

Rural Status of Equine Assisted Activities and Therapies and Cancer Survivors

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Abstract

Background: Although equine assisted activities and therapies (EAAT) are rapidly increasing, as are cancer survival rates, little is known about the engagement of cancer survivors in EAAT. One may conceptualize equine or horse related activities as occurring in rural areas; however, the rural status of EAAT centers are not fully reported.

Purpose: To explore the rural status of EAAT centers, and whether EAAT is provided for cancer survivors and the more common service for post-traumatic stress disorder at those centers.

Method: A quantitative descriptive analysis was conducted of publicly available data after an exempt status decision of an Institutional Review Board. Services using EAAT for those with terminal illnesses, post-traumatic stress disorder and cancer survivors were examined. Rural status was evaluated for all organizational members (N = 784) of Professional Association of Therapeutic Horsemanship International (PATH Intl.). Roy adaptation model was used as a theoretical framework in this project.

Findings: All types of the organizational members, cluster in urban areas more than rural areas. Significant relationship ($p = 0.039$) was found between rural status and type of membership, where more urban than rural centers were premier accredited center members. Most of the contacted and responding centers stated that they do provided EAAT for cancer survivors ($n = 204$); however, only ($n = 26$) centers have programs specifically designed for cancer survivors.

Conclusion: There are not only less EAAT rural than urban centers, but rural centers also tend to have lower quality level membership based on PATH Intl. standards. Although EAAT is provided for cancer survivors, identifying effective ways to provide EAAT and standardization of programs for cancer survivors is recommended.

Keywords: equine assisted activities and therapies, Roy Adaptation Model, rural, cancer survivors, horseback riding, alternative and complementary therapy

Rural Status of Equine Assisted Activities and Therapies and Cancer Survivors

The rural status of center locations for equine assisted activities and therapies (EAAT) has not been studied. Use of EAAT as a complementary therapy for those with various alterations in health has increased. At the same time, cancer survivorship has also increased; yet the engagement of cancer survivors in EAAT has received little attention. The aim of the current project is to explore the rural status of EAAT centers and whether EAAT is provided for cancer survivors at those centers.

Background

EAAT includes different types of therapies and activities that involve engagement with horses, including but not limited to riding, in a way to enhance quality of life (QOL). In early Greek history, horse riding was recognized as improving the spirit and was used as therapy for

some terminal illnesses, and years later in the mid-19th century, equine therapies were used for patients with disabilities as a form of sport, recreation, education and therapy (DePauw, 1986). The Professional Association of Therapeutic Horsemanship International (PATH Intl.) was formed in 1969 (PATH Intl., 2017) to provide EAAT for individuals with special needs. Additionally, the College of Life Sciences and Agriculture at the University of New Hampshire started a therapeutic riding program in 1989 to provide training for students who want to become EAAT instructors and serve individuals with special needs (University of New Hampshire, n.d.). The University of New Hampshire is currently a PATH Intl. higher education member.

The aims of EAAT include different physical, social, emotional, psychological, intellectual and occupational benefits (PATH Intl., n.d.a.). Although EAAT has been recognized as complementary therapy to enhance adaptation and QOL for some diagnosis such as post-traumatic stress disorder (PTSD), there is less research on outcomes with other populations.

The Roy adaptation model (RAM) is a prominent nursing theory and has been used to demonstrate how successful adaptation may maintain and enhance QOL (Roy, 2009). Researchers have utilized RAM when studying the effect of interventions that included physical activities or exercises (Buckner et al., 2007; Reis, Walsh, Young-McCaughan, & Jones, 2013; Tallier, Reineke, & Frederickson, 2017). For example, Buckner et al. (2007) used RAM to study the effect of a camp program on self-efficacy and responsibility for teens with asthma. The camp included educational sessions and physical activities such as swimming, hiking, and horseback riding, which was not specified or described as EAAT. Reis et al. (2013) used RAM to study the effect of the *Nia* exercise, a combination of different activities and movements such as Tai Chi, dance, and yoga, on QOL and fatigue for women who receive radiation treatment for breast cancer. Tallier et

al. (2017) utilized RAM to study the effect of education and physical activities on adaptation to aging for older adults in urban senior centers. Additionally, Calvert (1989) used RAM to study the effect of human-pet interaction on loneliness for nursing home residents and found that puppies or kittens may facilitate adaptation through the interdependence mode in RAM. In the current project EAAT is seen as a means for increasing physical activities or exercises as well as human-animal interaction therapy.

