. The PHS-WB is reliable and validated in the college population among individuals between the ages of 18-25 years old (Ridner et al., 2016).

In addition, the PROMIS-10 Global Health assessment (PROMIS 2017)) was used for measuring wellbeing. It assesses wellbeing across five domains: physical functioning, fatigue, pain, emotional distress, and social health using ten questions on a five-point scale. Global physical health and mental health were measured by scoring and adding respective subscale items together and then transforming the numbers with t-scores as advised by the PROMIS

scoring guide (Hays et al., 2009; Health Measures, 2020). The remaining two items are reported as standalone items. The PROMIS-10 is widely used, and research supports its validity and reliability (e.g., Lam & Kwa, 2018).

Physical Activity

PA engagement was collected through self-report surveys at the start, middle, and end of the semester via the PA8, which has demonstrated construct validity and reliability, $r = .53$ (Jackson, et al. 2007). The PA8 (Appendix E) includes eight categorical response options. A score of five or more is reflective of meeting or exceeding PA recommendations for aerobic exercise.

Three questions from the National College Health Assessment were also used to assess PA engagement. The NCHA includes questions about number of minutes of moderate and vigorous PA engagement over seven days and number of days strength training performed over the last week. Questions have evidence of construct validity and reliability (ACHA, 2013). Due to questionable data resulting from a large number of the student responses, the aerobic data were not included in formal analyses.

Course Feedback

Course feedback was collected every two weeks throughout the semester to correspond with pre-lab reading assignments to gather timely feedback from students specific to the type of content covered during a specific two-week time frame of the semester. Students were asked to evaluate the effectiveness and impact of the course readings and activities on their PA and wellbeing using a five-point Likert scale ranging from strongly disagree to strongly agree (see Appendix F). A final, summative assessment of course feedback was collected at the end of the semester (see Appendix F) with both questions using the same five-point Likert scale and free

response questions. For this study, two open-ended questions were included: 1) Considering the goals of XXXX 101, to promote PA and whole person wellbeing, what do you think can be modified to better achieve those goals? and, 2) With the XXXX 101 goal in mind, what is something you learned in the reading or experienced in your XXXX 101 class that will stick with you?

Instructional Physical Activity Program

The Instructional Physical Activity Program (IPAP) used for this study includes both a one-credit hour PA lab and a one-credit hour wellness lecture. The one-credit hour PA lab was the exclusive focus of this study. The lab centers around engagement in a specified PA, selected by the student during course registration. Offerings range from Aikido to Yoga with over 45 different types of labs to choose from to meet student need and interest. The majority (approximately 60 sections per semester) of the PA labs are offered face to face. Online labs are offered for students in online degree programs. The wellness lecture is delivered online through the campus Learning Management System (LMS), Canvas. The courses are taught by full-time instructors in the program, part-time instructors who are professional practitioners in the community, or on-campus and graduate assistants supervised by the program coordinator. Undergraduate students must complete both the lab and lecture in the same semester to fulfill the Lifetime Wellness University Studies requirement for graduation and can fulfill the requirement at any time during their undergraduate career.

The program introduces students to the fundamental concepts and practical experiences associated with the physical, emotional, intellectual, social, and spiritual components of wellness. The program facilitates behavioral changes to enhance wellbeing and lifelong maintenance of personal health and PA. Student Learning Objectives expect students will be able

to: (1) describe the synergy among the multiple dimensions of wellness; (2) develop a wellness plan to meet their personal needs across the lifespan; (3) describe the relationship between the effects of personal choice and the principles of wellness; and, (4) practice the basic components and principles of safe and effective PA and other health-related behaviors.

The IPAP for this study embodies the guiding principles recommended by Kim et al. (2015) and guidelines presented by SHAPE America for PA programs in higher education, as evidenced by the program's citation in the SHAPE guidelines (SHAPE America, 2022). The curriculum was last extensively revamped using the literature, health and wellness coaching practices, student feedback, focus groups, and instructor feedback in 2018. Ongoing assessment and revisions occur each semester.

The PA lab within this program, which is the focus of assessment in this study, uses a flipped classroom model. For this model, every other week students read real-time, interactive e-text chapters created specifically for the program (Nanney, 2018). Chapters cover the impact of PA on whole person wellness, fitness, mental health and PA, sustaining an active lifestyle, and PA and nutrition, among other topics. Following those readings, the lab incorporates activities for students to practice applying what they learned (i.e., measuring heart rate and rating of perceived exertion to assess aerobic exercise, assessing changes in feeling and stress as a product of engaging in PA). During class time, the focus is to engage students in a specific lifetime PA. See Appendix G for more information regarding the program.

Procedures

Institutional Review Board (IRB) approval was granted before the study began. All data were collected via Qualtrics links. Surveys and questions were mobile phone friendly for ease of use for students. Survey links were embedded within the lab course content via the real-time,

interactive e-text lab manual that includes reading questions, discussion boards, videos, and external links. Students responded to consent for study participation (Appendix H) and provided a participant key (last four digits of phone number) to match participants across time. Students included in the study provided consent for their data to be used for this research. Appendix I includes the timeline for survey distribution to students. Surveys were open for approximately one week ahead of due date. Data collection began on August 24 and concluded on November 29, 2022.

Data Analysis

To analyze changes in wellbeing and PA across the three time points of the course, Repeated Measures ANOVA were conducted. Descriptive statistics were reported for quantitative course feedback data and some PA and wellbeing measures. Open-ended responses were reviewed and grouped into similar categories to determine common themes and their frequencies.

Results

The majority of students reported completing 75% or more of the reading assignment and attended all class days over the last two weeks for all feedback surveys embedded within the course (see Appendix J for details).

Self-Reported Physical Activity Changes

Table 1 includes data for PA across the three time points. Scores on the PA8 differed significantly across the three time points. Post hoc pairwise comparisons using the Bonferroni correction showed increases from pre to mid ($\text{Mean}_{\text{diff}} = .37, p < .01, d = 0.21$) and from pre to post ($\text{Mean}_{\text{diff}} = .45; p < .01, d = .26$) were statistically significant. There was no significant increase in PA8 from mid to post. Appendix J shows the frequency of students who met and did

not meet PA guidelines for aerobic exercise, according to the PA8, across the three time points. At each time point, the majority of students self-reported meeting PA guidelines for aerobic exercise and the percentage of those who self-reported meeting PA guidelines increased from pre, mid and post.

The NCHA measures for number of days engaged in strength training over the last week, scores did differ significantly across the three time points. However, post hoc analyses indicated no significant pairwise differences, though there was a trend observed for increases from pre to mid ($M_{diff} = .40; p = .06$) and pre to post ($M_{diff} = .38, p = .07$).

Table 1. Changes in Physical Activity

Variable	Pre Mean ± SD	Mid Mean ± SD	Post Mean ± SD	<i>F</i>	η^2
PA 8, <i>N</i> = 215	5.08 ± 1.82	5.45 ± 1.56	5.53 ± 1.58	10.37*	.05
NCHA Strength, <i>N</i> = 117	3.31 ± 1.75	3.71 ± 1.53	3.68 ± 1.52	4.26*	.04

* $p < .05$

Wellbeing

Table 2 includes means and standard deviations for wellbeing measures across the three time points and frequencies for the PROMIS general health item. Scores on the PROMIS subscale for physical health-related quality of life did not differ significantly across the three time points and the mean score was slightly above the US population average (50). Scores on the PROMIS mental health subscale differed significantly across the three time points and were consistently below the US population average (50) though less than one standard deviation (SD = 10) below that average. A post hoc test showed a statistically significant increase in mean scores from pre to post was significant ($M_{diff} = 1.39, p = .03, d = 0.17$). There were no significant changes across time for the fatigue item, or the general health item.

For the Public Health Surveillance Wellbeing Scale, on the mental health subscale, scores differed significantly across time points. A post hoc test showed a statistically significant increase in mean scores from the pre to post was significant ($M_{diff} = .11, p = .03, d = 0.24$). There were no significant changes across time for the social health subscale, the general health item or days feeling healthy and full of energy.

Table 2. Changes in Wellbeing

Variable	Pre Pre Mean \pm SD	Mid Mean \pm SD	Post Mean \pm SD	<i>F</i>	η^2
PROMIS Physical Health, N= 188	52.58 \pm 6.14	53.06 \pm 6.73	53.45 \pm 6.91	2.15	.01
PROMIS Mental Health, N = 204	47.28 \pm 8.65	48.42 \pm 8.65	48.67 \pm 8.17	4.13*	.02
PROMIS General Health, N = 215	3.59 \pm .84	3.63 \pm .88	3.71 \pm .86	2.7	.01
PROMIS Fatigue, N = 215	3.80 \pm .79	3.70 \pm .77	3.81 \pm .78	2.69	.01
PHS-WB Mental Health, N = 140	3.55 \pm .47	3.59 \pm .78	3.61 \pm .78	3.91*	.02
PHS-WB Social Health, N = 214	7.66 \pm 1.71	7.71 \pm 1.72	7.88 \pm 1.62	2.55	.01
PHS-WB General Health, N = 75	3.15 \pm 1.04	3.25 \pm 1.04	3.27 \pm 1.02	1.14	.02
PHS-WB Healthy Days, N = 107	20.36 \pm 8.46	20.88 \pm 7.74	20.94 \pm 8.15	.33	.00

* $p < .05$

PROMIS General Health Frequency	Pre	Mid	Post
Excellent	13.2%	16.5%	19.8%
Very Good	42.8%	37.8%	40.1%
Good	34.4%	36.7%	31.6%
Fair	8.5%	7.8%	7.8%
Poor	1.1%	1.1%	0%

Student Feedback

Chapter feedback survey means (ranging from 5- strongly agree to 1- strongly disagree) and standard deviations are provided in Appendix J. Each survey had a high mean for the perceived impact of the reading on wellbeing and on living an active lifestyle. Each also had a high mean for the perceived impact of the PA lab course on wellbeing and on living an active lifestyle. Detailed frequencies for each bi-weekly survey are provided in Appendix J.

