



June 2023

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Recommended Citation

Flaig A, Rivera MJ, Eberman LE. Knowledge of Complementary and Integrative Health among Collegiate Athletic Trainers. *The Internet Journal of Allied Health Sciences and Practice*. 2023 Jun 29;21(3), Article 4.

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Abstract

Purpose: Complementary and integrative health (CIH) interventions are non-mainstream modalities used to complement traditional care and are used by athletic trainers. Interventions encompassing CIH can help provide holistic care that is patient-centered. However, there is no previous research on the attitudes and use of CIH in everyday clinical care. The purpose of this project is to investigate athletic trainers' use and attitudes towards CIH interventions. **Methods:** A cross-sectional, web-based survey including demographics, CIH integration, and the Complementary Health Belief Questionnaire (CHBQ) was sent out to a random sample of athletic trainers. Measures of central tendency were calculated to characterize the behaviors and use of CIH by athletic trainers. The scores on the CHBQ were averaged and an independent t-test was used to compare the CHBQ scores between athletic trainers who use CIH and those who do not. **Results:** The average total score for the CHBQ is 43.41 ± 4.26 , indicating generally positive beliefs and attitudes towards CIH interventions. There were no statistical differences in CHBQ scores between athletic trainers who use CIH interventions and those who do not, indicating both groups have positive attitudes towards CIH intervention. Further, the most common interventions used by athletic trainers were massage, yoga, and chiropractic care. **Conclusion:** Many collegiate athletic trainers incorporate CIH interventions into their practice and tend to have positive attitudes towards CIH. In order to treat the whole patient, athletic trainers should consider incorporating CIH interventions into their practice in order to assist in positive patient reported outcomes.

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The Internet Journal of Allied Health Sciences and Practice

Dedicated to allied health professional practice and education

Vol. 21 No. 3 ISSN 1540-580X

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ABSTRACT

Purpose: Complementary and integrative health (CIH) interventions are non-mainstream modalities used to complement traditional care and are used by athletic trainers. Interventions encompassing CIH can help provide holistic care that is patient-centered. However, there is no previous research on the attitudes and use of CIH in everyday clinical care. The purpose of this project is to investigate athletic trainers' use and attitudes towards CIH interventions. **Methods:** A cross-sectional, web-based survey including demographics, CIH integration, and the Complementary Health Belief Questionnaire (CHBQ) was sent out to a random sample of athletic trainers. Measures of central tendency were calculated to characterize the behaviors and use of CIH by athletic trainers. The scores on the CHBQ were averaged and an independent t-test was used to compare the CHBQ scores between athletic trainers who use CIH and those who do not. **Results:** The average total score for the CHBQ is 43.41 ± 4.26 , indicating generally positive beliefs and attitudes towards CIH interventions. There were no statistical differences in CHBQ scores between athletic trainers who use CIH interventions and those who do not, indicating both groups have positive attitudes towards CIH intervention. Further, the most common interventions used by athletic trainers were massage, yoga, and chiropractic care. **Conclusion:** Many collegiate athletic trainers incorporate CIH interventions into their practice and tend to have positive attitudes towards CIH. In order to treat the whole patient, athletic trainers should consider incorporating CIH interventions into their practice in order to assist in positive patient reported outcomes.

Keywords: holistic health, alternative medicine

INTRODUCTION

Complementary and Integrative healthcare (CIH) utilizes non-mainstream medicine that tends to be centered around a holistic approach and is used in conjunction with or in place of pharmaceuticals or other western interventions.¹ Common forms of CIH that can be seen being used by athletes are massage, chiropractic care, Lomi Lomi, and acupuncture.² This previous research encompasses athletes from 20 different sports including baseball, softball, tennis, football, basketball, and cross-country.² With the growing interest and use of CIH in different patient populations, it is imperative to understand how athletic trainers are integrating CIH.