Equine Assisted Activities and Therapies

EAAT has been used to facilitate adaptation and enhance the quality of social, psychological, and physical life dimensions (PATH Intl., n.d.a.). The effects of EAAT on PTSD have been studied extensively (Earles, Vernon, & Yetz, 2015; Johnson et al., 2018; Merkies, McKechnie, & Zakrajsek, 2018; Mueller, & McCullough, 2017; Steele, Wood, Usadi, Applegarth, & Usadi, 2018). Johnson et al. (2018) studied the effect of therapeutic horseback riding on PTSD for veterans by conducting a randomized wait-list control study. Lower QOL may result from PTSD symptoms such as flashback, anxiety, and isolation. Johnson found a statistically ($p \leq 0.01$) and a clinically significant drop in the PTSD symptoms after six weeks of therapeutic horseback riding. Furthermore, individuals who attended more therapeutic horseback riding sessions during the study showed more improvement in term of decreasing PTSD scores.

Currently listed services for PATH Intl. (n.d.b.) centers include therapies for certain chronic conditions such as PTSD. However, cancer is not included under Path Intl. services.

Cancer Survivors and Equine Assisted Activities and Therapies

The National Cancer Institute (NCI) defines cancer survivor as any person with cancer from the time of diagnosis until end of life (NCI, n.d., Section NCI Dictionary of Cancer Terms). This

broad definition of cancer survivors is used in this paper to refer to all individuals with cancer from the point of diagnosis onwards. According to the Centers of Disease Control and Prevention (CDC), cancer survival rate is increasing with the advancement of cancer treatment and decrease of mortality rates (CDC, n.d.). Cancer deaths decreased significantly (27%) from 1991 to 2016 (Siegel, Miller, & Jemal, 2019).

There is limited research to support the use of EAAT for cancer survivors (Cerulli et al., 2014; Murphy, Goehmann, & Panczykowski, 2019). A mixed methods study was done with cancer survivors in the United States (U.S.) (N = 4) showing a positive effect of EAAT on QOL ($p = 0.01$) (Murphy et al., 2019). The study included a 10-week program with one session of unmounted (on ground, not riding) activities each week followed by reflection that was guided by an oncology social worker at a PATH Intl. center with the assistance of PATH Intl. instructors. Similarly, another quantitative study was conducted in Italy with female breast cancer survivors (N = 20) and found significant improvement in QOL after mounted EAAT (horseback riding) with (n = 10) compared to those who did not participate in EAAT (n = 10) (Cerulli et al., 2014). Physical improvements in oxygenation status and muscle strength were statistically significant (Cerulli et al., 2014). EAAT may be considered as a physical activity which is recommended by the American Cancer Society (ACS) for cancer survivors to improve QOL and decrease risk of cancer recurrence (ACS, n.d.a). Although EAAT may improve health and QOL, the availability of EAAT service for cancer survivors remains unclear.

Like military veterans, some cancer survivors suffer from PTSD. Up to one in five cancer survivors were estimated to experience PTSD symptoms after the psychological distress of being diagnosed and receiving some harsh recurrent cancer treatment such as chemotherapy (Chan et al.,

2018). Similarly, a meta-analysis review suggested that "...cancer survivors seem to have 1.66 times the odds of PTSD compared to controls who have not had cancer" (Swartzman, Booth, Munro, & Sani, 2017, p. 334). Thus, providers may expect some cancer survivors to also exhibit symptoms of PTSD and EAAT may improve QOL for individuals with PTSD among cancer survivors.

