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Provider Perceptions of Battlefield Acupuncture in a Major Veterans Health Administration Facility

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ABSTRACT

Objective: To assess provider perceptions regarding battlefield acupuncture (BFA) and integrative medicine at a single Veterans Health Administration facility.

Materials and Methods: A total of 87 allopathic and osteopathic providers trained to provide BFA were invited to participate in a self-report web-based questionnaire assessing provider BFA perceptions and practice. Mixed methodology was used to analyze closed- and open-ended survey responses.

Results: Sixty-six providers completed the survey. On average, most providers reported 3–4 BFA treatments per patient (43.2%) and 1–2 weeks of pain relief per treatment (51.4%). A positive correlation was found between post-BFA complementary and alternative medicine (CAM) attitude and (1) average total patients treated with BFA ($r_b = 0.41$, $n = 37$, $P = 0.01$) and (2) percentage of patients treated experiencing meaningful pain relief ($r = 0.47$, $n = 35$, $P = 0.003$). A positive shift in CAM attitudes was observed [$F(1, 59) = 25.5$, $P < 0.001$, $\eta_p^2 = 0.302$]. An overworked schedule was the most salient theme across open-ended questions addressing barriers to practice. Provider BFA attitude comments largely encompassed positive views about BFA treatment utility and effectiveness.

Conclusions: Our findings provide preliminary evidence that exposure to BFA training and experience practicing BFA can positively affect provider CAM attitudes. Qualitative findings point to positive provider attitudes and beliefs regarding BFA treatment utility and effectiveness for pain management. BFA is an alternative treatment for pain management that many Veterans Affairs providers deem useful and effective, particularly after exposure to BFA training and as more BFA-related practice is attained.

Keywords: battlefield acupuncture, veterans, complementary and alternative medicine

INTRODUCTION

Complementary and alternative medicine (CAM) are increasingly gaining acceptance among health care professionals. CAM refers to ''a group of diverse medical and health care systems, practices, and products that are not generally considered part of conventional medicine''.[1] Approximately 33% of adults in the United States use CAM to manage disease and/or promote health.[2] Data from the 2002, 2007, and 2012 National Health Interview Survey (NHIS) indicate the use of CAM in the United States is growing significantly; however, the growth is not equal across all CAM modalities.[3] Acupuncture is one of the CAM therapies that has experienced significant growth in recent years.

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Given the 2017 NHIS assessed a narrower scope of CAM therapies (only massage, yoga, and chiropractor use), the most recent data available on acupuncture were reported in 2007. In 2007, users of this therapy included 6.3% of the U.S. population, representing 14.01 million users.[4]

Battlefield acupuncture (BFA), introduced by Niemtzow in 2001, is a form of auricular acupuncture.[5] BFA stimulates, in a specific sequence, 5 ear locations associated with pain receptors.[6–8] BFA is the most popular form of acupuncture used by military medical acupuncturists worldwide.[9] In the United States, the Department of Veterans Affairs (VA) and the Department of Defense (DoD) created the Defense and Veterans Pain Management Initiative (DVPMI), which received a grant to train Military and Veterans Affairs providers in the use of BFA in 2005. This $5.4M grant has trained providers at almost every DoD and VA facility in the United States and abroad.[10]

Evidence regarding the effectiveness of BFA is still emerging. Studies have investigated the use of BFA to manage acute pain[11–13] and specific forms of pain, including low back pain,[14] postoperative pain,[13,15,16] neuropathic pain,[17] and others.[18–21] Two studies looking at the effect of BFA on postoperative tonsillectomy pain[13] and postpartum pain[22] failed to demonstrate statistically significant pain reductions. Jonas et al.[23] found improvements in headache pain, compared with ''usual care,'' in a group of 15 service members with traumatic brain injuries treated with BFA. After 6 weeks of BFA treatment (10 sessions), a 10.2% decrease in headache impact was observed. Long-term effect of the intervention was not reported. Federman and colleagues studied the application of BFA in 112 Veterans treated with BFA during 90-minute group interventions, and found immediate pain reduction with a return toward baseline within 30 days.[20] In a separate study, Federman and colleagues found significant pain reduction immediately post-BFA in a group of 284 Veterans treated individually or in groups. However, the study does not report on duration of pain relief or optimal number of treatments and interval between treatments. A careful look at the data presented shows that although there was an immediate response to BFA throughout the study period, repeated BFA treatments did not result in overall pain reduction when Veterans were seen at follow-up before getting their next scheduled BFA treatment.[20] This study appears to be retrospective and unblinded. Methodological issues (issues with blinding, variations in protocols, and differences in participant populations) may be factors that help account for the lack of clarity regarding the usefulness of BFA.