CIH can be seen as a way for collegiate athletic trainers to connect with patients who may have sought out alternatives to western medicine before having access to an athletic trainer. Athletic trainers have a variety of roles and responsibilities in athletic healthcare from injury prevention, recognition, management, and rehabilitation. Perhaps one of the most important roles an athletic trainer has with a patient is to serve as an advocate in navigating the American health care system. As such, an athletic trainer may be the first provider patients interact with after sustaining an injury, and the only form of health care a patient may seek or have access to.^{3,4} Athletic trainers work with minoritized populations who may turn toward CIH interventions, specifically those that can be self-administered, due to discrimination within the healthcare system.⁵ It has been shown that previous negative interactions with health care professionals have led to an increased-use in herbal medicine.⁵ Using an alternative or integrative intervention coupled with mainstream medicine can help to bridge the gap between minoritized patients, patients who distrust the health care system, and the providers.

Collegiate athletic trainers interact with diverse patient populations, who may be experiencing their first exposure to health care. These patients may prefer more complementary health options. Additionally, with more access to resources such as instruments, continuing education, and integrated care teams, collegiate athletic trainers may have more access to CIH interventions. Although previous research has been conducted on the types of CIH athletes commonly use; to our knowledge, there have been no previous investigations focusing on athletic trainers' attitudes, beliefs, and integration of CIH interventions into their practice.

Therefore, the purpose of this project was to assess the experiences and beliefs of collegiate athletic trainers surrounding CIH, their experiences implementing and using these interventions, and their beliefs about the use of CIH. By understanding the beliefs and attitudes of collegiate athletic trainers as well as integration of CIH, we can begin to conceptualize avenues for maximizing these interventions and whole-person health care.

Methods

Research Design

We used a cross-sectional survey approach. A web-based survey (Qualtrics, Provo, UT) assessed athletic trainers' use and beliefs regarding CIH. This study was deemed exempt research by the Indiana State University Institutional Review Board.

Participants

The participants had to be collegiate athletic trainers who are active members of the National Athletic Trainers' Association (NATA). The inclusion criteria for this study were 1) participants must be a Board of Certification (BOC) certified athletic trainer and a member of the NATA, and 2) must be currently practicing in the collegiate setting. The survey consisting of both the CHBQ and CIH utilization questionnaire was sent to 6,255 potential participants; 758 participants responded (response rate=12%), and 613 completed the tool in its entirety (completion rate= 9.8%) (age=40±12 years old; years certified=16±11y).

Instrument

The survey examined the participant demographics such as gender, race and ethnicity, age, and the number of years they have practiced as an athletic trainer. Multiple choice questions regarding the setting the athletic trainer currently works in were included in this instrument. Participants were asked multiple choice questions to assess which, if any, CIH interventions they may use, if the participants know what CIH is, and if they have ever referred a patient to a CIH practitioner. Each of these items from the survey were measured on a dichotomous (yes/no) scale or Likert-scale. Additionally, we used the previously validated Complementary and Alternative Medicine Health Belief Questionnaire (CHBQ). The CHBQ examines whether or not health care providers agree with patients using CIH and if CIH has a place within public health. The CHBQ has 10 items, each scored on a 7-point Likert scale (1-7) with scores ranging from 10-70. Higher scores indicate more positive attitudes towards CIH use and beliefs. The CHBQ has been used in a variety of previous studies examining health care providers attitudes and beliefs of CIH.^{1,7}

Procedures

The web-based survey was sent through the NATA research service to 6,225 collegiate athletic trainers via email. The email list was created through a random list of athletic trainers who met the inclusion criteria the NATA distributed the recruitment email through the NATA Research Service. The initial email included information about the research as well as an informed consent form. Once the initial email, including the survey, was sent out, follow-up emails were sent weekly to individuals who had not completed the survey as a reminder to participate in the study. The survey was open for four weeks intervals and distributed twice, once in the Spring of 2021 and Fall 2021.