Physical Activity Bi-Weekly Feedback

Across the seven surveys, around half of respondents (46.6%-57.6%) strongly agreed the text was promoting an active lifestyle and a higher percentage (52.9%-66.5%) believed the class was doing so. The chapter that received the lowest mean was the PA and wellness chapter though the muscular fitness chapter was a close second and the highest was a chapter that addresses PA and mental health. The course time point that received the lowest mean was in early September and the highest was late September, though late November was a close second. Appendix J includes chapter means, standard deviations and the percentage who strongly agreed.

Wellbeing Bi-Weekly Feedback

Across the seven surveys, around half of respondents (48.8%-58.8%) strongly agreed the text was promoting wellbeing and a higher percentage (55.6%-64.8%) believed the class was doing so. The chapter that received the lowest mean was the muscular fitness chapter though the PA and wellness chapter was a close second and the highest was the chapter that addresses PA and mental health. The course timeframe that received the lowest mean was in mid-October after Fall break and the highest was late September, though late November was a close second. Appendix J includes more details.

Overall Feedback

On the post survey, for the quantitative questions, 60.4% of students strongly agreed and 28.2% somewhat agreed the lab course promotes lifelong PA. On a scale from one to five, ranging from strongly disagree to strongly agree, the mean response was 4.52 (SD=0.78). On the same survey, 60.4% of students strongly agreed and 26.4% somewhat agreed the lab course promotes whole person wellbeing. On a scale from one to five, the mean response was 4.52 (SD=0.78). Table 3 includes frequency percentages for the PA and wellbeing promotion questions. When asked about the online wellness lecture, 51.3% of students strongly agreed and 31.1% somewhat agreed the lecture promotes whole person wellbeing. On a scale from one to five, the mean response was 4.34 (SD=0.89).

Table 3. Course Feedback Frequencies

Course and PA Promotion	Percentage	Course and Wellbeing Promotion	Percentage
Strongly agree	60.4%	Strongly agree	60.4%
Somewhat agree	28.2%	Somewhat agree	26.2%
Neither agree nor disagree	3.8%	Neither agree nor disagree	4.4%
Somewhat disagree	2.3%	Somewhat disagree	2.1%
Strongly Disagree	0.9%	Strongly Disagree	0.6%

On the post survey, students were also given an opportunity to provide free response feedback. When asked what could be modified to better achieve the goals of the course, to promote PA and whole person wellbeing, most students ($n = 120$) gave a response similar to “nothing” (e.g., I think nothing. It was a very good class.), with some students mentioning more variety in the physical activities of the class ($n = 32$), incorporating more wellbeing concepts/activities into the course ($n = 20$), more engagement with their classmates ($n = 11$) and

more class time ($n = 11$). See Appendix K. When asked what they learned that will stick with them, the most common responses were in reference to the connection between PA and whole person wellbeing ($n = 73$), particularly mental health. Participants also mentioned an understanding of what wellness is and how to improve it ($n = 47$), learning a skill or PA competence ($n = 47$), the power of breathing exercises ($n = 29$), the importance of enjoying the physical activities they choose ($n = 13$) and listening to and honoring their bodies ($n = 13$). See Appendix K for a table summarizing the qualitative response categories.

Some specific examples of responses to free response questions follow. When asked “Considering the goal of the course, to promote physical activity and whole person wellbeing, what do you think can be modified to better achieve that goal?” the type of response with the most prevalence was some version of nothing. Students responded with comments such as: “ I don't believe anything needs to be changed; this course does an amazing job in helping you have positive and healthier ways to improve wellbeing.” “More connection with classmates.” “More in class group engagements.” These comments will be used to guide improvements to the course. When asked “With the goal of the course in mind, what is something you learned in the reading or experienced in your class that will stick with you?” the type of response with the most prevalence was some version of acknowledging the connection between PA and whole person wellness. Some of those student quotes include: “I learned how beneficial it is to stay active. This course brought me out of a long period of no exercise and my mental health has improved significantly since.” “I think the benefit that physical activity has on your overall wellbeing with stick with me throughout my life.” “How much better I've gotten at working out since I took this class. I'm so thankful!”

Discussion

The wellbeing of college students has continued to decline over the years (American College Health Association, 2022; 2021; 2020; Healthy Minds Network, 2022). Viable and sustainable avenues for addressing college student wellbeing need to be a priority. The literature supports the positive impact of PA on wellbeing; therefore, PA promotion is a potential source of intervention (USDHHS, 2018; Gill et al., 2013). Instructional Physical Activity Programs (IPAP) offer PA instruction and engagement and can be delivered through a whole person wellbeing curriculum (Short et al, 2022). The Healthy Minds Study (2022) revealed that 25% of college students do not seek help for their wellbeing due to time constraints, the highest of all barriers assessed. IPAP courses, particularly those that are required, can help students overcome the time barrier by combining academic requirements with wellbeing promotion. Current literature does demonstrate potential positive impact of these types of courses, particularly those with a wellbeing focus, but more systematic research is needed (Lothes, 2020; Lothes et al., 2020; Lothes & Kantor, 2021; Marinaro et al., 2022).

The data in this study do suggest students in a wellbeing focused IPAP can benefit. There was a small but significant increase in mental health from pre- to post- on the two wellbeing mental health subscales. For the PROMIS mental wellbeing subscale, the mean for this study fell below the national average (50) but by less than one standard deviation for each time point. Though this subscale mean did improve significantly from pre to post, that mean did not reach the national average at post. This suggests special attention is needed to help students further improve their mental wellbeing. Though there were increases in means on other subscales and thus, the direction was as expected, those increases were not statistically significant. For the physical wellbeing subscale on the PROMIS measure, the mean fell above the national average

(50) at all three time points. This suggests students perceive their physical wellbeing as better than the average American. The lack of statistically significant changes on the other wellbeing subscale differs from previous research by Lothes and colleagues that demonstrated consistent and significant improvements in wellness on all dimensions of wellness. This may be due to study sample size (Lothes, 2020; Lothes et al., 2020; Lothes & Kantor, 2021). Sample sizes in the previous wellness research were around 1500, nearly 100% of the students enrolled, while the sample size for this study was only a 10-40% representation of students enrolled. These findings also differ from research from Marinaro et al. (2022) who found significant improvements in not just mental wellness but also overall wellness and physical wellness in their IPAP study. Though no other wellbeing subscales had significant improvements in this study, there were still improving trends and the observed increases for mental health are promising. Future PA and wellbeing research may modify study design to capture a higher number of students and put a greater emphasis on mental wellbeing measurement.

Students' self-report PA over the last 30 days significantly improved from pre- to post-, and the average score on the PA8 measure was higher than the cutoff for meeting PA recommendations. The majority of students self-reported scores were meeting PA recommendations range, even at the start of the semester. Despite this, there were still significant improvements on the PA8 and general increasing trends. The prevalence of students meeting recommendations is consistent with the literature (Keating et al., 2005; Rouse & Biddle, 2010; West et al., 2020; Wilson et al., 2021). The campus where data collection occurred is anecdotally known as one with an active student body though this data suggest their PA engagement is similar to other campuses. The significant improvement in PA according to the PA8 from pre- to post- is consistent with previous research by Annesi et al. (2017). More assessment, including

direct measures, of wellbeing and PA needs to occur in this program and other similar programs on other campuses, while including a control group, to better understand impact.

The most prevalent component of EBP development that is missing for IPAP is student feedback (Bjerke, 2013; SHAPE America, 2022). This study collected student feedback on the impact of the course textbook and PA lab course on living an active lifestyle and promoting wellbeing. According to data collected every two weeks, most participants strongly agreed and somewhat agreed the textbook and PA lab course promoted living an active lifestyle and wellbeing every two weeks and every chapter. At the end of the semester, when students were asked to think of the course and textbook as a whole, the majority still strongly agreed and somewhat agreed the overall course and text promoted living an active lifestyle and wellbeing. Most students felt the course was effectively promoting PA and wellbeing, a hopeful finding not previously assessed or represented in the literature. These data suggest student perceptions of the course and text impact, in part and in whole, are positive. Student feedback fills a gap in the literature and the assessment of this particular program to guide future direction.

Improvements for both future study design and the course were identified through this study. Recommendations include more research that uses study design that captures more students, utilizing a control group of students not taking the course and finding ways to capture the experiences of minority students who are more at risk for poor wellbeing such as non-binary and transgender student populations. That may best be accomplished through focus groups. It is recommended that widespread evaluation of IPAP become the norm to assure they are best helping students and asserting the value of the programs. It is also recommended that qualitative data continue to be collected from students to ensure the voice of students is captured.

Recommendations for improving the course will include increasing PA variety and choice in class. Training instructors on strategies for increasing student interactions. Incorporating more information into the course and textbook about PA and social wellbeing, PA and physical wellbeing and PA and its impact on fatigue and energy. A deep dive into the PA and Wellness and Muscular Fitness chapters will be advised since these chapters consistently scored lower than others.