The VA trained ~1,300 providers in BFA between 2015 and 2016 with the goal of integrating BFA into existing pain-management care. Taylor and colleagues investigated the VA national efforts to implement BFA by interviewing providers.[24] Semistructured interviews with 23 BFA providers stationed at 20 different locations, revealed implementation barriers related to delivery of BFA. Time constraints, administrative burden, and a perception of a lack of guidelines and lack of knowledge about the effectiveness of BFA to provide sustained pain relief were identified as concerns. Providers also indicated lack of knowledge about types of pain that can be treated with BFA. The authors acknowledge the potential of BFA as a simple and inexpensive intervention for pain management but highlight the need for evidence supporting the effectiveness of BFA.

The North Florida/South Florida Veterans Health System (NF/SG VHS) has been an early adopter of BFA. Serving >140,000 Veterans in 2018, the NF/SG VHS serves more veterans than any other single Veterans Health Service facility. The purpose of this study was to investigate perceptions, and practice of BFA in a cohort of western-trained providers at the NF/SG VHS.

MATERIALS AND METHODS

Sample and Recruitment

When this study was initiated (March 2018), 87 allopathic and osteopathic providers at the NF/SG VHS had been trained to provide BFA to United States Military Veterans (participated in an approved 4-hour instructional course, demonstrated competence in applying BFA, and passed a knowledge-based test). Although auricular acupuncture may be indicated for a variety of conditions, pain relief was the target of BFA per the training protocol. All trained providers were invited to participate in a self-report web-based questionnaire assessing providers' perceptions and practice of BFA. This effort was initiated as a quality assurance project with the goal of gaining insight into providers' evaluations of an innovative practice, and to identify possible barriers and facilitators to BFA practice. In accordance to local IRB guidance, we obtained facility approval to conduct a quality improvement questionnaire. The questionnaire was designed by authors CEL and SR to determine 5 main objectives: (1) learning providers' perceptions of the percentage of their Veteran patients experiencing significant pain relief, (2) determining how long providers perceived the pain relief lasted per treatment, (3) learning the interval between scheduled treatments and the total number of treatments providers were scheduling, (4) investigating the effect that exposure to and experience with BFA had on attitudes toward CAM, and (5) to identify facilitators and barriers to practice. The first 4 objectives were addressed quantitatively using closed-ended questions and the fifth objective was addressed qualitatively using open-ended questions.

Data Analysis

Descriptive statistics, partial bivariate correlations, dependent sample *t*-tests, and a repeated measures analysis of variance (ANOVA) were used to summarize provider responses to closed-ended questions. Open-ended questions

were analyzed using thematic coding and theme frequency counts. Thematic coding was conducted by an experienced mixed-methods researcher (G.C.). Coding began by reading provider open-ended responses in their entirety and was followed by the identification of keywords and phrases in subsequent readings. Identified keywords and phrases were then grouped into emergent themes and each theme was analyzed separately for greater internal consistency. Emergent theme interpretations were confirmed through a peer-debriefing process with coauthors (S.R. and C.L.). Theme frequency counts were then calculated based on all responses provided for each question.[25] Quantitative analyses were conducted using SPSS Version 25 and R Version 1.0.153.

RESULTS

Out of the 87 providers invited to participate in this questionnaire, 66 completed the questionnaire (response rate = 76%). The sample was composed of physicians (56 [84.8%]) and nonphysician providers (7 [10.6%]). Provider specialties consisted of primary care (39 [59%]) followed by other specialties (24 [36.4%]), of which anesthesiology (4 [16.7%]) comprised the largest percentage. Most participants had received clinical privileges to practice BFA (46 [69.7%]), and were practicing BFA at the time of the questionnaire (37 [56.1%]). Some providers (9 [32.1%]) who reported having privileges to practice BFA were not practicing BFA and the remainder of providers (28 [43.1%]) were not credentialed or practicing BFA. As such, questionnaire answers regarding BFA practice were limited to those providing BFA at the time of the questionnaire. All participants were trained at the NF/SG VHS, except for 1 trained at the VA Caribbean Healthcare System. Training occurred between the years 2014 and 2018. For providers practicing BFA, the average interval between training and initiation of practice was 7 months. For the purposes of this article, providers who were practicing BFA at the time of the questionnaire will be referred to as BFA practitioners (BFA-P) and providers who were not practicing BFA at the time of the questionnaire will be referred to as BFA non-practitioners (BFA-NP).