Data Analysis

The data was analyzed using SPSS. Measures of central tendencies (mean, standard deviation, and frequencies), descriptive statistics, independent t-tests, and tests assessing frequency were run and used to measure participant demographics, the use of CIH interventions, and the CHBQ. We used an independent t-test to analyze differences in CHBQ score of participants who use integrative health within their practice and participants who do not. Further, a one-way analysis of variance was used to compare CHBQ scores and age categories (20-29 years-old, 30-39 years-old, 40-49 years-old, 50+ years-old) and a Pearson’s correlation analysis to investigate relationships between those who use CIH and age categories.

RESULTS

Participant demographics such as age, years certified, and institution type can be seen in Table 1. There were 346 female participants (58%) and 262 male participants (42%). A large number of participants (81%) reported that they use CIH within their practice (n=499); the most commonly used interventions can be seen in Table 2: Commonly Used Interventions; with massage (n=439/613, 72%), yoga (n=303/613, 49%), and chiropractic care (n=231/613, 38%) being the top 3 interventions used. A majority of participants (n=363, 59%) indicated having some form of formal training in CIH interventions, such as attending a course that was included within their curriculum, sought out an education on their own, or research presentations. With several participants having reported that they have referred patients out to CIH professionals (n=453/613, 74%).

Table 1. Demographic Variables

Variable	M (SD)	Range
Age (years)	40 (12)	22-74
Years Certified	16 (11)	1-50
Stage of Career	n	%
Early	169/613	27.6%
Middle	116/613	19.4%
Late	325/613	53%
Institution Type	n	%
Predominately White Institution	418/613	68%
Historically Black College and University	15/613	2%
Hispanic Serving Institution	16/613	3%

Table 2. Commonly Used Interventions

Interventions	N, %
Massage	439/613, 72%
Yoga	303/613, 49%
Chiropractic Care	231/613, 38%
Dry Needling	213/613, 35%
Meditation	152/613, 25%
Progressive Muscle Relaxation	133/613, 22%
Movement Therapy	73/613, 12%
Essential Oils	68/613, 11%
Aromatherapy	49/613, 8%
Herbal Medicine	35/613, 6%
Music Therapy	24/613, 4%
Thai Chi	20/613, 3%
Reiki	14/613, 2%
Other	122/613, 20%

The average total score for the CHBQ was 43.41±4.26, indicated overall positive beliefs and attitudes towards CIH interventions. There was no difference (p=.06) in CHBQ scores between participants who use CIH (43.60±4.15) and those who do not (42.57±4.66). Demonstrating regardless of CIH use, participants possessed positive beliefs and attitudes towards CIH interventions. Further, there was no difference in CHBQ scores between age categories (p=.17). Finally, there was a weak (-.014) and insignificant (p=.73) correlation between age categories and use of CIH, indicating age did not influence the use of CIH. A majority of participants indicated they work with patients who demonstrate interest in using CIH (n=521/613, 85%). Table 3 includes frequency counts for additional questions examined including patient use of CIH and frequency of conversations about CIH with patients. Finally, a total of 451 (74%) participants expressed working with patients who have distrust in the HC system.

Table 3. Behaviors of CIH

Clinician Use of CIH	n, %
Yes	499/613, 81.4%
No	114/613, 18.6%
Confidence Levels of Using CIH	n, %
Not Confident	4/613, .7%
Somewhat Confident	26/613, 4.2%
Neither Confident nor Not Confident	22/613, 3.6%
Somewhat Confident	241/613, 39.3%
Confident	205/613, 33.4%
Ask About Patient Use of CIH	n, %
Never	57/613, 9.3%
Sometimes	365/613, 59.7%
Frequently	174/613, 28.5%
Unsure	15/613, 2.5%

DISCUSSION

The purpose of the study was to evaluate the experiences and beliefs of collegiate athletic trainers regarding CIH and their experiences implementing these interventions. Athletic trainers scored high on the CHBQ, which is generally consistent with other health professions such as medical students (44.2) and nursing and chiropractor students (47.6).^{6,7} Interestingly, we found positive attitudes towards CIH were not dependent on the participant’s personal use of CIH; showing that athletic trainers may demonstrate a willingness to be open minded when it comes to integration of different modalities in care. There was no difference between CHBQ scores within participants who use CIH interventions and those who do not.