Rural Areas and Equine Assisted Activities and Therapies

One study showed that 21% (2.8 million) of cancer survivors live in rural America (Weaver, Geiger, Lu, & Case, 2013). One barrier to a referral for EAAT occurs when there is no available list of centers that provide EAAT services for cancer survivors. Although EAAT is a rapidly growing field (Nelson, Signal, & Wilson, 2016), and rural dwellers use complementary and alternative medicine (CAM) more than urban residents (Wardle, Lui, & Adams, 2012), the distributions of the EAAT centers between rural and urban areas remains unclear. Roy (2009) described how stimuli in a certain environment may facilitate adaptation to enhance QOL and how environment may affect adaptation. Therefore, environment in terms of rural status of the EAAT centers is considered in this study. Finally, Roy (2011) discussed challenges in health care disparities between rural and urban areas, increasing of chronic health diseases, and the need for more global cooperation.

One population of rural dwellers where EAAT has been explored is among Native Americans. Horses may facilitate mental and physical health for youth in rural communities as described in a study conducted among rural Northern Plains Native Americans. A qualitative study using *Talking Circles*, focus groups of elders and youths, showed how engaging with horses improves resilience, identity awareness, and family relations among Native American youth

(Isaacson, Bott-Knutson, Fishbeck, Varnum, & Brandenburger, 2018). Similarly, a community-based study showed how horseback riding may improve QOL and increase physical activity as a part of a diabetes prevention program for Native Americans in rural reservations (Brown et al., 2010). The use of EAAT is understudied in other rural populations. Along with individual health benefits, rural communities may benefit from EAAT through employment opportunities.

Rural cancer survivors may be considered a vulnerable population compared to urban cancer survivors. According to Weaver and colleagues, “Rural survivors are significantly more likely than their urban counterparts to report fair or poor health, two or more noncancer comorbidities, elevated levels of psychological distress, and unemployment because of health” (2013, p. 1053). Furthermore, complementary therapies and exercises may improve quality of life for rural cancer survivors (Coughlin, Bartee, Heelan, & Burger, 2018; Hendershot, 2019). Although Johnson et al. (2018) noticed the challenge in access to therapeutic horseback riding programs and speculated that the programs might be more readily accessible in rural areas; the authors note there is no previous empirical evidence that compares access to EAAT centers between urban and rural areas.

Purpose

The purpose of this project was to determine if differences exist between rural status of the EAAT centers, the type of membership, and the availability of EAAT services for PTSD and cancer. The specific aims were to 1) identify the rural status of EAAT centers, 2) examine the availability and the practice of EAAT for people who were diagnosed with cancer as well as PTSD, and 3) examine the type of center membership in relation to location and rural status. The overarching goal was to inform practice for health care providers including rural nurses, and EAAT

instructors and leaders about the rural status of EAAT centers and the availability of EAAT for cancer survivors.

Methods

Sample

The project included an initial sample of all organizational members (centers and higher education members) identified via PATH Intl. websites (n.d.b.). Data were collected from July 15, 2019 to August 2, 2019. If any of the PATH Intl. centers (excluding higher education members) claimed to provide EAAT services for terminally ill patients or patients with PTSD, the center was contacted via email and asked if they provided EAAT for cancer survivors. Higher education centers were excluded since those centers focus on education of those providing EAAT.

Rural status in this study was defined operationally based on Rural-Urban Commuting Area (RUCA) codes, one of the most common rural classification definitions (Cohen, Cook, Sando, & Sabik, 2018; Fahs & Rouhana, 2020). RUCA codes are based on population size from census data in an area and commuting to and from the area, which may affect the economic status and accessibility of the geographical location (Rural Health Information Hub [RHI hub], n.d.a). One advantage of a RUCA code is that it is not constrained by county borders. The RUCA code has 10 levels ranging from metropolitan through non-metropolitan. RUCA codes range from one (the most urban) to ten (the most rural). Typically, RUCA codes of 4-9 is considered rural. Although rural is not synonymous with non-metropolitan, rural is often defined by the fact that it is not urban or metropolitan (Fahs & Rouhana, 2020).

