WILDERNESS INSTRUCTOR

Characteristics and Motivating Factors of Attendees of a Regional Student-Run Wilderness Medicine Conference

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Despite recent growth, opportunities for preclinical medical students to engage with the field of wilderness medicine remain geographically, financially, and logistically limited. Attendees of the 2018 Mid-Atlantic Student Wilderness Medicine Conference were invited to complete a post hoc web-based survey after the event. Results of the survey were analyzed to determine the demographic characteristics and motivating factors for attendance, as well as perceived conference performance and future behavioral intention of survey respondents. The majority of attendees were preclinical level medical students, 37% of whom were affiliated with their institutions' wilderness medicine interest group and 40% of whom were affiliated with an emergency medicine interest group. Intrinsically motivating factors such as personal interest and opportunities for educational enrichment were significantly more important in determining conference attendance than extrinsically motivating factors such as cost and networking opportunities. Data from this conference support many encouraging trends and suggest that regional conferences may represent a practical way to increase access to wilderness medicine in the preclinical medical student population and thereby influence career decision.

Keywords: education, medical, undergraduate students, mid-Atlantic

Introduction

During the past decade, the field of wilderness medicine (WM) has experienced immense growth, accompanied by increased academic awareness at the undergraduate and postgraduate levels. In response, many organizations have begun coordinating student electives, national conferences, and commercial courses across the United States.¹ However, many of these opportunities are reserved for senior-level medical students, run for 2 to 6 wk, cost between \$350 and \$2200 (USD), and are only offered through a handful of universities.² Unfortunately, these factors create logistical, financial, and geographic barriers for students hoping to explore the field.³ To continue the growth of WM, the field must work to expand opportunities to preclinical medical students in a financially and regionally accessible way.

At this time, regional educational conferences may be one way for students of all levels and from all locales to

access WM education. Attending a conference offers a high-yield approach for these students to explore the different professions available to them and become involved in like-minded professional communities. WM conference attendees have found these events to be an engaging and rewarding academic experience.⁴ However, one study suggests that it has become increasingly difficult to put on well-attended events because of the competition for potential attendees' money and time.⁵ Additionally, it has been suggested that conferences are often perceived as being essential to advance one's career, such that they are often attended out of a feeling of necessity or requirement rather than personal interest.⁶

Every 2 y, the Wilderness and Disaster Medicine Society of Sidney Kimmel Medical College at Thomas Jefferson University hosts the Mid-Atlantic Student Wilderness Medicine Conference (MASWMC), a regional, 2-d event taking place in Philadelphia, PA. The 2018 MASWMC was the conference's fifth iteration. In the present study, we used data collected from the 2018 MASWMC to analyze the characteristics and motivating factors of attendees, and we surveyed how attendance affected these students' view of WM. Using this

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information, we hope to offer insight into how to plan a successful regional medicine conference by specifically addressing what motivates students to attend. We hypothesize that when determining attendance, students are most highly motivated by intrinsic factors such as personal interest and educational enrichment opportunities.

Methods

The 2018 MAWSMC was held on March 3 and 4, 2018, in Philadelphia, PA. On the second afternoon of the conference, a web-based survey (Google LLC, Google Forms, version 5.0. Mountain View, CA) was sent to the e-mail address of all registered participants. The survey was developed following an informal literature review of topics related to event evaluation and conference attendance behavior across all fields, medicine included, with the primary goal of evaluating the success of the program. The present study was a secondary analysis of a portion of the deidentified survey data using the sections described in the following.

The survey used a multiple choice format to assess demographic characteristics including sex (male, female, unspecified), age (<23, 23–26, 27–30, 31–35, and >35), education level (undergraduate, first-year graduate, second-year graduate, third-year graduate, fourth-year graduate, provider), career discipline (medicine, nursing, EMT, biomedical, other), wilderness and emergency medicine club affiliation, previous MASWMC attendance, and number of other conferences attended.