There is wide integration of different CIH interventions by athletic trainers. Over 80% of athletic trainers reported that they use CIH interventions within their own practice and 72% reporting being either somewhat confident or confident; demonstrating a wide integration of CIH by athletic trainers. The most common CIH interventions used by athletic trainers are massage, yoga, chiropractic care, dry needling, and meditation. Additionally, 74% of athletic trainers report that they have referred a patient out to a CIH professional. Previous studies determined that 62.2% of health care professionals determined CIH interventions to be safe for patients to use when practiced by trained professionals, but few had referred patients out to a CIH profession.⁸ The willingness of athletic trainers to refer out to CIH practitioners may be linked to a desire to use CIH strategies outside the training, exposure, or capacity within their facility.

A majority of participants (85%) reported that they have had patients who have demonstrated or showed interest in CIH, and 88% of participants indicated that they support patients seeking out or using CIH interventions. When looking at other health care professions research, 41% of primary care physicians believe that the patients they work with could benefit from CIH interventions, 88% reported that they discuss CIH with patient, and 89% were willing to co-manage a patient with a CIH provider.⁹ Athletic trainers can use CIH interventions to connect with patients and increase positive outcomes with patients.

We found nearly 60% of participants had some formal training with CIH interventions including options such as professional education curriculum, continued education training, knowledge gained at a conference, or training they had sought out on their own. This demonstrates that athletic trainers understand the importance of having knowledge of and experience with CIH interventions and having an adequate understanding and ability to use CIH interventions. Although no studies have previously been performed on athletic trainers and their beliefs and attitudes towards CIH, there is previous research on other health care providers. One study showed that although physicians believe that CIH interventions would have a positive effect on patients they did not feel as if they were comfortable educating and counseling patients on using CIH interventions.¹⁰ Another study showed that

out of 218 primary care physicians 1/3 had experience with at least 1 CIH intervention and that 78% would like to learn more about the safety and efficacy of 1 or more CIH interventions.⁹

Surprisingly, a vast majority of participants reported having patients express distrust in their healthcare system within the last year, with 54.2% of participants reporting having 0-5 patients express a distrust in the healthcare system, 13.5% reported having 6-10 patient, 3.9% said 11-15 patients and 2% said they have had more than 16 patients report a distrust. One study reported that African Americans had higher levels of distrust within the health care system and had greater levels of discrimination within the health care system.¹¹ The large number of patients reporting a distrust in the healthcare system demonstrates a need to use interventions and to create a network of care that the patient would be comfortable and familiar with using. Previous studies have linked discrimination within the healthcare system and the patient use of CIH. Racial discrimination can be associated with a higher likelihood of CIH modalities.⁵

Strengths, Limitations and Future Directions

This study used a valid instrument to investigate the CIH beliefs, attitudes, and behaviors of collegiate athletic trainers. To our knowledge, this is the first study to use the CHBQ and investigate these variables. This study was not without limitations. This study strictly looked at collegiate athletic trainers who are members of the NATA and as such it does not present the view of the wider community of athletic trainers across the country. In addition, self-selection also raises the possibility of self-selection bias and could have attracted respondents more aware and favorable to CIH. Future studies should access athletic trainers in other settings and continue to look at the knowledge athletic trainers have of CIH interventions outside of their beliefs and attitudes. Additionally, future investigations should look at clinical outcomes of athletic trainers using CIH interventions. Future studies could explore the connection between patients using CIH interventions and distrust within the healthcare system.

CONCLUSIONS

Many collegiate athletic trainers integrate CIH into their practice. Many also report being at least somewhat confident in implementing CIH interventions into their patient care plan. Collegiate athletic trainers tend to have more positive attitudes and beliefs towards CIH regardless of their personal practice integration. Athletic trainers should consider including CIH health interventions into their practice and patient care plans to help increase positive patient outcomes. Moreover, future research should evaluate the patient and clinical outcomes related to CIH.

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