Design and Ethics

The design for this project was quantitative descriptive. No human subject was involved and data about EAAT centers were mainly collected from a data set created by combining and analyzing publicly available information. The project was approved as exempt by the Institutional Review Board at Binghamton University (#STUDY00001697).

Procedures

EAAT is provided through different organizations such as PATH Intl. organization. Location and contact information of the PATH Intl. members are publicly available (PATH Intl., n.d.b.). If the website did not contain the complete information either about the provided services, or EAAT arena address (PATH Intl., n.d.b.), the center website was searched either from the PATH Intl. link or from a simple web search to determine more accurate information on location. Mailing address and service arena address occasionally differed, in these situations Google Maps® was used to get the exact arena location for the center as access to the facility itself may better represent access and availability for rural participants.

Using the actual arena address, when possible, instead of the mailing address provides the most accurate information on access in rural status of services. If the EAAT center address was not found online, a phone call was made to get the accurate address, and if the primary contact decided to keep the address private (not publicly available) for any reasons such as privacy, the general area ZIP code was used. When a center was found to have more than one physical address, the most rural address was considered. Rural status of the center was evaluated through the publicly available online resource, the RHI hub (n.d.b), specifically through the Am I Rural? tool.

An email with two questions about service for cancer survivors was sent to all centers that provide EAAT services for people who are terminally ill or with PTSD, and if the center did not respond to the email within two weeks, the center primary contact number was called and these two questions were administered by telephone. If the call was directed to voicemail, a message was left with the questions and a call back number.

The emails were administered via a personal university email and were addressed to the individual centers. All other phrasing was the same between emails. The email introduced the project, the purpose, and basic information about the first author (name and affiliation) and contact information (email and cellphone). The email was written in English and sent individually (one by one) to request each center's primary contact person to respond yes or no to each of the following questions. The first question was: Do you provide equine therapy for cancer survivors? The second question was: Do you have a specific program for cancer survivors?

Measures

PATH Intl. provides membership for EAAT in three categories including two types of center memberships and one membership specific for universities or colleges when using EAAT in teaching. Membership categories include center member, premier accredited center member, and higher education member. The Premier Accredited Center Member category is considered higher quality based on PATH Intl. standards than the Center Member (PATH Intl. n.d.c.). The location, type of membership, and list of diseases and disabilities services was searched for each organizational member. The rural status of each organizational member (member, premier, and higher education) was evaluated through the online resource, Am I Rural? tool (RhIhub, n.d.b.).

Many federal programs consider a RUCA code of four and above as a rural area (RHlhub, n.d.a.); therefore, codes one to three were considered urban in this study.

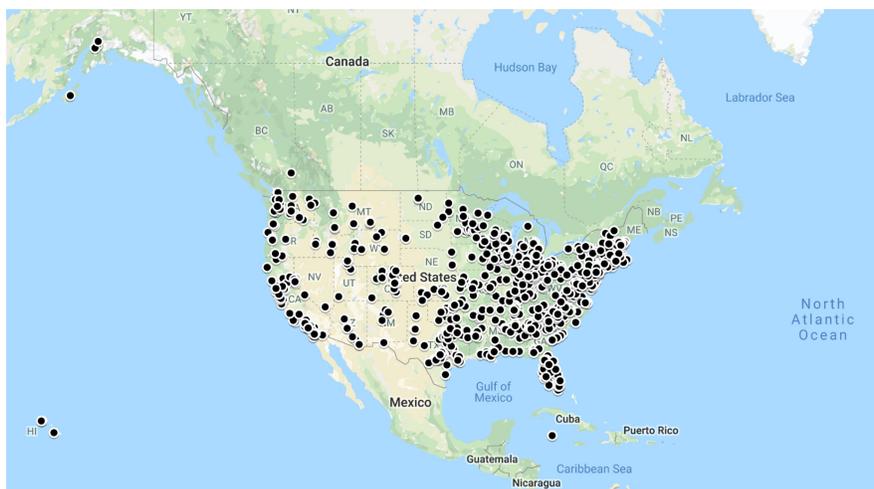
Because cancer survivor services were not specified on PATH Intl. list of services, centers that provide services for terminal illness or PTSD were specifically considered in this study. The question of whether the center provided EAAT services for cancer survivors was asked via email or telephone.