Limitations, Future Directions, and Conclusions

This study is not without limitations. The majority of students in the program were not represented in this data due to the exclusion criteria or lack of data available (i.e., only 10%-30% of enrolled students included in data analysis) though the sample size was still strong. This subset of students may not be representative of all those enrolled as it is possible the students who agreed to participate in the study and completed the surveys felt more positively about the course and text than those who did not. Another limitation is the lack of control comparison group for changes in wellbeing and PA. On one hand, these data could be representative of what changes college students experience naturally over the course of the semester as opposed to changes due to the course, or it is possible that participating in IPAP could buffer otherwise negative changes.

Despite the limitations, this study contributes to establishing the value of IPAP in student wellbeing and PA promotion, especially for the specific IPAP evaluated. This study assessed the impact of an IPAP in a new way, through wellbeing and PA data. This study also contributes meaningful data regarding student perceptions of the course, both qualitatively and quantitatively. This is new information and research that will be invaluable for the improvement of the program. This study contributes to the missing pieces needed to inform broadly applicable

EBP to strengthen the potential of IPAPs across the country to make a meaningful mark on college student PA and wellbeing promotion.

When university PA courses started back in 1861 the vision was to promote health among students to help them reach their intellectual peak (Cardinal et al., 2012; Cardinal & Casebolt, 2022). As students have evolved, we can now use these courses to promote whole person wellbeing, particularly mental health, which impacts all aspects of the college student experience and informs the type of emerged adult they become for their family, friends, community, and career (Short et al., 2022). Many college students are depressed, anxious, lonely, stressed and sleep deprived—we can answer their cry for help by equipping them to live better for the long-term through effective and academic IPAP (ACHA, 2022; Healthy Minds Network, 2021).

CHAPTER II: DISSEMINATION PLANS

The immediate plan for dissemination of this dissertation project is to present the study and the findings to the IPAP faculty at the institution of research. The results will be shared, strengths will be presented and recommendations for improving the studied program will be made. The goals will include: 1) Demonstrate the value and opportunities for improvement of the studied IPAP in promoting PA and whole person wellbeing, particularly mental health. 2) Provide recommendations for areas of improvement in the IPAP and its assessment. 3) Share the voice of students and their perceptions of the course. This presentation follows. Slides to accompany the below presentation can be found in Appendix L.

Introduction

Thank you for giving me this opportunity to share some research I conducted in our Instructional Physical Activity Program, what it says about our IPAP and how we can recognize strengths and opportunities for improvements from the data. I hope this time is invigorating as we discuss my research and its application to better help our students. First, I want to cover some background information. As we know, the literature is clear that the wellbeing of many college students is suffering. This is impacting their college life by impeding things such as their academic success and there is a high risk they will carry their poor wellbeing over into adulthood.

Background

Colleges and universities have the opportunity to identify ways to optimally facilitate wellbeing improvements among their student body. The literature supports that PA engagement is a potential avenue for significant impact on wellbeing. Traditionally aged college students, between 18-25 years old are in a developmental stage termed emerging adulthood. This stage is

marked by the personal establishment of beliefs, values, behaviors, and habits. This means helping college students adopt an active lifestyle for their wellbeing while they are in this stage, can result in quality and sustainable engagement in PA.

Instructional PA programs, such as ours, are offered at universities across the country. Though they are diverse in their delivery of PA, they are a potential setting for improving PA and wellbeing among college students. They can reach large numbers of students (our IPAP reaches around 3200 students each academic year) and they can engage students in regular and sustainable PA with a focus on wellbeing while students receive academic credit. These programs can help students incorporate PA for their wellbeing into their values and habits.

Though we have some information about the impact of our program and anecdotal insight, currently we really have little assessment and evaluation on the PA and wellbeing impact of our program. We need to evaluate the impact of our program and the effectiveness on promoting both PA engagement and wellbeing. If our program has an impactful role on reversing the wellbeing trends among college students, it asserts its value and relevance in higher education and to college students.

To optimize impact of these programs on our campus and across the country, evidence-based practices need to be established and distributed for improving PA engagement and wellbeing. Operating under these practices can equip programs to best help their students and have buy-in from their institution's leaders. Currently we need student feedback to be able to begin the creation of these practices, something lacking in the literature.

The purpose of my study was to examine the impact of our IPAP on the PA engagement and wellbeing of enrolled undergraduate college students. Another purpose was to collect student feedback on perceived PA and wellbeing promotion of the course and its textbook.

Study Design and Methodology

For this study, 1539 undergraduate students enrolled in our IPAP program, physical activity and wellness lab course were recruited to participate through course assignments during the Fall 2022 semester. However, only 13% of enrolled students had usable data or contributed to the time matched surveys in the study and only 22% for the end of semester survey. Though there were up to 40% of students who participated in the bi-weekly surveys. 63.7% of respondents were female and 89.3% were white, 97.1% were 18-25 years old. An average of 86% of students reported completing 75% or more of the chapter reading assignments and an average of 73% reported attending all class days over the last two weeks for all feedback surveys embedded within the course

All measures for this study were delivered through Qualtrics survey links embedded within the course textbook. PA and Wellbeing were assessed at three time points, the beginning, middle and end of the semester. PA Engagement was assessed using the PA questions included on the National College Health Assessment. The survey asked respondents about their PA over the last seven days using three questions. These first two questions were not used in final analysis due to data issues. The PA-8 was also used which uses a single response item for participants to categorically rate their PA engagement over the previous 30 days. To assess wellbeing, the Public Health Surveillance Well-being Scale was used which assesses wellbeing across physical, mental, and social well-being dimensions in individuals. It includes items about mental wellbeing, life satisfaction, meaning in life, self-rule, competence, relativity, and positive and negative affective status. Additionally, the PROMIS-10 Global Health Scale was used to assess wellbeing across physical functioning, fatigue, pain, emotional distress, and social health domains. Both wellbeing surveys were ten questions.

Course feedback was collected every two weeks through a total of seven surveys. Students were asked about the impact of the required chapter reading in the course textbook and the in person physical activity lab class. At the end of the semester, students completed another survey to provide summative feedback on the impact of the course as a whole.

Findings

For the PA8 which asked about PA over the last 30 days, there were significant improvements from pre to mid and pre to post with small effect sizes. A score of five or more on the PA8 indicates meeting aerobic PA recommendations. At pre 62% met PA recommendations and at post 74.0% met PA recommendations. This is consistent with national data that suggests about 70% of college students met aerobic PA recommendations. Number of strength training days on the NCHA did improve across time but was not significant, though it was approaching significance. There were no significant differences between cis-gender students and other demographic groups were too small to compare.

There were significant improvements on mental health subscales for each wellbeing survey, both the PHS-WB and PROMIS from pre to post with small effect sizes. For the PROMIS, a t-score adjusted score of 50 on the mental health subscale represents the national average. Though our students were approaching 50, the average score on the PROMIS mental health subscale was below the national average at pre, mid and post. All other subscales on the wellbeing measures improved from pre to post but there were no statistically significant improvements at any time points, including social, general health and physical health. There were no significant differences between cis-gender students and other demographic groups were too small to compare.

Students were surveyed every two weeks about the course and the course textbook. When asked if the textbook was a helpful tool for living an active lifestyle, across the seven surveys there was a mean range of 4.23 to 4.39 on a five-point Likert scale ranging from strongly disagree to strongly agree. A range of 46.6% to 57.6% of students strongly agreed the textbook was a helpful tool for living an active lifestyle. The chapter that received the lowest mean was the PA and Wellness introductory chapter which is surprising given that chapter addresses the impact of PA on whole person wellbeing and PA recommendations. The highest was a chapter that addresses PA and mental health. When asked if the class was a helpful tool for living an active lifestyle, across the seven surveys there was a mean range of 4.32 to 4.52 on the same five-point Likert scale ranging from strongly disagree to strongly agree. A range of 52.9%-66.5 % of students strongly agreed the class was a helpful tool for living an active lifestyle. The time point that received the lowest mean was in early September and the highest was late September, though late November was a close second.

When asked if the textbook was a helpful tool for promoting wellbeing, across the seven surveys there was a mean range of 4.23 to 4.45 on the same five-point Likert scale ranging from strongly disagree to strongly agree. A range of 48.8%-58.8 % of students strongly agreed the textbook was a helpful tool for promoting wellbeing. The chapter that received the lowest mean was the Muscular Fitness chapter though the PA and wellness chapter was a close second and the highest was the chapter that addresses PA and mental health. When asked if the class was a helpful tool for promoting wellbeing, across the seven surveys there was a mean range of 4.35 to 4.52 on the same five-point Likert scale. A range of 55.6%-64.8% of students strongly agreed the class was a helpful tool for promoting wellbeing. The time point that received the lowest mean

was in mid-October after Fall break and the highest was late September, though late November was a close second.

At the end of the semester when students were asked about the course as a whole, quantitative and qualitative data was collected. When asked if the course promotes lifelong PA, the mean was 4.52 on that same five-point Likert scale ranging from strongly disagree to strongly agree; 60.4% of students strongly agreed. When asked if the course promotes whole person wellbeing, the mean was also 4.52 and 60.4% strongly agreed the course promotes whole person wellbeing.

For qualitative questions students were asked “Considering the goal of the course, to promote physical activity and whole person wellbeing, what do you think can be modified to better achieve that goal?” The most common response was a version of nothing. Some other themes included more variety in the physical activities/exercises done in class, incorporating more wellness concepts/activities in the lab outside of PA, more engagement with classmates and more class time. Some quotes from that question are provided here in blue:

“I don't believe anything needs to be changed; this course does an amazing job in helping you have positive and healthier ways to improve wellbeing.”