BFA Practitioners

BFA-P specialties largely comprised primary care (59%), followed by other (36.4%) (Table 1). Among these providers, the average total number of patients treated with BFA (by each provider) was 275 ± 88 patients, with an average of 121 ± 34 patients treated within the previous year and 14 ± 3 patients treated within the previous month. Three outlying observations (>1.5 interquartile ranges above the third quartile) were detected for provider average total BFA (i.e., 1,000, 1,100, and 3,000 total individual patients treated with BFA). Given no significant differences were found across quantitative findings, compared with and without the outliers, outlying observations were kept. The majority of patients treated with BFA were treated for pain (97.3%). Other conditions providers reported treating with BFA included sleep disorders (5.4%)

Table 1. Descriptive Statistics for Provider Sample

Variable	*Total* (n = *66*), n *(%)*	*Missing data,* n *(%)*
Gender		
Male	29 (43.9)	2 (3)
Physician status		3 (4.5)
Physician	56 (84.8)	
Nonphysician	7 (10.6)	
Physician assistant	6 (85.7)	
ARNP	1 (14.3)	
Specialty		3 (4.5)
Primary care	39 (59)	
Other	24 (36.4)	
Anesthesiology	4 (16.7)	
Orthopedics	3 (12.5)	
Geriatric medicine	2 (8.3)	
Palliative care	2 (8.3)	
Psychiatry	2 (8.3)	
Pulmonary medicine	2 (8.3)	
Rheumatology	2 (8.3)	
Addiction medicine	1 (4.2)	
Interventional radiology	1 (4.2)	
Neurosurgery	1 (4.2)	
Otolaryngology	1 (4.2)	
Plastic surgery	1 (4.2)	
Surgery	1 (4.2)	
Neurology	1 (4.2)	
Physical medicine rehabilitation	1 (4.2)	
Clinical privilege		0 (0)
Yes	46 (69.7)	
Currently providing BFA		
Yes	37 (56.1)	0 (0)
	Total (n = *28*), n *(%)*	*Missing data,* n *(%)*
Not currently providing BFA		1 (3.6)
Tried it and it did not work	2 (7.1)	
Don't have enough time	13 (46.4)	
Lack of supervisor approval	1 (3.6)	
Other	11 (39.3)	
Patients not suitable for BFA	4 (14.3)	
BFA not a priority	3 (10.7)	
Loss of BFA privileges	2 (7.1)	
Inappropriate clinic setting	2 (7.1)	
Relocation	1 (3.6)	
Patients referred to pain management	1 (3.6)	

ARNP, advanced registered nurse practitioners; BFA, battlefield acupuncture.

and tinnitus (2.7%). By and large, providers reported 3–4 BFA treatments were provided per patient (43.2%) with treatments lasting 11–15 minutes (43.2%), on average.

Providers reported a large percentage of patients treated for pain with BFA experienced meaningful pain relief (70.7%). The ''One to two weeks'' option was selected as the most common average duration of pain relief per treatment (51.4%). The interval between BFA appointments predominantly averaged 3–4 weeks (40.5%). Providers who reported receiving BFA referrals had a greater number of average total BFA treatments performed (293 ± 343) as compared with counterparts who were not receiving BFA referrals (87 ± 132) (Tables 1 and 2).

CAM Attitudes

Overall, BFA-P attitudes regarding CAM demonstrate a reduction in skepticism and an increase in enthusiasm from before- to after-exposure to BFA training. Attitudes were measured on a 5-point Likert scale from 1—highly skeptical to 5—highly enthusiastic. A dependent samples *t*-test was conducted to determine whether mean BFA-P pre-CAM attitudes were significantly different from their mean post-CAM attitudes. BFA-P mean pre-CAM attitudes (3.43 ± 1.3) were lower than post-CAM attitudes (4.22 ± 0.75), a statistically significant difference of 0.79 (95% confidence interval [CI], −1.2 to −0.36), $t(36) = -3.7$, $P = 0.001$). Frequencies reported for providers CAM attitudes before- and after-BFA training exposure are denoted in Figure 1.

Biserial correlations were run to determine the relationship between average total patients treated with BFA and both pre- and post-CAM attitudes. No significant association was detected between average total patients treated with BFA and pre-BFA CAM attitude ($r_b = 0.25$, $n = 37$, $P = 0.14$) ($r_b = 0.18$, $n = 34$, $P = 0.31$). However, a statistically significant positive correlation was found between average total patients treated with BFA and post-BFA CAM attitude ($r_b = 0.41$, $n = 37$, $P = 0.01$). Given a statistically significant positive correlation was found between average total patients treated with BFA and post-BFA CAM attitude, a repeated measures ANOVA with a Bonferroni correction was conducted to examine whether BFA-P CAM attitudes (CAM attitude before BFA exposure and CAM attitude after BFA exposure) were significantly different across 3 average levels of total patients treated with BFA (categorized as low, medium, and high). The omnibus test indicated BFA-P pre-CAM attitudes remained significantly different from post-CAM attitudes [$F(1,33) = 1.824$, $P = 0.04$, $\eta_p^2 = 0.12$] across all 3 average total BFA levels (i.e., low, medium, and high). A *post hoc* analysis was conducted to examine which total BFA group pairs had significant differences between pre- and post-CAM attitudes. *Post hoc* findings indicated that reductions in BFA-P skeptic CAM attitudes were only significantly different ($P = 0.004$) between the low (<30 patients treated with BFA) and high (>127 patients treated