Analysis and Results

All data were entered manually into SPSS Statistics Version 25 for analysis. Chi Squared tests were used to identify the relationships between the rural status and other variables including the type of the center and available services for terminal illness, PTSD, and cancer survivors. A preset alpha of .05 was the level of significance. Google My Maps was used to depict a map of organizational centers in and around the U.S. (figure 1).

Figure 1

PATH Intl. Organizational Members in and around the U.S.



Note. Each dot indicates one or more PATH Intl. centers.

The final sample consisted of the PATH Intl. organizational members (N = 784) including: centers (n = 775), and higher education members (n = 9). The higher education members are from nine different states in the U.S. that vary in locations between rural (33.3%) and urban (66.7 %), as listed in Table 1.

Table 1

Higher Education Members

Higher Institute Education	State	Rural or Urban
Colorado State University	Colorado	Urban
Isothermal Community College	North Carolina	Rural
Minnesota State College Southeast	Minnesota	Rural
North Dakota State University	North Dakota	Urban
Ohio University Southern Campus	Ohio	Urban
Texas A&M University System	Texas	Urban
University of New Hampshire	New Hampshire	Urban
University of Wisconsin River Falls	Wisconsin	Rural
Utah State University	Utah	Urban

Centers that provided EAAT for terminal illness (n = 198) and/ or PTSD (n = 350) were asked the two questions about: providing EAAT for cancer survivors, and whether they had a specific program for cancer survivors. Most of the contacted centers (n = 275) responded to the emails or the phone call, representing a response rate of about 70%. Most of the contacted and responding centers stated that they provided EAAT for cancer survivors (n = 204) and most of those providing cancer survivors services were based on individually designed programs. Only 26 centers stated that they provide EAAT based on cancer survivor specific programs.

Of the PATH Intl. centers, only five (0.6%) were located outside the U.S. in five different countries (Table 2). The rural status of international centers outside the U.S. was evaluated through

personal judgment based on viewing Google Map of each location. Only one international center was in a rural area.

Table 2

Centers Outside the United States

Center Name	Address	Membership	Status
Equiphoria	France	Premier Accredited Center Member	Rural
Let's Run Riding Healing Center	South Korea	Premier Accredited Center Member	Urban
Cowboy Town Stables	Cayman Islands	Center Member	Urban
Kamloops Therapeutic Riding Association	Canada	Center Member	Urban
McIntyre Centre Division of Help Enterprises	Australia	Center Member	Urban

The remaining (n = 770) centers were distributed unevenly throughout the U.S. (Table 3). Some states have several centers such as Texas (n = 61), California (n = 60), and Florida (n = 43). Other states had few centers such as Hawaii (n = 3), West Virginia (n = 3), Rhode Island (n = 2), South Dakota (n = 2), and Nebraska (n = 1). Each state within the U.S. has at least one center (Table 3). Most of the U.S. centers are in the east and south of the country and along the west coast. Many states in the central region of the U.S. have a limited number of centers, as shown in the map (figure 1). Interestingly, Colorado has 23 centers and is surrounded by other states that have only one to 12 centers. This may relate to the fact that PATH Intl. main organization is in Colorado.