Participants were then asked to evaluate their motivations for attending the conference using a 5-point Likert scale, with 1 being “not at all important” and 5 being “critically important.” The survey included the 6 intrinsically motivating factors (personal interest, educational enrichment, specific workshops, specific lectures, specific speaker, and exploration in current trends) and 8 extrinsically motivating factors (price, timing, travel opportunities, career enhancement, professional networking, employer/school funded, Fellowship of the Academy of Wilderness Medicine/Continuing Medical Education (CME) credit, and attendance requirement).

The next section assessed the attendees’ impression of the conference’s performance. Attendees were asked to rate various aspects of the conference on a 5-point Likert scale, with 1 being “poor” and 5 being “excellent.” Ten areas were reviewed: cost of attendance, convenience of dates, interesting topics, WM community engagement, quality of operations and logistics, ease of registration process, educational content, quality of food/drink/amenities, quality of social events, and networking opportunities.

The final section of the survey evaluated the behavioral consequences of conference attendance. Attendees were

given 3 statements and asked to rank them on a 5-point Likert scale indicating their level of agreement, with 1 being “strongly disagree” and 5 being “strongly agree.” The following 3 statements were provided: “I am likely to recommend this conference to other friends/colleagues,” “I am more interested in getting involved in wilderness medicine after this conference,” and “I am likely to attend this conference again in the future.”

The survey responses were compiled into Excel (Microsoft Corp, Microsoft Excel for Mac, version 16.3. Redmond, WA), and all data were analyzed in SPSS (IBM Corp, IBM SPSS Statistics for Mac, version 25.0. Armonk, NY). Demographic characteristics are presented as frequency and percentage and were compared using Student’s *t* test. Motivational factor importance scores and performance evaluations are presented as mean $\pm$ SD, as appropriate, and were compared using 1-way between-subjects analysis of variance (ANOVA) and posthoc Tukey tests.

This study did not require institutional review board review because it was a secondary analysis of deidentified data, which does not meet the definition of human subjects research as cited in Department of Health & Human Services (HHS) and Food and Drug Administration regulations at 45 CFR 46.102 & 21 CFR 50.3.

Results

Registration with advanced payment for the 2018 MASWMC totaled 296 students and practitioners. The event was attended by 136, representing a 45% attendance rate. Seventy attendees responded to the postconference survey, representing a 51% response rate. Those who responded to the survey were presumed to have attended the MASWMC because the components studied here were part of a large survey evaluating specific lectures and workshops. The characteristics of the respondents are reported in [Table 1](#). Roughly equal numbers of males (44%) and females (56%) responded, with the majority being between the ages of 23 and 27 y (61%). Most were either in their first year (46%) or second year (24%) of medical school, and nearly all were in the medical field (94%). Respondents were affiliated with their institution’s WM interest group (WMIG) 37% of the time and with their emergency medicine interest group (EMIG) 40% of the time. The vast majority of respondents had not previously attended the MASWMC, but approximately half (46%) had attended at least 1 other medical conference in the past.

The distribution of reported importance for the motivating factors is shown in [Figure 1](#), and importance scores are shown in [Table 2](#). Overall, the 3 most important factors were personal interest (4.6 ± 0.6 , 3–5), price (4.2 ± 0.8 , 2–5), and timing (4.0 ± 1.0 , 1–5). A 1-way between-subjects ANOVA yielded a statistically significant difference

Table 1. Sample characteristics

	Frequency	Percentage
Sex		
Male	31	44
Female	39	56
Unspecified	0	0
Age, y		
<23	13	19
23–26	43	61
27–30	11	16
31–35	3	4
>35	0	0
Education level		
Undergraduate	9	13
First-year medical school	32	46
Second-year medical school	17	24
Third-year medical school	5	7
Fourth-year medical school	5	7
Physician/Practitioner	2	3
Discipline		
Medicine	66	94
Biomedical field	2	3
EMT	1	1
Nursing	1	1
WMIG affiliated		
Yes	26	37
No	44	63
EMIG affiliated		
Yes	28	40
No	42	60
How did you first learn about MASWMC?		
WMIG/EMIG	20	29
E-mail	23	33
Social media	4	3
Friends	21	30
Other	2	3
Previously attended MASWMC?		
Yes	5	7
No	65	93
Number of other medical conferences attended		
None	38	54
1 other	12	17
2 others	11	16
3 others	2	3
4 others	2	3
5 or more	5	7