“More connection with classmates.”

“More in class group engagements.”

When asked “With the goal of the course in mind, what is something you learned in the reading or experienced in your class that will stick with you?” The most common themes were the connection between PA and whole person wellbeing, particularly mental health; an understanding of what wellness is and how to improve it, learning a PA skill or increasing PA competence, the power of breathing exercises, the importance of enjoying the physical activities

they choose and listening to and honoring their bodies. Some quotes from that question are provided here in yellow.

“I learned how beneficial it is to stay active. This course brought me out of a long period of no exercise and my mental health has improved significantly since.”

“I think the benefit that physical activity has on your overall wellbeing with stick with me throughout my life.”

“How much better I've gotten at working out since I took this class. I'm so thankful!”

Key Take-Aways

Some key take-aways from my study include the positive impact of this program as demonstrated by the improvements in mental health subscales and 30-day PA. Generally, the course was perceived as impactful and valued by students. This is encouraging that our IPAP can be an avenue for meaningful wellbeing promotion on our campus. The strengths of our IPAP include mental health and PA promotion and generally positive student perceptions. Despite these strengths, there remain opportunities to continue to expand on these strengths, which is recommended. We can more impactfully promote mental health, PA and even further improve student perceptions of the text and course.

Recommendations

Given the power of the strengths and identified areas of attention and improvement, recommendations based on this study follow.

1. Continue to assess the program in subsequent semesters, use a study design that captures all enrolled students, develop future study design that can capture the experience of minority student groups who typically report low levels of wellbeing such as non-binary and transgender students. The latter is advised through focus groups organized through student

affinity groups on campus. Future research that evaluates theory-based teaching strategies that can promote wellbeing and physical activity (PA) (ex: self-determination theory, theory of planned behavior) is advised. More research using a control group not taking the course is recommended to better assess impact. It is recommended that widespread evaluation of IPAP become the norm to assure we are best helping students and asserting the value of the programs across the country. Our program can continue to be an example by strengthening our research agenda and continuing the present, publish, collaborate, and network.

2. Given the data assessed and analyzed in this study, another recommendation relates to in class opportunities. Increasing engagement between students in class is encouraged. We will brainstorm strategies and resources for accomplishing that in a variety of physical activity formats during our fall training to facilitate idea generation and buy-in. Though relatedness is already an encouraged component of the course, increasing camaraderie and connections among students is encouraged. Another recommendation based off the research will be incorporating more wellness activities into the physical activity course such as meditation, social engagement, breathing exercises, etc. We will establish a resource list of ideas to be shared with the entire team. Though autonomy is already encouraged in the program, it is recommended that students be provided more structured choice in class. Additionally, given student feedback, incorporating more variety into the physical activity classes is advised. Together we will brainstorm how to keep things fresh throughout the semester during our fall training. This may include, teaching at least one new skill each class, incorporating a new game of play, having a daily or weekly focus, using new equipment/tools, exploring a wide variety of physical activities, etc.

3. In addition, there are Textbook opportunities for improvement. Each chapter of the course textbook will be evaluated summer 2023 (with an emphasis on the PA and Wellness and

Muscular Fitness chapters). Given the data regarding college students, the book will have more of an emphasis on promoting mental health. Additionally, given the lack of significant changes on fatigue/energy, physical health and social health subscales in this study and poor scores related to loneliness among college students, changes will be made to provide more information on physical activity and energy, physical activity and physical health and physical activity and social health.

4. It is advised that the program collect student feedback throughout the semester embedded within the course textbook and make modifications to the course and program based on student feedback during and after the semester.

The qualitative data collected as part of this study that was not yet analyzed will be pooled, organized, and made accessible to our team for consideration. Recommendations are offered based on the qualitative data already analyzed and the full team will develop additional recommendations based on all data.

During our fall 2023 preparation training, we, the full-time faculty in the program, will established a plan of action. The plan of action will include my recommendations for program improvements, recommendations added by you, the full-time faculty and how to implement those improvements. It will also include study design recommendations and a plan to implement those study designs.

You are doing meaningful and impactful work through our IPAP. Thank you. It is important to look at our work to identify what we are doing well and how we can improve. Ideally this work will begin the creation of evidence-based practices that we can implement across the country in IPAP to facilitate the highest impact of these programs for the sake of our

college students. May we continue to do great work for our students, support our IPAP colleagues, and advocate for IPAP and wellness promotion for college students.

CHAPTER III: ACTION PLAN

The following includes an action plan for application of research findings. Both short term and long term plans are included.

Short Term

As part of the initial action plan, assessment findings will be presented to the full-time faculty team of the Instructional Physical Activity Program (IPAP) at the university of assessment. Quantitative data findings will be presented for interpretation and discussion. Areas for improvement will be advised and identified as a team. Recommendations will be made to the team, including: further assess the program in subsequent semesters, develop future study design that can capture to experience of minority student groups, evaluate each chapter of the course textbook (with an emphasis on the Muscular Fitness chapter) to identify opportunities to promote mental health and particularly physical and social health based on the data and evaluation of theory-based teaching strategies that can promote wellbeing and physical activity (PA) (ex: self-determination theory, theory of planned behavior). Secondly, the qualitative data collected will be pooled, organized, and made accessible to the full-time team for consideration. The author will develop recommendations based on the qualitative data after analysis. The author will recommend increasing engagement between students in class, incorporating wellness activities into the physical activity course, giving students more choice in class and teaching with wide ranging coverage of the PA. Using author recommendations and team input, a plan of action will be created.

Long Term

Given the need for more literature and assessment related to IPAP and the absence of EBP for IPAP, it is recommended that other IPAPs conduct and publish or present research from

their programs. Additionally, development of EBP for IPAP, based on research, expertise, practice, and feedback, is recommended. IPAP professionals will be invited to a workshop in Fall 2023 at the university of the current study through outreach to a variety of universities.

Colleagues at other universities who oversee similar programs will be brought together for a workshop in the Fall of 2023. Other campuses in southeastern US, Illinois, Michigan, Minnesota, Massachusetts, and California will initially be included. Results of this study will be shared at a workshop for IPAP colleagues. This will serve as a call to action for increased assessment and collection of student feedback. This call will be made to initiate the efforts to create and publish EBP in the long term.

In this workshop participants will develop study designs to conduct their own research to assess the impact of their program and collect student feedback. We will workshop a timeline for data collection. We will then workshop our plan for gathering to discuss results to begin EBP development. Each workshop participant will workshop what can be contributed towards the EBP. Lastly, we will workshop expertise and practices currently available through practitioners in the workshop to contribute towards EBP. A list of items to cover in the workshop are presented in Figure 1. After problem and research questions are identified that fit the campus, research methodology using methodology of current study as foundation will be workshopped. Participants will identify constituents who need to be involved to conduct the research (i.e., IRB, department chairs/directors). Next, we will create timelines for data collection that lend themselves to sharing data with the group as soon as possible. Participants will develop an administration plan, thinking of the limitations of the current study and limitations they could experience. As a group we will brainstorm and agree upon goals for reporting our findings.

By the Fall of 2024, the workshop group and additional IPAP experts will gather to develop EBP for IPAP with a focus on promoting PA and wellbeing, particularly mental health, among students. Throughout the process and following the process, participants will support one another to provide data and their best practices to defend programs with threats, improve programs with underperformance, and provide opportunities to programs who are under-resourced or understaffed.

Once EBP are established, the group will request that the SHAPE organization, through the original authors, update their *Appropriate instructional practice guidelines for higher education physical activity programs* (SHAPE America, 2022) to *Evidence-based practices and guidelines for higher education physical activity programs* given what is established through the workshop group over the year of assessment and workshopping. The group will continue to meet each fall to discuss assessment, data and keeping the EBP up to date and continuing to provide support for IPAP across universities.

Figure 1. Workshop Flow

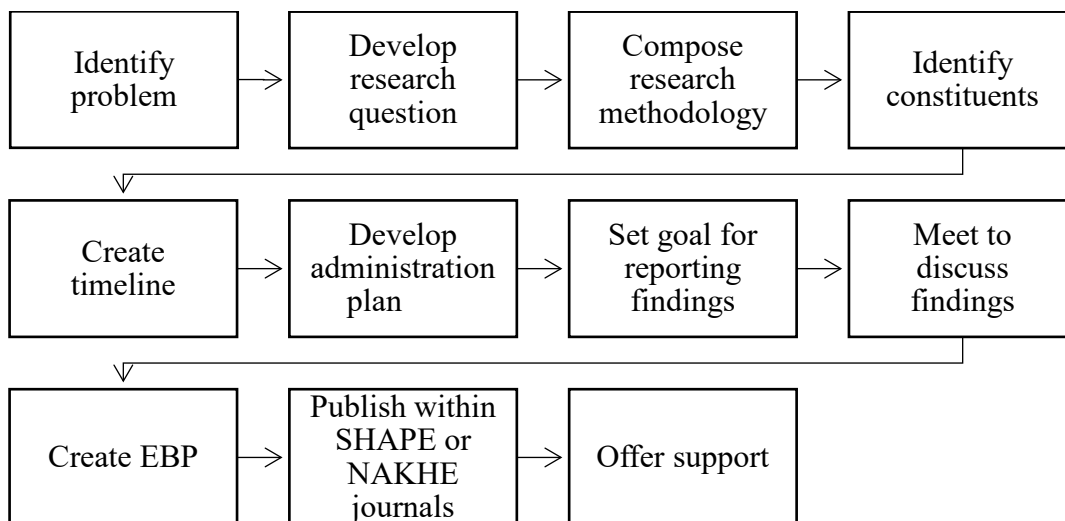
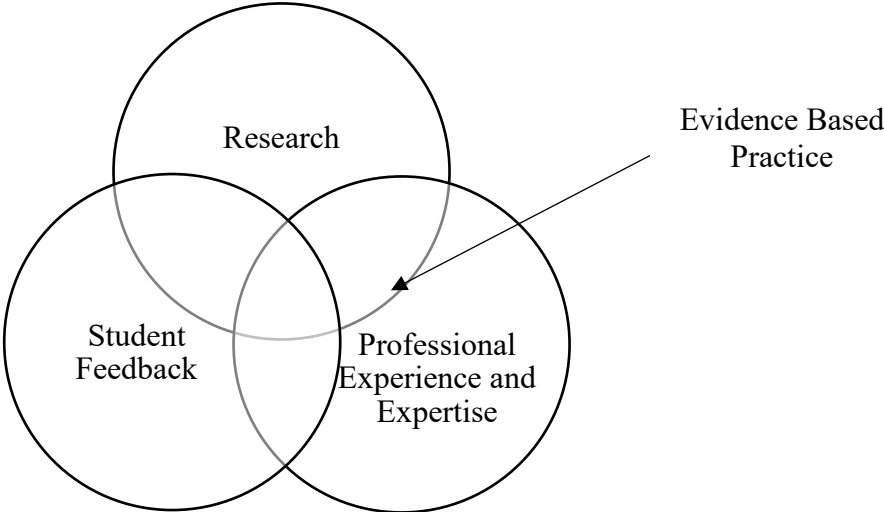