Table 3

Centers Distribution from High to Low

Location	Number of Centers	Location	Number of Centers
Texas	61	Louisiana	10

Location	Number of Centers	Location	Number of Centers
California	60	Mississippi	9
Florida	43	Missouri	9
Ohio	37	New Hampshire	9
New York	32	Arizona	8
North Carolina	32	Arkansas	8
Pennsylvania	28	Oregon	8
Illinois	25	Vermont	8
Virginia	25	Montana	7
Georgia	24	Idaho	6
New Jersey	24	Iowa	6
Colorado	23	Nevada	6
Maryland	22	New Mexico	6
Washington	21	Wyoming	6
Wisconsin	21	Alaska	5
Indiana	20	Delaware	5
Michigan	18	Outside USA, International	5
Minnesota	15	Maine	4
Tennessee	14	North Dakota	4
Kentucky	13	Utah	4
Massachusetts	13	Hawaii	3
South Carolina	13	West Virginia	3

Location	Number of Centers	Location	Number of Centers
Connecticut	12	Rhode Island	2
Kansas	12	South Dakota	2
Oklahoma	12	Nebraska	1
Alabama	11		
Total			775

The relationship between rural status (e.g., rural or urban) and type of the center membership (e.g., center membership and premier accredited center member) was statistically significant ($X^2 = 4.3(1); p = 0.039$). There were 600 urban centers (77.4%) and only 175 (22.6%) centers located in rural areas. There were 512 center members and 263 premier accredited center members. However, the majority (81.7%; $n = 215$) of the premier accredited center members were in urban areas with only 18.3% ($n = 48$) located in rural areas (Table 4).

Table 4

Rural Status and Membership Type

Rural or Urban Status by Type of Membership					
Status			Membership		Total
			Center Member	Premier Accredited Center Member	
Urban	Count		385	215	600
	% within membership		75.2%	81.7%	77.4%
Rural	Count		127	48	175
	% within membership		24.8%	18.3%	22.6%
Total	Count		512	263	775
Chi-Square Tests					
			Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
	Value	df			

Pearson Chi-Square	4.269 ^a	1	.039
N of Valid Cases	775		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 59.39.

The relationship between rural status and availability of EAAT for individuals with PTSD was statistically significant ($X^2 = 6.7$ (1); $p = .009$) (Table 5). About half (47.7%) of the urban centers provided EAAT for individuals with PTSD, while approximately one third (36.6%) of the rural centers provided the same service.

Table 5

Rural Status and Availability of EAAT for PTSD

Rural or Urban Status by Availability of EAAT for PTSD					
Status			Service for PTSD?		Total
			No	Yes	
Urban	Count		314	286	600
		% within status	52.3%	47.7%	100.0%
	Rural	Count	111	64	175
		% within status	63.4%	36.6%	100.0%
Total	Count	425	350	775	
	% within Status	54.8%	45.2%	100.0%	

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.735 ^a	1	.009		
N of Valid Cases	775				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 79.03.

The relationship between rural status and availability of EAAT for patients with terminal illnesses was not statistically significant ($X^2 = .11$ (1); $p = .736$). Only about one fourth (25%) of the centers provide EAAT for terminal illnesses regardless of the rurality status (almost the same in rural and urban).

In addition to centers that did provide EAAT for terminal illness and/ or PTSD (n = 384), only a few (n = 3) centers stated in their website that they provide EAAT for cancer survivors with

one reporting a specific program for cancer survivors. Based on the information found on their website, these centers were treated the same as those who responded to the email. Thus, 387 centers were considered in the question about providing EAAT for cancer survivors, and 385 centers were not considered in the answers about having a specific program. Of the 387 centers who said they offered services for either those with terminal illness or PTSD, most ($n = 204$) offered programs for cancer survivors. The relationship between the rural status of centers and the availability of EAAT for cancer survivors was not significant ($X^2 = 1.12$ (1); $p = .290$). Likewise, the relationship between rural status of centers and the availability of a specific program for cancer survivors was not significant ($X^2 = .202$ (1); $p = .653$).

The number of PATH Intl. centers in rural areas are limited ($n = 175$) compared to the centers available in urban areas ($n = 600$). Additionally, most of the rural centers are not premier accredited centers. Rural areas have 127 standard centers (center members) and only 48 premier accredited centers. This difference (See Table 4) in level of membership was statistically significant ($X^2 = 4.3$ (1); $p = .039$).