Table 2. Descriptive Statistics for Providers Practicing Battlefield Acupuncture

Variable	*Total* (n = *37*), n *(%)*	*Missing data,* n *(%)*
Want to do more BFA		
Yes	23 (62.2)	1 (2.7)
Interested in instructing BFA		
Yes	19 (51.4)	2 (5.4)
Average BFA treatments per patient		0 (0)
1–2 treatments	12 (32.4)	
3–4 treatments	16 (43.2)	
5–6 treatments	6 (16.2)	
7–8 treatments	2 (5.4)	
>8 treatments	1 (2.7)	
Average duration of pain relief per treatment		0 (0)
<1 week	5 (14.3)	
1–2 weeks	18 (51.4)	
3–4 weeks	8 (22.9)	
>4 weeks	4 (11.4)	
Average interval between BFA appointments		0 (0)
1–2 weeks	7 (18.9)	
3–4 weeks	15 (40.5)	
4–8 weeks	12 (32.4)	
>8 weeks	3 (8.1)	
Average time to complete BFA procedure		1 (2.7)
0–5 minutes	3 (8.1)	
6–10minutes	10 (27)	
11–15 minutes	16 (43.2)	
16–20 minutes	4 (10.8)	
21–25 minutes	2 (5.4)	
26–30 minutes	1 (2.7)	
BFA referrals received		
Yes	20 (54.1)	2 (5.4)
Have BFA follow-up appointments		
Yes	28 (75.7)	2 (5.4)
	Mean (SD)	
Total patients treated with BFA	274.95 (540.20)	0 (0)
Patients treated with BFA in the last year	121.08 (208.43)	0 (0)
Patients treated with BFA in the last month	13.92 (17.45)	0 (0)
Percentage of BFA treatments provided for		
Pain	97.30 (8.92)	0 (0)
Mood	2.95 (10.15)	0 (0)
Nausea	0.62 (2.33)	0 (0)
Other conditions	3.76 (16.46)	0 (0)
Percentage of patients with meaningful pain relief	70.68 (19.77)	0 (0)

SD, standard deviation.

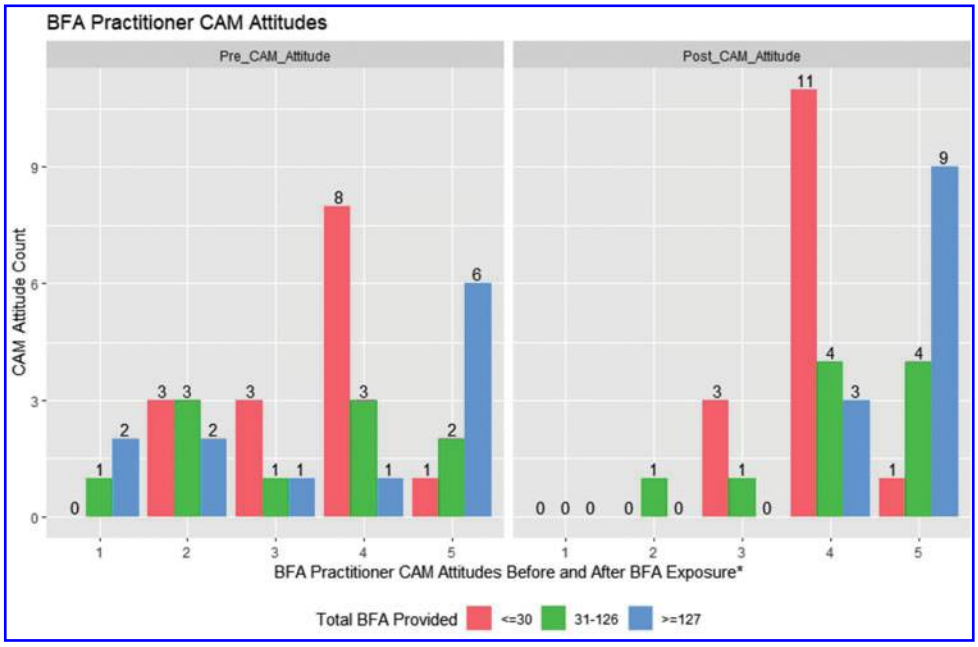

FIG. 1. BFA practitioner CAM attitudes pre- and post-BFA exposure. *CAM attitudes measured on a 5-point Likert scale from 1—highly skeptical to 5—highly enthusiastic. BFA, battlefield acupuncture; CAM, complementary and alternative medicine.

with BFA) average total BFA levels (3.86 ± 0.16 vs. 4.72 ± 0.18, respectively). BFA-P CAM attitudes before- and after-exposure to BFA training are plotted by average total BFA provided (Fig. 1).