Figure 2. Evidence Based Practice Model



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APPENDIX A: PARTICIPANT REMOVAL

Table A1: Participant Removal

	No Key/Key Error	Decline to Participate	Remaining (<i>n</i>)
Pre-Survey	367	220	612
Chapter 1	5	562	427
Chapter 2	6	628	463
Chapter 3	4	506	403
Mid-Survey/Chapter 4	34	506	423
Chapter 5	7	507	427
Chapter 6	5	484	403
Chapter 7	2	524	403
Post-Survey	7	431	335

APPENDIX B: SAMPLE DEMOGRAPHICS

Table B1: Select Demographic Responses

	Yes	No
First Generation	80 (15.1%)	435 (81.9%)
Transfer Student	149 (28.1%)	378 (71.2%)
Athlete	16 (3.0%)	511 (96.2%)
Took Gap Year(s)	67 (12.6%)	455 (85.7%)

Table B2: Ethnicity/Race Demographics

	<i>N</i>	%
Ethnicity		
Hispanic or Latino or Spanish Origin	38	6.9%
Not Hispanic or Latino or Spanish Origin	496	90.2%
Race		
Asian, White	4	0.8%
Asian, White, Other	1	0.2%
Black or African American	7	1.3%
Black or African American, White	2	0.4%
Native Hawaiian or Other Pacific Islander	1	0.2%
Native Hawaiian or Other Pacific Islander, White	1	0.2%
Other	5	0.9%
Prefer not to answer	8	1.5%
Race - Selected Choice	1	0.2%
White	474	89.3%

Table B3: Class Standing Demographics

	<i>N</i>	%
Freshman	203	38.2%
Sophomore	180	33.9%
Junior	94	17.7%
Senior	46	8.7%
Other	2	0.4%

APPENDIX C: DEMOGRAPHIC QUESTIONS

Gender: Male, Female, Prefer to self-describe as: _____, Prefer not to answer

Age: Under 18, 18-25 years old, 26-35 years old, 36-45 years old, 46-54 years old, other

Ethnicity: Hispanic or Latino or Spanish Origin, Not Hispanic or Latino or Spanish Origin, Prefer not to say

Race: American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, White, Other, Prefer not to say

Class standing: Early College, Freshman, Sophomore, Junior, Senior, Other: _____

What is your current major?

Are you a first-generation college student? Y/N

Did you transfer XXXX from another college/university? Y/N

Are you a competitive collegiate athlete? Y/N

Did you transition to college within one year of completing high school? Y/N

In which XXXX 101 course (XXXX 101 physical activity lab) are you enrolled?

How do you perceive your academic success at [University]? Excellent (almost all A's), Good (A's and B's, rarely C's), Average (mostly C's, rarely D's), Fair (mostly D's), Poor (mostly D's and F's)

APPENDIX D: WELLBEING ASSESSMENTS

Public Health Surveillance Well-being (PHS-WB) Scale

1. In this section, there are a number of statements with which you may or may not agree. For each statement listed, please indicate whether you personally agree or disagree with it using a scale where 1 means “strongly disagree,” 2 means “somewhat disagree,” 3 means “neither agree nor disagree,” 4 means “somewhat agree,” and 5 means “strongly agree.” If you don’t understand a statement or it is not applicable to you, please leave that row blank.
 - a. I am satisfied with my life
 1. Strongly disagree
 2. Somewhat disagree
 3. Neither agree nor disagree
 4. Somewhat agree
 5. Strongly agree
 - b. My life has a clear sense of purpose
 1. Strongly disagree
 2. Somewhat disagree
 3. Neither agree nor disagree
 4. Somewhat agree
 5. Strongly agree
 - c. Most days I feel a sense of accomplishment from what I do
 1. Strongly disagree
 2. Somewhat disagree
 3. Neither agree nor disagree
 4. Somewhat agree
 5. Strongly agree
2. How much of the time during the past 30 days have you felt...?
 - a. Cheerful
 1. None of the time
 - 2.
 3. Some of the time
 - 4.
 5. All of the time
 - b. Hopeless
 1. None of the time
 - 2.
 3. Some of the time
 - 4.
 5. All of the time
3. Please tell me on a scale of 1 to 10 how satisfied you are with each of the following items, where 1 means “very dissatisfied” and 10 means “very satisfied”
 - a. Your family life...

- b. Your friends and social life...
- c. Your energy level...
- 4. In general, would you say your health is...?
 - a. Excellent
 - b. Very Good
 - c. Good
 - d. Fair
 - e. Poor
- 5. During the past 30 days, for about how many days have you felt very healthy and full of energy?
 - a. Number of days _____
 - b. None/zero
 - c. Don't know/not sure

PROMIS Global Health Scale

In general, would you say your health is:

- Excellent Very Good Good Fair Poor

In general, would you say your quality of life is:.....

- Excellent Very Good Good Fair Poor

In general, how would you rate your physical health?

- Excellent Very Good Good Fair Poor

In general, how would you rate your mental health, including your mood and your ability to think?.....

- Excellent Very Good Good Fair Poor

In general, how would you rate your satisfaction with your social activities and relationships?

- Excellent Very Good Good Fair Poor

In general, please rate how well you carry out your usual social activities and roles. (This includes activities at home, at work and in your community, and responsibilities as a parent, child, spouse, employee, friend, etc.).....

- Excellent Very Good Good Fair Poor

To what extent are you able to carry out your everyday physical activities such as walking, climbing stairs, carrying groceries, or moving a chair?.....

- Completely Mostly Moderately A Little Not at all

In the past 7 days...

How often have you been bothered by emotional problems such as feeling anxious, depressed or irritable?

Never Rarely Sometimes Often Always

How would you rate your fatigue on average?

None Mild Moderate Severe Very Severe

How would you rate your pain on average?.....

0 1 2 3 4 5 6 7 8 9 10 Worst
No pain
imaginable pain

APPENDIX E: PA ASSESSMENTS

NATIONAL COLLEGE HEALTH ASSESSMENT PHYSICAL ACTIVITY QUESTIONS

For the next two questions, the levels of physical activity intensity can be characterized in terms of breathing difficulty. A person doing moderate physical activity can typically talk, but not sing while doing the activity. A person doing vigorous physical activity typically cannot say more than a few words without pausing for a breath while doing the activity.

In the last 7 days, how many (total) minutes did you spend doing moderate physical activity? Examples: brisk walking, dancing, or household chores. _____ minutes

In the last 7 days, how many (total) minutes did you spend doing vigorous physical activity? Examples: running, swimming laps, or hiking. _____ minutes

In the last 7 days, on how many days did you do exercises to strengthen or tone your muscles? Examples: push ups, sit ups, or weightlifting/training.

- 0 days (0)
- 1 day (1)
- 2 days (2)
- 3 days (3)
- 4 days (4)
- 5 days (5)
- 6 days (6)
- 7 days (7)

8-ITEM SELF REPORT PHYSICAL ACTIVITY QUESTIONNAIRE

We would like to know more about your physical activity habits. Select one of the eight choices below that best represents your current physical activity level.

Vigorous physical activity includes activities like jogging, running, fast cycling, aerobics, swimming laps, singles tennis, and racquetball. Count any activity that makes you work

as hard as jogging and lasts at least 20 minutes at a time. These types of activities usually increase your heart rate, make you sweat, and make you feel out of breath (don't count weight lifting).

Moderate physical activity includes activities such as brisk walking, gardening, slow cycling, dancing, doubles tennis, or hard work around the house. Count any activity that makes you work as hard as brisk walking in bouts of at least 8–10 minutes accumulating to at least 30 minutes a day

1. I do not exercise/walk regularly now and I do not intend to start in the near future.
2. I do not exercise/walk regularly but I have been thinking of starting.
3. I am trying to start to exercise or walk or I exercise/walk infrequently.
4. I am doing vigorous physical activity less than three times per week or moderate physical activity less than five times per week.
5. I have been doing moderate physical activity that accumulates to at least 30 minutes per day at least 5 days per week for 1-6 months.
6. I have been doing moderate physical activity that accumulates to at least 30 minutes per day at least 5 days per week for 7 or more months.
7. I have been doing vigorous physical activity at least 20 min a day 3-5 days per week for 1-6 months.
8. I have been doing vigorous physical activity at least 20 minutes a day 3-5 days per week for 7 or more months.