Discussion

Findings from this study reveal that access and availability of EAAT in rural areas is a challenge. Rural status and the type of center membership varies across rural and urban areas. There are not only less rural centers than urban centers, but rural centers also tend to have lower quality level membership based on PATH Intl. standards (PATH Intl., n.d.c.). The availability of EAAT for terminal illnesses was similar between rural and urban centers; while the availability of EAAT for PTSD in rural areas is found less frequently compared to urban areas.

Communities may benefit economically from having EAAT in their location in different ways. For example, in 2017, PATH Intl. centers had an average of 4.9 employees with a total budget from all the centers of \$164,369,769 (PATH Intl., 2017). These job opportunities and fund allocations may enhance their communities occupationally and financially. A study showed that rural dwellers may benefit financially when providing services beyond the typical agricultural activities seen in rural areas (Veeck, Hallett, Che, & Veeck, 2016). This benefit can be seen through employment opportunities, improving tax base, or additional income from urban customers to the rural location to obtain rural products and services. Consequently, the availability of EAAT in rural environments may provide economic development opportunities as well as access for rural dwellers with health conditions, such as cancer survivors. The availability of EAAT in rural settings has not been thoroughly explored in the literature despite some mention of rural organizations benefitting from EAAT (Nelson et al., 2016).

The finding that nine universities around the U.S. provided education for EAAT indicates that EAAT is a recognized therapeutic activity by these colleges and universities. Universities add knowledge and strengthen the field by producing professionals in the field of EAAT. Additionally, EAAT was expected to be recognized by other professions when taught in higher educational centers, and health care providers may feel more confident when referring to EAAT centers employing professionals in the field (Johns, Bobat, & Holder, 2016).

Finding that (n = 204) centers do provide EAAT for cancer survivors with few (n = 26) centers that follow specifically designed programs for cancer survivors indicates there is a market for this type of service. However, the research on outcomes for EAAT and cancer survivors is limited. This is an opportunity for researchers to prioritize studying, listing, describing, comparing

and contrasting among the existing practices and programs for cancer survivors in terms of benefits versus risks and cost effectiveness of the already developed programs, as well as an opportunity to study outcomes of individually developed EAAT programs for cancer survivors.

Research opportunities and priorities may vary among and within different states based on rural status. The result from this project shows that cancer exclusive programs were offered much less than general programs that accept cancer survivors and Nebraska has the lowest number of centers (n = 1). Similarly, rural cancer survivors in Nebraska have difficulty (in terms of distance and time) accessing exercise programs that were designed exclusively for cancer survivors (Coughlin et al., 2018). Hendershot (2019), a nurse researcher, conducted a study in a rural New York county and suggested that complementary and alternative therapies may satisfy some of the unmet needs for cancer survivors. Hendershot suggested that cancer survivors need access to CAM sessions including outdoor activities. Finally, Hendershot suggested that nurses can add value in guiding cancer support groups that may incorporate CAM.

Roy (2011) discussed the need to close the health disparities gap within and between countries. One comparison needing more exploration regarding disparities within the U.S. is between rural and urban dwellers. This project found a disparity in both the number and membership type of centers in rural areas and brings into question if there are adequate EAAT services available in rural areas?

Roy (2011) mentioned the increasing care complexity and the increase in the number of people with chronic diseases. Similarly, Gale (2014) stated that people who have chronic diseases including cancer patients used CAM commonly to enhance their QOL. Gale (2014) discussed the increasing use of CAM in developed countries and stated that rural dwellers in developing

countries may use CAM as the primary source for therapy. Up to 80 % of cancer survivors in Asia and western countries use CAM (Zulkipli et al., 2018).

According to Roy (2009), “A term for all internal and external stimuli is environment” (p. 62). The rural status of the EAAT centers are considered as a main part of the environment in this study. Roy (2011) mentioned that rural areas may have slower development and less resources than urban areas. Similarly, findings from this study indicate that rural status is significantly associated with less availability or accessibility and lower quality EAAT centers. The number of centers is significantly less in rural areas than urban areas based on RUCA code which indicates less accessibility in rural areas. Finally, center membership certification was found to be significantly lower in rural areas than urban areas based on PATH Intl. (n.d.b.) standards, although a center may provide quality EAAT regardless of the center certification.