The relationship between post-CAM attitudes and percentage of patients experiencing meaningful pain relief was also assessed. A moderately positive significant relationship between the percentage of patients (BFA-P had treated) who experienced meaningful pain relief and post-CAM attitudes was observed ($r = 0.47$, $n = 35$, $P = 0.003$).

BFA Nonpractitioners

BFA-NP specialties were predominantly composed of the ''Other'' category (57.1%), followed by primary care (39.3%) and neurology (3.6%). Despite lack of current BFA practice, 32.1% of BFA-NP had clinical privileges to perform BFA. Among BFA-NP providers, lack of time in their practice (46.4%) was the most common explanation for not currently providing BFA to patients, closely followed by ''Other'' (39.3%). No significant difference was detected between BFA-P and BFA-NP pre-CAM attitudes [$t(63) = 0.997$, $P = 0.32$]. BFA-NP CAM attitudes before- and after-exposure to BFA training also suggested a reduction in skepticism and an increase in enthusiasm. Accordingly, mean BFA-NP pre-CAM attitudes (3.71 ± 0.98) were also lower than post-CAM attitudes (4.14 ± 0.65). A dependent samples *t*-test was conducted to determine whether mean BFA-NP pre-CAM attitudes were significantly different from their mean post-CAM attitudes. The observed reduction in skepticism for BFA-NP post-CAM attitudes was a statistically significant difference of 0.43 [95% CI, −0.79 to −0.07), $t(27) = -2.5$, $P = 0.02$].

Qualitative Analysis

Thematic analysis and theme frequency counts were conducted on provider open-ended responses across the following topics: (1) reasons for not currently being privileged to perform BFA; (2) what could be done to help providers (who want to practice more BFA) practice more BFA than they are currently practicing; and (3) CAM attitude. Provider responses related to given emergent themes were then counted for corresponding theme frequencies.

Reasons Provided for Not Currently Being Privileged to Perform BFA

The most salient themes identified for reasons for currently not being privileged to perform BFA included having an overworked schedule, lack of suitable patients for BFA, lack of an appropriate clinic setting, and Veterans Affairs (VA) bureaucracy (Table 3).

By and large, the theme of having an overworked schedule (15 BFA-NP) was the most frequent theme across

TABLE 3. THEMATIC ANALYSIS AND FREQUENCY COUNT FOR BATTLEFIELD ACUPUNCTURE NONPROVIDERS ($n = 28$)

Variable emergent theme	*Frequency count*
Reasons for currently not being privileged	19
Overworked schedule	15
Lack of suitable patients for BFA	4
Not provided appropriate clinic	2
VA bureaucracy	3

VA, Veterans Affairs.

all responses. Many providers reported struggling to manage BFA appointments amid a currently overbooked clinic and how providing BFA ''add[ed] to [their] overworked schedule, unless the total volume of patients [were] reduced.'' Many providers stressed they were ''busy with [their] case load[s]'' and undertaking the BFA credentialing process was a challenging task. Furthermore, 1 provider appeared to be disappointed with unkept promises made regarding the reduction of the BFA providers' caseloads. One provider stated: ''[Our] patient panel size [was] promised to be reduced but was not.'' This theme was closely related to 2 subthemes, which appeared to be by-products of providers' overworked schedules: lack of time (4 BFA-NP) and BFA not a priority (3 BFA-NP). Several providers expressed discontinued interest in pursuing BFA beyond the training due to other competing clinical priorities. As 1 provider stated when referring to missing the BFA application deadline: ''[I] let it lapse, [I] have other clinical priorities.'' Another provider also pointed out that BFA is ''not expected as part of clinical duties.''

Another salient theme among providers who were not currently clinically privileged to perform BFA was lack of suitable patients for BFA (4 BFA-NP). As 1 provider stated: ''Our patients generally have severe cancer-related malignant pain syndrome. Most are already on fairly high doses of opioids plus adjuvants.'' Subsequently, this theme appeared to be a source for the subtheme of insufficient number of BFA appointments (3 BFA-NP). Various providers noted they were unable to maintain existing privileges based on the Ongoing Professional Practice Evaluation (OPPE)'s minimum patient quota of 10 BFA appointments annually.

Another emergent theme for reasons providers were currently not privileged to perform BFA was an inappropriate BFA clinical practice setting (2 BFA-NP). In fact, 1 provider mentioned ''patients [were] being referred to pain management'' as a means of coping with space limitations and an overworked schedule. In addition, lack of suitable patients for BFA treatments were also noted as a reason for not currently being privileged to perform BFA. This concern was specifically expressed by providers treating patients who were already on high doses of pain relievers (2 BFA-NP). This theme was also closely linked to the subtheme of insufficient number of BFA appointments (1 BFA-NP) to meet the minimum annual quota (i.e., 10 BFA appointments).