APPENDIX F: STUDENT FEEDBACK SURVEYS

Administered via Qualtrics with embedded link at end of chapter reading

Bi-Weekly Survey Example

We value your well-being and your feedback. We want to learn about your experience with XXXX 101 and continually strengthen the course to best promote high level wellness among all students here at [University]. Getting your feedback helps us do that. Please answer the following questions honestly regarding your Wellness and Physical Activity Lab (XXXX 101). Your responses are anonymous. On open-ended questions please do not include your name or other identifying information. The survey will take you less than 5 minutes.

What is your survey key (last 4 digits of phone number)?

1. Did you complete the Chapter 1 reading?
 - a) Yes, all of it or at least 75% of it
 - b) Somewhere between 75% and 50%
 - c) Between 50% and 25%
 - d) Less than 25% of it
 - e) I did not read

2. Did you attend your XXXX 101 class over the last 2 weeks?
 - a) Yes, I attended all classes
 - b) I missed some but not all classes
 - c) I missed all classes

3. The XXXX 101 **Chapter 1 reading** is a helpful tool for living **an active lifestyle**.
 - a) Strongly agree
 - b) Somewhat agree
 - c) Neither agree nor disagree
 - d) Somewhat disagree
 - e) Strongly disagree

4. The XXXX 101 **Chapter 1 reading** is a helpful tool for promoting **wellbeing**?
 - a) Strongly agree
 - b) Somewhat agree
 - c) Neither agree nor disagree
 - d) Somewhat disagree
 - e) Strongly disagree

5. Over the last two weeks, my **XXXX 101 physical activity lab class** was a helpful resource for living an **active lifestyle**?
 - a) Strongly agree
 - b) Slightly agree
 - c) Neither agree nor disagree
 - d) Slightly disagree

- e) Strongly disagree
6. Over the last two weeks, my **XXXX 101 physical activity lab class** was a helpful resource for fostering **wellbeing**?
- a) Strongly agree
 - b) Slightly agree
 - c) Neither agree nor disagree
 - d) Slightly disagree
 - e) Strongly disagree
7. What is something you read in Chapter 1 or experienced in your XXXX 101 class within the last two weeks that stuck with you?

End of Semester Feedback Survey

We would like to encourage you to offer some feedback on your experience in XXXX 101 now that we've come to the end of the semester. Please consider your overall experience with the course including the Top Hat readings and physical activity lab class. Feedback on Wellness Lecture will be collected separately. Your responses are anonymous and voluntary

The feedback you provide will be used to assess the course and guide improvements.

1. The XXXX 101 physical activity lab course promotes **lifelong physical activity**.
- a) Strongly agree
 - b) Somewhat agree
 - c) Neither agree nor disagree
 - d) Somewhat disagree
 - e) Strongly disagree
2. Tell us more. Why did you choose the above response to #1?
3. The XXXX 101 physical activity lab course promotes whole person **wellbeing**?
- a. Strongly agree
 - b. Somewhat agree
 - c. Neither agree nor disagree
 - d. Somewhat disagree
 - e. Strongly disagree
4. Tell us more. Why did you choose the above response to #3?
5. The **XXX 101 LECTURE** was beneficial for my wellbeing?
- a. Strongly agree
 - b. Somewhat agree
 - c. Neither agree nor disagree
 - d. Somewhat disagree
 - e. Strongly disagree

6. Considering the goal of XXXX 101, to promote physical activity and whole person wellbeing, what did you find beneficial?
7. Considering the goals of XXXX 101, to promote physical activity and whole person wellbeing, what do you think can be modified to better achieve those goals?
8. With the XXXX 101 goal in mind, what is something you learned in the reading or experienced in your XXXX 101 class that will stick with you?

APPENDIX G: STUDY IPAP

I. About

The program to be assessed includes a 1 credit hour whole person wellness lecture that is delivered fully online asynchronously and a 1 credit hour physical activity lab that meets twice per week for 50 minutes in person. This study is focused primarily on the physical activity lab. The physical activity lab centers around physical activity engagement for whole person wellness. This IPAP program aligns with the [Appropriate Instruction Practice Guidelines for Higher Education Physical Activity Programs](#) published by SHAPE America. For details access publication at provided link.

II. Textbook

Every two weeks students read a brief, interactive chapter in their customized e-text (from their phone, tablet or computer) and answer reading questions embedded within and throughout the chapter. Chapter topics are listed below, and all are centrally focused around physical activity and whole person wellbeing.

III. In Class Labs

After reading the chapter, when students attend class, they do in class activities to apply concepts from the chapter to their specific course physical activity. Example: for Chapter 3 in our Couch to 5K class students monitor their Rating of Perceived Exertion and Heart Rate to see if they are in their desired training zone during both a walking and jogging interval. They would then connect walking/running in their training zone to improvements to aerobic fitness which in turn can improve their ability to complete a 5K—if that is their personal goal. They would tie aerobic exercise/fitness to whole person wellbeing.

IV. Teaching Strategies

Instructors are encouraged to use strategies that promote connection, motivation, and wellbeing

- Support, inclusion, modifications, progressions, regressions
- Need-support
 - Autonomy (giving choice, avoiding force)
 - Relatedness (showing care, interest, building community)
 - Competence (able to complete the activity/skill/task)
- Focus on inspiring and equipping students to live active and well for the long-term
 - Avoiding a focus on just delivering a "good workout"
- Centered around self-efficacy, enjoyment and sustainability

V. Flipped Classroom Reading Chapters

- a. Physical Activity and Wellness
- b. Outdoor and Lifestyle Physical Activity
 - i. Appendix: Injury Recognition and Care
- c. Aerobic Fitness (including Overtraining)
- d. Muscular Fitness (including Stability)
- e. Flexibility, Mobility and Breath
- f. Energy Management
- g. Impact of Physical Activity on Thinking and Feeling
- h. Maintaining an Active Lifestyle for a Lifetime

APPENDIX H: CONSENT FORM

CONSENT TO ACT AS A HUMAN PARTICIPANT

Project Title: Physical Activity Engagement and Wellbeing in an Instructional Physical Activity Program

Principal Investigator and Faculty Advisor: Lindsey Nanney, Dr. Erin Reifsteck, Dr. Omari Dyson, Dr. Diane Gill

What are some general things you should know about research studies?

You are being asked to take part in a research study. Your participation in the study is voluntary. You may choose not to join, or you may withdraw your consent to be in the study, for any reason, without penalty.

Research studies are designed to obtain new knowledge. This new information may help people in the future. There may not be any direct benefit to you for being in the research study. There also may be risks to being in research studies. If you choose not to be in the study or leave the study before it is done, it will not affect your relationship with the researcher or the University of North Carolina at Greensboro.

Details about this study are discussed in this consent form. It is important that you understand this information so that you can make an informed choice about being in this research study.

A copy of this consent is attached. If you have any questions about this study at any time, you should ask the researchers named here. Their contact information is below.

What is the study about?

This is a research project. Your participation is voluntary. The purpose of this research is to assess changes in physical activity and wellbeing while you are enrolled in XXXX 101 and to collect feedback from you regarding the course. By doing this research, I hope to learn the impact of the course on physical activity and wellbeing and optimal ways to teach classes such as XXXX 101 to promote whole person wellbeing among students.

Why are you asking me?

As a student enrolled in a physical activity and wellness course we want to know the impact of the course on you and value your feedback. You will be excluded from the study if you decline to have your responses used for research, if you are under the age of 18, or if you have previously taken PED 101 or XXXX 101.

What will you ask me to do if I agree to be in the study?

As part of required class assignments, you will carefully complete the online questionnaires listed below. These questionnaires will ask you about who you are, your wellbeing, and your physical activity engagement, and for feedback on the course. You will not be asked to provide your name but instead will be instructed on how to create a key for yourself.

This will be used to match your responses across time.

- Beginning, middle and end of semester: physical activity and wellbeing
- Every two weeks: feedback on impact of course on physical activity and wellbeing (seven total)
- End of semester: overall course feedback on impact of course on physical activity and wellbeing

If you agree to be in this study, your responses to these surveys will be used for research purposes. If you choose not to participate in the study, your responses will be removed prior to data analysis.

What are the risks to me?

The Institutional Review Board at the University of North Carolina at Greensboro has determined that participation in this study poses minimal risk to participants.

How will this negatively affect me?

If you have concerns about your responses to any survey questions, please reach out to the XXXX Counseling Center at 910-962-3746 or by email at CounselingCenter@xxxx.xxx

If you have questions about the research, want more information or have suggestions, please contact the primary investigator, _____.

If you have any concerns about your rights, how you are being treated, concerns or complaints about this project or benefits or risks associated with being in this study please contact the Office of Research Integrity at UNCG toll-free at (855)-251-2351.

Are there any benefits to society as a result of me taking part in this research?

Your participation may shape improvements to the XXXX XXXX 101 course and similar courses at universities across the country.

Are there any benefits to *me* for taking part in this research study?

There are no direct benefits to participants in this study.

Will I get paid for being in the study? Will it cost me anything?

There are no costs to you, or payments made for participating in this study.

How will you keep my information confidential?