Limitations

There are several limitations in this project. This investigation included only PATH Intl. organizational members, yet there are other non-member centers that may have PATH Intl. certified instructors and provide EAAT. Centers that follow the Equine Assisted Growth and Learning Association (EAGALA) certification and or are members of the American Hippotherapy Association were not included; however, it is important to note that a center may be certificated by more than one organization. A center may provide a service and not list the service on the PATH Intl. webpage nor the center webpage, as many centers listed the benefits of EAAT on different life dimensions (such as physical, social, or emotional) in general without listing specific diagnoses or populations. Finally, this project was conducted at one specific point in time and center memberships may change over time.

Recommendations

Organizations such as PATH Intl. and policymakers should provide additional support to the growth of EAAT centers in rural areas in the number and the quality of the centers based on the accreditation standards. Researchers and EAAT organizations may need to identify the most effective practices in EAAT and the most effective elements in each program. This may lead to identifying the optimal program or producing a program based on a combination of effective elements from different programs. The American Cancer Society (ACS) stated that cancer survivors are highly motivated to consider physical activity to enhance their QOL; additionally, ACS developed guidelines for the best practices in physical activities (ACS, n.d.b.). Developing and testing best practice EAAT guidelines for programs for cancer survivors requires future research.

In addition to the research recommendations, studying the associations between PATH Intl. centers and other socioeconomical and environmental factors are recommended. For example, this research found that Colorado has more centers than the surrounding states. Although the main PATH Intl. office is in Colorado, a researcher cannot confirm that the main office location is the only factor associated with the cluster of centers. For example, weather may be an essential factor in center location, especially since EAAT includes outdoor activities. Texas, California, and Florida are the top three states in the number of EAAT centers, and researchers may study the related factors that facilitate this trend such as climate, size of the state, and cultural acceptance of the EAAT in these states. The social context including culture, ethnicity, and social network play a major role in determining to utilize CAM in general (Gale, 2014).

According to Roy (2009), “contextual stimuli are important because they often are tied to the meaning ascribed to the situation” (p. 63). Therefore, other factors that may be associated with the use of EAAT and geographical distribution of the centers should be studied. Studying the supply and demand based on diagnosis in different locations should be considered. Studying the number of people who are cancer survivors in relation to the provided services in EAAT centers is also recommended.

Most of the centers are not-for-profit (n = 594 out of 837) and individual donations and fundraisers cover 36% of total funds for the centers (PATH Intl., 2017). Noting that many centers have designed their webpages to generate interest (from client’s stories, pictures, and videos), creating fundraising drives, and accepting donations highlight the financial challenges that exist in running these centers. Since rural centers most likely draw from a more sparsely populated geographic area, as with most rural businesses; financial operating margins may be slim compared to urban centers. Slim operating margins may contribute to fewer rural premier status centers since this type of accreditation is more expensive than general center membership.

Regardless of rural status, allowing researchers to study and report on the effectiveness and costs of EAAT programs has the potential to motivate sponsors scientifically and increase donations to support programs to meet the needs of cancer survivors. Cooperation between universities and EAAT organizations has the potential to advance the field scientifically and ensure that EAAT continues to grow. Healthcare professionals, such as nurses, are more likely to recommend EAAT if the scientific evidence is strong in support of this type of complementary therapy. Using established theory such as RAM may strengthen EAAT, especially since the lack of theory in EAAT was challenged in the literature (Nelson et al., 2016).

Conclusion

There are many PATH Intl. centers in urban areas in the U.S., however there are limited numbers in rural America. Most of the rural centers are not premier centers. Moreover, there are a very limited number of PATH Intl. centers outside the U.S. as well as a very limited number of higher educational centers that offer EAAT education and training. Limited numbers of centers provide specifically designed EAAT for cancer survivors. Further research is needed to determine the most effective ways to provide EAAT for cancer survivors and to increase availability and accessibility of EAAT especially in rural areas.

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