Finally, the VA's bureaucratic organizational structure (2 BFA-NP) was noted as another specific reason for lacking BFA clinical privileges. As expressed by 1 provider, it appeared this hierarchical structure impeded the efficiency of credentialing processes due to the rigid nature of organizational rules and/or requirements. For instance, lack of supervisor approval was mentioned as a direct barrier to pursuing the BFA credentialing process. As 1 provider stated, the supervisor ''did not wish to approve'' them the clinical privileges to perform BFA. Another provider described the BFA credentialing process as ''arduous'' and said ''[I] gave up.''

BFA Attitude Comments

Emergent themes for BFA attitude comments included the acknowledgement of BFA as a useful alternative pain treatment, belief in BFA's effectiveness, the desire for greater educational opportunities on acupuncture for providers, an emphasis that there is no ''one-size-fits-all'' approach for pain management, looking forward to trying practicing BFA, lack of evidence of BFA efficacy, have not seen pain relief, and not giving up practicing BFA.

Overall, acknowledgement of BFA as a useful alternative pain treatment (13 BFA-P) was the most frequent theme for BFA attitude comments. Many providers noted the utility of BFA in their practice given the present need for non-narcotic alternatives. Other recurring BFA advantages mentioned by providers included its short treatment duration and low cost. As 1 provider stated, BFA ''is an alternative treatment for pain without the use of opioids and not invasive, not expensive and fast.''

Another salient theme for BFA attitude comments was belief in BFA effectiveness (7 BFA-P). Although the majority of providers who reported belief in BFA treatment's effectiveness (i.e., yielding meaningful pain relief) had formerly been skeptical of BFA (5 BFA-P), 1 provider reported anecdotal patient pain relief had reinforced the provider's belief in BFA effectiveness. One provider noted: ''I was not sold on the idea until I saw a significant portion of patients, who were also skeptical, receive relief.'' In addition, another provider placed emphasis on the significant pain relief observed in patients, such as ''walking without canes'' and ''complete pain relief after 15 years.''

Some providers also expressed a strong desire for more educational initiatives on CAM and acupuncture (4 BFA-P). Specifically, these providers indicated interest in broadening their knowledge and skills beyond BFA and extending their knowledge of acupuncture in general. Furthermore, these providers appeared to not only be eager to learn more about acupuncture, but they also voiced their intent to use future trainings to better educate their patients. As 1 provider stated:

''I love alternative/integrative medicine and love to educate and treat my patients with alternative medicine. and would love to get more training if there are more learning opportunities in alternative/integrative medicine.''

Another frequently expressed theme for BFA attitude comments was treating pain is not a one-size-fits-all approach (4 BFA-P). Several providers placed emphasis on the fact that there is no one-size-fits-all approach for pain management; however, they did add BFA is a good option for those patients who do respond favorably. Providers expressing this paradigm appeared to share a common understanding that BFA is ''an extra tool in the toolbox'' for

pain treatment, wherein treatment effectiveness is contingent on the complex interplay of a multitude of factors. One provider stated: ''[The] impact of complementary/alternative treatments is like all of ''medicine''- patient specific, based on diagnosis, clinical trajectory, and complex psychosocial factors.''

Particularly among providers who were not currently practicing BFA, another emergent theme for BFA attitude comments was looking forward to trying BFA with patients in need of pain treatment (3 BFA-P). Several providers who were not currently practicing BFA expressed enthusiasm in beginning their practice, particularly due to anecdotal evidence shared by colleagues. One provider stated: ''I have heard that BFA has been beneficial to those patients that have had it done.''

Two providers noted the current lack of research literature to support BFA treatment efficacy (2 BFA-P). These providers were current BFA providers with the lowest rates of anecdotal BFA effectiveness in their own practice (30% and 50%, respectively). Other providers did not comment on their opinions of BFA efficacy, but instead asserted some of their patients ''have not seen pain relief'' (2 BFA-NP). Of note, these assertations did not appear to be a direct result from their own BFA practice, given neither of these providers were current BFA providers. These providers noted 3 patient conditions for which BFA had not seemed to ''work'' for: cancer-related pain, ENT-related pain, and atypical facial pain. Finally, not giving up practicing BFA despite the barriers (1 BFA-P) was the theme with the lowest frequency. Specific barriers noted, included a large patient panel size that was not reduced, and insufficient appointment time allotted for each BFA procedure. Thematic analyses compared for each provider group (i.e., BFA-P and BFA-NP) on BFA attitude comments rendered no salient provider group differences. However, current BFA providers requested more educational opportunities be made available on acupuncture in general.