All information obtained in this study is strictly confidential unless disclosure is required by law. Your instructor will not have access to your responses and will not know if you have opted to be included in the study by consenting to your responses being used for research. Survey responses will be collected and stored via secure software called Qualtrics and file sharing network called Box that are only accessible to the research team.

Absolute confidentiality of data provided through the Internet cannot be guaranteed due to the limited protections of Internet access. Please be sure to close your browser when finished so no one will be able to see what you have been doing.

Your de-identified data will be kept indefinitely and may be used for future research without your additional consent.

What if I want to leave the study?

You have the right to refuse to participate or to withdraw at any time, without penalty. Your grade in XXXX 101 will not be affected by whether you allow you data to be used for research purposes. If you choose to withdraw your consent to allow the research team to use your data, you may request that any of your data which has been collected be destroyed. The investigators also have the right to stop your participation at any time. This could be because you have had an unexpected reaction, or have failed to follow instructions, or because the entire study has been stopped.

What about new information/changes in the study?

If significant new information relating to the study becomes available which may relate to your willingness to continue to participate, this information will be provided to you.

Voluntary Consent by Participant:

If you decide you are willing to take part in this study by granting me access to your survey responses, select YES, I AGREE TO ALLOW USE OF MY RESPONSES FOR RESEARCH PURPOSES box. If you are not willing to have your responses used for research, check the NO, I DO NOT AGREE TO ALLOW THE USE OF MY RESPONSES FOR RESEARCH PURPOSES box.

By selecting a box, you are agreeing that you read this consent form, or it has been read to you, and you fully understand the contents of it. All your questions concerning this study have been answered.

YES, I AGREE TO ALLOW USE OF MY RESPONSES FOR RESEARCH PURPOSES

NO, I DO NOT AGREE TO ALLOW THE USE OF MY RESPONSES FOR RESEARCH

Create your survey key. What are the last four digits of your phone number? _____

APPENDIX I: PROCEDURAL TIMELINE

Survey title	Date Due
Pre-Survey	September 2
Chapter 1	September 6
Chapter 2	September 20
Chapter 3	October 4
Mid-Survey/Chapter 4	October 18
Chapter 5	November 1
Chapter 6	November 15
Chapter 7	November 29
Post-survey	November 29

APPENDIX J: SUPPLEMENTAL TABLES

Table J1: Reading Completion and Class Attendance Per Chapter

Chapter	Reading Completion (0-4)		Class Attendance (0-2)	
	Mean (SD)	Completed Reading	Mean (SD)	Attended All Days
Chapter 1	3.85 (0.47)	87.8%	1.83 (0.393)	83.8%
Chapter 2	3.86 (0.44)	88.3%	1.77 (0.425)	77.1%
Chapter 3	3.77 (0.60)	84.9%	1.75 (0.44)	74.9%
Chapter 4	3.86 (0.48)	88.4%	1.75 (0.44)	67.4%
Chapter 5	3.79 (0.57)	84.5%	1.71 (0.47)	71.9%
Chapter 6	3.76 (0.65)	84.4%	1.72 (0.46)	72.2%
Chapter 7	3.76 (0.64)	84.9%	1.67 (0.49)	67.0%

Table J2: Frequencies for Meeting PA Recommendations via PA8

	Frequency	Percentage
Time 1, N = 215		
Not Meeting Recommendations	82	38.1%
Meeting Recommendations	133	61.9%
Time 2, N = 215		
Not Meeting Recommendations	60	27.9%
Meeting Recommendations	155	72.1%
Time 3, N = 215		
Not Meeting Recommendations	56	26.0%

Note: A score of 5 or more on the PA8 represents meeting aerobic exercise recommendations

Table J3: Impact of Chapter Reading and Class on Living an Active Lifestyle per Chapter

Chapter	Reading (0-5)		Physical Activity Class (0-5)	
	Mean (SD)	Strongly Agree	Mean (SD)	Strongly Agree
Chapter 1	4.24 (.93)	46.6%	4.32 (.90)	52.9%
Chapter 2	4.31 (.92)	51.4%	4.52 (0.84)	66.5%
Chapter 3	4.30 (.87)	48.6%	4.48 (0.78)	61.8%
Chapter 4	4.23 (0.96)	48.6%	4.35 (0.97)	55.3%
Chapter 5	4.30 (0.91)	51.5%	4.43 (0.91)	54.1%
Chapter 6	4.37 (0.91)	57.6%	4.44 (0.81)	61.0%
Chapter 7	4.39 (0.81)	54.3%	4.51 (0.76)	63.0%

Table J4: Impact of Chapter Reading and Class on Wellbeing per Chapter

Chapter	Reading		Physical Activity Class	
	Mean (SD)	Strongly Agree	Mean (SD)	Strongly Agree
Chapter 1	4.31 (0.87)	48.9%	4.40 (0.85)	57.6%
Chapter 2	4.35 (0.89)	53.5%	4.52 (0.80)	64.8%
Chapter 3	4.35 (0.87)	53.1%	4.51 (0.71)	61.5%
Chapter 4	4.23 (0.97)	48.8%	4.35 (0.93)	55.6%
Chapter 5	4.33 (0.91)	54.1%	4.39 (0.91)	59.3%
Chapter 6	4.42 (0.83)	58.3%	4.44 (0.81)	58.6%
Chapter 7	4.45 (0.78)	58.8%	4.51 (0.81)	64.3%

Table J5: Chapter 1 Frequencies for Student Perception of the Promotion of PA and Wellbeing Through Reading and Course

Response choices	Reading and PA		Reading and Wellbeing	
	<i>n</i>	%	<i>n</i>	%
Strongly agree	199	46.6%	209	48.9%
Somewhat agree	172	40.3%	174	40.7%
Neither agree nor disagree	27	6.3%	23	5.4%
Somewhat disagree	19	4.4%	11	2.6%
Strongly disagree	10	2.3%	10	2.3%
Total Responses (<i>N</i> =)	427		427	

Response choices	PA Class and PA		PA Class and Wellbeing	
	<i>n</i>	%	<i>n</i>	%
Strongly agree	226	52.9%	246	57.6%
Somewhat agree	137	32.1%	125	29.3%
Neither agree nor disagree	47	11.0%	40	9.4%
Somewhat disagree	8	1.9%	11	2.6%
Strongly disagree	9	2.1%	5	1.2%
Total Responses (<i>N</i> =)	427		427	

Table J6: Chapter 2 Frequencies for Student Perception of the Promotion of PA and Wellbeing Through Reading and Course

Response choices	Reading and PA		Reading and Wellbeing	
	<i>n</i>	%	<i>n</i>	%
Strongly agree	14	3.0%	11	2.4%
Somewhat agree	31	6.7%	29	6.3%
Neither agree nor disagree	2	0.4%	2	0.4%
Somewhat disagree	166	35.9%	163	35.2%
Strongly disagree	238	51.4%	247	53.3%
Total Responses (<i>N</i> =)	451		452	

Response choices	PA Class and PA		PA Class and Wellbeing	
	<i>n</i>	%	<i>n</i>	%
Strongly agree	308	66.5%	300	64.8%
Somewhat agree	109	23.5%	120	25.9%
Neither agree nor disagree	29	6.3%	28	6.0%

Somewhat disagree	5	1.1%	6	1.3%
Strongly disagree	10	2.2%	7	1.5%
Total Responses (<i>N</i> =)	461		461	

Table J7: Chapter 3 Frequencies for Student Perception of the Promotion of PA and Wellbeing Through Reading and Course

Response choices	Reading and PA		Reading and Wellbeing	
	<i>n</i>	%	<i>n</i>	%
Strongly agree	196	48.6%	214	53.1%
Somewhat agree	158	39.2%	140	34.7%
Neither agree nor disagree	32	7.9%	36	8.9%
Somewhat disagree	8	2.0%	3	0.7%
Strongly disagree	9	2.2%	10	2.5%
Total Responses (<i>N</i> =)	403		403	

Response choices	PA Class and PA		PA Class and Wellbeing	
	<i>n</i>	%	<i>n</i>	%
Strongly agree	249	61.8%	248	61.5%
Somewhat agree	113	28.0%	122	30.3%
Neither agree nor disagree	32	7.9%	28	6.9%
Somewhat disagree	5	1.2%	2	0.5%
Strongly disagree	4	1.0%	3	0.7%
Total Responses (<i>N</i> =)	403		403	

Table J8: Chapter 4 Frequencies for Student Perception of the Promotion of PA and Wellbeing Through Reading and Course

Response choices	Reading and PA		Reading and Wellbeing	
	<i>n</i>	%	<i>n</i>	%
Strongly agree	201	48.6%	202	48.8%
Somewhat agree	140	33.8%	140	33.8%
Neither agree nor disagree	46	11.1%	43	10.4%
Somewhat disagree	11	2.7%	13	3.1%
Strongly disagree	12	2.9%	12	2.9%
Total Responses (<i>N</i> =)	410		410	

Response choices	PA Class and PA		PA Class and Wellbeing	
	<i>n</i>	%	<i>n</i>	%

Strongly agree	229	49.8%	230	55.6%
Somewhat agree	125	30.2%	124	30.0%
Neither agree nor disagree	35	8.5%	36	8.7%
Somewhat disagree	9	2.2%	9	2.2%
Strongly disagree	11	2.7%	11	2.7%
Total Responses (<i>N</i> =)	409		410	

Table J9: Chapter 5 Frequencies for Student Perception of the Promotion of PA and Wellbeing Through Reading and Course