What Could Be Done to Help Do More BFA than Currently Doing

Emergent themes for what could be done to help providers (who want to practice more BFA) practice more BFA than they are currently practicing, included a reduced patient panel size for more clinical time, developing a comprehensive rehabilitation pain team, more referrals/appointments, and provider education on the range of symptoms addressed by BFA (Table 4).

The most frequently occurring theme for what could be done to help providers practice more BFA than they are currently practicing was a reduced patient panel size for more clinical time (10 BFA-P). Many providers voiced their schedules were currently full and more clinical time to perform BFA treatments would only be feasible through the reduction of their current patient panel size. Another salient theme for increased BFA practice was developing a comprehensive rehabilitation pain team (5 BFA-P). Several providers noted there would be added value in forming multidisciplinary teams of providers (adjunct to therapy) offering other alternative therapies covering a broader scope of symptoms beyond pain (e.g., nausea or mood). Other providers reported an increase in the number of BFA referrals and more daily BFA appointments would translate to increased BFA practice (2 BFA-P). Finally, offering provider education on the range of symptoms addressed by BFA was noted as a helpful tool in aiding providers identify patients in need of BFA treatment (1 BFA-P).

Table 4. Thematic Analysis and Frequency Count for Battlefield Acupuncture Providers ($n = 37$)

Variable emergent theme	*Frequency count*
What could be done to do more BFA than currently doing	20
Reduce patient panel size for more clinical time	10
Develop a comprehensive rehab pain team	5
More referrals/appointments	2
Provider education on range of symptoms addressed by BFA	1

DISCUSSION

The primary purpose of this study was to exploratorily assess VA provider attitudes and beliefs regarding the provision of BFA in the VA Healthcare System using mixed methods. A questionnaire was designed to address 5 main objectives regarding providers' perceptions of BFA treatment concerning: (1) the extent of Veterans' pain relief, (2) the duration of the pain relief, (3) the frequency with which return appointments were scheduled, (4) the effect exposure and experience with BFA had on attitudes toward CAM, and (5) facilitators and barriers to BFA practice. A descriptive analysis of the providers' responses indicated that providers estimated that 70.7% of Veterans obtained meaningful pain relief from BFA treatment. Findings from Federman et al.[20] corroborate our findings with an immediate decrease in self-reported pain reported to occur in 616/754 (82.0%) of their Veteran patient encounters. Further descriptive findings from our sample indicated 66% of providers thought that BFA pain relief lasted 2 weeks or less, whereas 81% of recheck appointments were scheduled at 3–4-week intervals or greater. This apparent mismatch suggests that Veterans are vulnerable to experiencing less than optimal application of BFA-mediated pain relief, particularly if they suffer severe or longstanding complex pain syndromes. Factors that are likely to contribute to the mismatch include many

providers' congested caseloads, time constraints, and administrative burdens as documented by this study and by Taylor et al.[24] It is interesting to note that mere exposure to BFA training is enough to shift attitudes regarding CAM in general. There is a larger shift in attitudes among high volume providers, compared with low volume providers, which might suggest that greater positive experience with BFA also encourages a greater openness to CAM. It is also possible that exposure to a larger patient pool has allowed more experienced BFA-Ps to refine their selection of appropriate BFA patient candidates and improve their delivery of the BFA procedure itself, thus obtaining greater patient self-report of pain relief and engendering a reduction in skeptical attitudes toward CAM. Of note, this study found providers who were not currently providing BFA for their patients also demonstrated a reduction in skepticism toward CAM after exposure to BFA training; however, this reduction was somewhat smaller than that displayed by BFA-P after exposure to BFA training. Lowering barriers to provision of BFA is likely to lead to a greater number of Veterans being treated, and perhaps at shorter intervals, leading to a more satisfactory experience for Veteran patients and practitioners alike.

Qualitative analyses explored the emergence of salient themes (and corresponding theme frequency counts) across provider open-ended responses to the following variables: (1) reasons for not currently being privileged to perform BFA; (2) barriers encountered in the BFA credentialing process; (3) what could be done to help providers (who want to practice more BFA) practice more BFA; and (4) BFA attitude comments. Questions regarding reasons for not currently being privileged to perform BFA and barriers encountered in the BFA credentialing process were similarly interpreted by respondents, given there was a large overlap in themes and corresponding theme frequencies; additionally, both questions were only answered by BFA NP. The most salient theme for both questions was an overworked schedule, closely followed by a lack of suitable patients for BFA and not being provided an appropriate clinic for BFA practice. It should be noted that although 1 provider indicated patients with severe cancer-related pain syndrome do not appear to obtain meaningful pain relief from BFA treatment, the literature points to some evidence that auricular acupuncture reduces pain in cancer patients.[26,27]

The barrier of an overworked schedule among BFA NP was also alluded to in BFA-Practitioner responses when asked what could be done to help providers (who want to practice more BFA) practice more BFA. Interestingly, only BFA-P responded to this question and an overwhelming majority recommended reducing BFA-Practitioners' patient panel size for more clinical time to devote to BFA practice. Qualitative findings also suggested that BFA-P believed additional expertise was needed to properly address patient pain management, specifically in the form of a comprehensive rehabilitation pain team. The need for additional provider education regarding acupuncture in general was also voiced by BFA providers in response to general BFA attitude comments.

Our findings are consistent with CAM literature suggesting a large majority of physicians report insufficient time as a barrier to talking with their patients about CAM and physicians' strong desire to increase their CAM knowledge.[28,29] Although contemporary physician education has aimed to incorporate CAM knowledge, recent literature indicates patient and physician self-report data assert additional efforts are needed to increase physician CAM knowledge.[29] Such findings may point to a growing need for VA BFA provider booster sessions targeting broader CAM content coverage and skill refinement. By facilitating providers' desire to help their patients navigate this complex realm, a coordinated CAM program at each medical center can help ensure that all patients receive evidence-based information with which to make decisions about CAM. In the meantime, amid an overworked environment, the option for providers to redirect patients in need of BFA treatment to comprehensive pain management clinics, including rehabilitation pain teams in a specialized clinical setting, or the option for increased physician prescribed BFA delivery by nonphysicians (e.g., physician assistants or advanced registered nurse practitioners) would also be helpful.

Provider BFA attitude comments also encompassed views about treatment utility and effectiveness. Although the majority of providers reported positive attitudes toward treatment effectiveness, responses regarding BFA treatment efficacy were on a continuum. Very few providers reported high skepticism of BFA effectiveness; however, an attitude conveying moderation was expressed by other providers currently practicing BFA. These providers emphasized there is no ''one-size-fits-all'' approach to pain management and that the suitability and effectiveness of pain treatment for patients was contextual; nonetheless, these individuals also acknowledged BFA is a good option for those patients who do respond favorably.

Limitations

This study was not without limitations. Although survey nonrespondents had also received BFA training, we were unable to identify whether they were BFA-P versus BFA-NP, as they did not fill out the survey. However, we were able to obtain survey nonrespondent specialty and credentialing distributions. Similar to survey respondents, survey nonrespondents were primarily physicians with primary care specialty. As such, our high response rate (76%) yielded a representative sample of the credential and specialty distribution for BFA-trained providers at NF/SG Veterans Health Administration at the time of data collection. Data collected only reflected provider perspectives and patient meaningful pain relief due to BFA treatment was

subject to recall bias. Also, quantitative findings were all cross-sectional in design; thus, causality cannot be inferred. In addition, due to the short length of provider open-ended responses, the data lacked richness and data saturation was not reached. It is also likely the bivariate relationships assessed were confounded by multiple factors, such as pain severity, whether the pain was acute or chronic, and pain location. There is also a possibility that skill degradation could have taken place during the average interval of 7 months between provider BFA training and initiation of BFA practice; however, further research is warranted to establish a time range associated with significant BFA skill decay. In terms of perceived barriers to BFA implementation and practice, it is unclear whether the policies and procedures in place at the NF/SG VHS at the time of our questionnaire are typical of other VHA facilities. Further research is warranted to gain greater understanding of the variability in BFA policies and procedures across the VHA.

Strengths

This study has several strengths. Mixed methods were employed for cross verification of findings and CAM attitudes were compared before and after a standardized BFA training that all providers underwent; thus, enhancing the validity of pre- and post-BFA training CAM attitude data. Our questionnaire's response rate was also high (>70%) and had little missing data (5%); thus, suggesting we had a representative sample for the region under study. Furthermore, the questions were designed by a team of researchers in collaboration with an experienced BFA-P physician.

Directions for Future Research

Given our findings suggest a gap in perceived treatment effectiveness, particularly between more experienced and less experienced BFA-P; future qualitative research can exploratorily assess best BFA practices from more experienced BFA-P. Data on expert approaches to patient screening for BFA treatment could yield valuable clinical information on patient characteristics and/or conditions that are optimal for meaningful pain relief after BFA treatment and which are not.

CONCLUSIONS

Our findings add to the evidence that BFA is an effective modality to reduce pain in most patients and is generally accepted by providers. The mismatch between estimated interval of pain relief (1–2 weeks) and the frequency of appointments (3–4 weeks) suggests that BFA may be being applied suboptimally. We also found that exposure to BFA training is associated with greater CAM enthusiasm in general. In addition, post-BFA training CAM attitudes are positively linked to provider experience practicing BFA and the percentage of patients they treat experiencing meaningful pain relief. The establishment of comprehensive rehabilitation pain management teams coupled with the development of CAM programs (e.g., consult service or other evidence-based clinical program) housed at each medical center was favored by the BFA providers.

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