Response choices	Reading and PA		Reading and Wellbeing	
	<i>n</i>	%	<i>n</i>	%
Strongly agree	220	51.5%	231	54.1%
Somewhat agree	145	34.0%	137	32.1%
Neither agree nor disagree	41	9.6%	38	8.9%
Somewhat disagree	12	2.8%	12	2.8%
Strongly disagree	9	2.1%	9	2.1%
Total Responses (<i>N</i> =)	427		427	

Response choices	PA Class and PA		PA Class and Wellbeing	
	<i>n</i>	%	<i>n</i>	%
Strongly agree	268	62.8%	253	59.3%
Somewhat agree	104	24.4%	119	27.9%
Neither agree nor disagree	35	8.2%	35	8.2%
Somewhat disagree	10	2.3%	10	2.3%
Strongly disagree	10	2.3%	10	2.3%
Total Responses (<i>N</i> =)	427		427	

Table J10: Chapter 6 Frequencies for Student Perception of the Promotion of PA and Wellbeing Through Reading and Course

Response choices	Reading and PA		Reading and Wellbeing	
	<i>n</i>	%	<i>n</i>	%
Strongly agree	232	57.6%	235	58.3%
Somewhat agree	116	28.8%	121	30.0%
Neither agree nor disagree	37	9.2%	34	8.4%
Somewhat disagree	9	2.2%	7	1.7%
Strongly disagree	9	2.2%	6	1.5%
Total Responses (<i>N</i> =)	403		403	

Response choices	PA Class and PA		PA Class and Wellbeing	
	<i>n</i>	%	<i>n</i>	%
Strongly agree	246	61.0%	236	58.6%
Somewhat agree	110	27.3%	123	30.5%
Neither agree nor disagree	32	7.9%	33	8.2%
Somewhat disagree	6	1.5%	4	1.0%
Strongly disagree	8	2.0%	6	1.5%
Total Responses (<i>N</i> =)	402		402	

Table J11: Chapter 7 Frequencies for Student Perception of the Promotion of PA and Wellbeing Through Reading and Course

Response choices	Reading and PA		Reading and Wellbeing	
	<i>n</i>	%	<i>n</i>	%
Strongly agree	219	54.3%	237	58.8%
Somewhat agree	137	34.0%	122	30.3%
Neither agree nor disagree	34	8.4%	32	7.9%
Somewhat disagree	7	1.7%	7	1.7%
Strongly disagree	5	1.2%	3	0.7%
Total Responses (<i>N</i> =)	402		401	

Response choices	PA Class and PA		PA Class and Wellbeing	
	<i>n</i>	%	<i>n</i>	%
Strongly agree	254	63.0%	259	64.3%
Somewhat agree	114	28.3%	106	26.3%
Neither agree nor disagree	24	6.0%	24	6.0%
Somewhat disagree	6	1.5%	7	1.7%
Strongly disagree	4	1.0%	6	1.5%
Total Responses (<i>N</i> =)	402		402	

APPENDIX K: END OF SEMESTER QUALITATIVE FEEDBACK

Table K1: Student Suggested Course Improvements

Theme	<i>n</i>	%
Nothing	120	45.1
More PA variety	32	12.0
Uncategorized	26	9.8
Misunderstood question/Undiscernible response	25	9.4
More wellbeing in PA lab	20	7.5
More engagement with classmates	11	4.1
Longer class time/more frequent classes	11	4.1
More choice	9	3.4
Less course work	7	2.6
Dislike course technology	5	1.9

Table K2: What Students Learned That Will Stick with Them

Theme	<i>n</i>	%
PA impacts whole person wellbeing	72	25.7
Understanding of wellness	47	16.8
PA/skill how to	47	16.8
Uncategorized	40	14.3
Breathing practices/information	29	10.4
Importance of enjoying PA	13	4.6
Listening to body	13	4.6
Goal setting	11	3.9
Weight as poor indicator of health	8	3.3

IPAP Research Based Recommendations and Call to Action

Lindsey Nanney



Background

- College student wellbeing

- Present and future implications
- Improvement opportunities through PA
- College age, ideal time

(American College Health Association, 2022; 2021; Arnett, 2000; Healthy Minds Study, 2022; Hochberg & Konner, 2020)



Background

- Instructional Physical Activity Programs (IPAP)

- Setting to facilitate PA and wellbeing
- Reach large number of students
- Engage students in regular & sustainable PA with focus on wellbeing
- Effectiveness and impact evaluation needed
- No evidence-based practices to guide curriculum/pedagogy

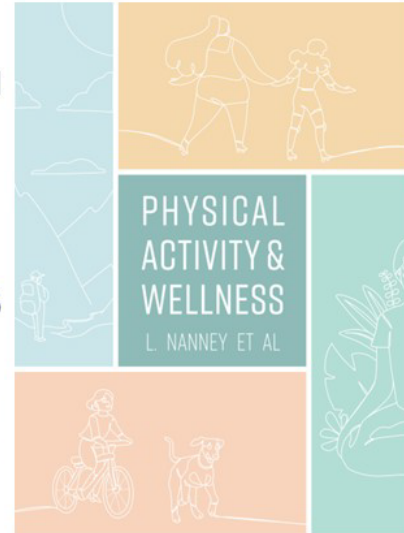
(Berstein and McNally, 2018; Cardinal, 2020; Casebolt et al., 2017; Cobler et al., 2019; Kim & Cardinal, 2019; Stapleton et al., 2017; Winzer et al., 2018)



Methodology

Participants

- Undergraduate students in physical activity and wellness lab course within an Instructional PA program ($N = 1539$)
 - 13% of enrolled students contributed to three timepoint surveys
 - 22% contributed feedback data at end of semester
 - 63.7% female, 89.3% white, 97.1% were 18-25 years old
 - Majority reported completing 75% or more of the reading assignment (~86%) & attending all class days (~73%) over the survey timeframes



Methodology

Measures

- Qualtrics survey links embedded within course textbook
- Beginning, Middle, End Semester (Pre, Mid, Post)
 - Physical Activity (PA8, NCHA questions)
 - Wellbeing (PHS-WB, PROMIS Global Health Scale)
- Course feedback
 - Bi-weekly (7 total)
 - End of semester summative survey



Results: Physical Activity



- PA8 (30-day PA)
 - Significant changes from pre to mid and pre to post
 - $M_{diff} = .37, p < .01, d = 0.21$
 - $M_{diff} = .45; p < .01, d = .26$
 - Pre: 62% met PA recommendations
 - Post: 74.0% met PA recommendations
- NCHA questions (7-day PA)
 - No Significant changes at any time points
 - Strength Training Days \uparrow
 $M_{diff} = .38, p = .07$
- No significant differences between genders



Results: Wellbeing

- Wellbeing
 - Significant changes from pre to post on both mental health subscales.
 - PROMIS $M_{diff} = 1.39$, $p = .03$, $d = 0.17$
 - PHS-WB $M_{diff} = .11$, $p = .03$, $d = 0.24$
 - No significant difference on other subscales/questions



Results: Bi-weekly Feedback

Living an Active Lifestyle

- Textbook: Mean Range 4.23 to 4.39 (5-point Likert scale)
 - 46.6-57.6 % strongly agreed; 2.1-3.0 % strongly disagree
- Class: Mean Range 4.32 to 4.52 (5-point Likert scale)
 - 52.9-66.5 % strongly agreed; 1.0-2.7 % strongly disagree

Promoting Wellbeing

- Textbook: Mean Range 4.23 to 4.45 (5-point Likert scale)
 - 48.8-58.8 % strongly agreed; 1.5-2.9 % strongly disagree
- Class: Mean Range 4.35 to 4.52 (5-point Likert scale)
 - 55.6-64.8 % strongly agreed; 0.7-2.7 % strongly disagree



Results: Summative Feedback

- Quantitative

- Lifelong Promotion of PA, $M = 4.52$
 - 60.4% of students strongly agreed
- Promotion of Whole Person Wellbeing, $M = 4.52$
 - 60.4% of students strongly agreed



Results: Summative Feedback

- Qualitative

- Course Modification

- More variety in the physical activities of the class ($n = 32$)
 - Incorporating more wellbeing concepts/activities into the course ($n = 20$)
 - More engagement with their classmates ($n = 11$) and class time ($n = 11$)

More connection with
classmates...
More in class group
engagements

I don't believe anything needs to
be changed; this course does an
amazing job in helping you have
positive and healthier ways to
improve wellbeing.



Results: Summative Feedback

- Qualitative

- What Learned

- Connection between PA and whole person wellbeing ($n = 73$), particularly mental health
 - Understanding of what wellness is and how to improve it ($n = 47$)
 - Learning a skill or increasing PA competence ($n = 47$)
 - The power of breathing exercises ($n = 29$)
 - The importance of enjoying the physical activities they choose ($n = 13$)
 - Listening to and honoring their bodies ($n = 13$)

How much better I've gotten at working out since I took this class. I'm so thankful!

I think the benefit that physical activity has on your overall wellbeing will stick with me throughout my life

I learned how beneficial it is to stay active. This course brought me out of a long period of no exercise and my mental health has improved significantly since.

Kudos

- Positive impact/value of program
 - Mental health
 - Positive student perceptions
 - PA improvements

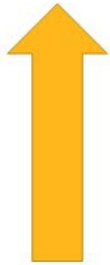


Recommendations

- Future research
 - Study design that captures more students
 - Control group
 - Minority groups
 - Focus groups
- Widespread evaluation of IPAP impact



Recommendations



- PA variety and choice
- Student interactions
- PA and social wellbeing
- PA and physical wellbeing
- PA and fatigue/energy
- PA and Wellness & Muscular Fitness chapter review

Thank you.

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