EMIG, emergency medicine interest group; EMT, emergency medical technician; MASWMC, Mid-Atlantic Student Wilderness Medicine Conference; WMIG, wilderness medicine interest group.
Respondent population data reported as frequency and corresponding percentage.

in the importance score of these 3 highly motivating factors at the $P < 0.05$ level [$F(2,193) = 10.810$, $P < 0.001$]. A post hoc Tukey test showed that the mean importance score for

personal interest differed significantly from the mean importance scores of price and timing at $P < 0.001$. This suggests that the single most important factor in determining conference attendance is personal interest, followed by reasonable price and timing, which did not differ significantly.

The 3 least important motivating factors were attendance required (1.3 ± 0.8 , 1–5), participation in CME (1.4 ± 0.8 , 1–4), and employer/school-funded travel expenses (1.6 ± 1.2 , 1–5). No significant difference existed in the importance score of these 3 minimally motivating factors.

The overall mean importance score for the 2 categories, intrinsically and extrinsically motivating factors, is also shown in Table 2. There was a statistically significant difference in the importance scores for intrinsically (3.3 ± 1.3 , 2.0–4.6) and extrinsically (2.7 ± 1.5 , 1.2–4.2) motivating factors [$t(71) = 3.15$, $P = 0.002$]. These results suggest that intrinsically motivating factors are more important in determining conference attendance than extrinsically motivating factors.

Respondents' evaluation of the conference's performance are shown in Table 3. The 3 highest performance scores were reported as cost of attendance (4.7 ± 0.5 , 3–5), convenience of dates (4.4 ± 0.8 , 1–5), and interesting topics (4.3 ± 0.7 , 3–5). A 1-way between-subjects ANOVA yielded a statistically significant difference in the performance score of these 3 categories at the $P < 0.05$ level [$F(2,207) = 6.671$, $P = 0.002$]. A post hoc Tukey test showed that the mean performance score for the highest scoring category, cost of attendance, differed significantly from the mean performance scores of convenience of dates ($P = 0.012$) and interesting topics ($P = 0.002$).

Results of behavioral intention are shown in Table 4. All respondents reported having the intention to recommend this conference, either agreeing or strongly agreeing with the statement "I am likely to recommend this conference to other friends/colleagues." The vast majority (95%) of respondents intended to get more involved with WM, and 88% intended to return to this conference.

Discussion

The 2018 MASWMC was attended by 136 people representing 46 unique institutions and healthcare networks spanning the eastern coast of the United States from Maine to Georgia. The majority (70%) of survey respondents were in their first or second year of medical school. This finding supports the notion that conferences may represent an opportunity to access preclinical medical students. This is especially encouraging within field of WM because this population's interaction with the field has previously been limited.³

Figure 1. Importance of motivating factors in determining conference attendance. Boxplot distribution of the reported importance of the 6 intrinsically (upper) and 8 extrinsically (lower) motivating factors in determining conference attendance.

Access to first- and second-year medical students is important; one previous study showed that early exposure affects career choice and specialty selection.⁷ We believe that conferences have the potential to provide this necessary early exposure, and our data indicate that attending a WM conference positively influences career decisions and modifies behavioral intention. The vast majority (95%) of our respondents said they intended to get more involved in WM after attending the conference. We hypothesize that this is because conferences allow attendees to explore “fit” within a community. Studies have shown that personal

fit is considered the most influential factor in choosing a medical specialty and results from exploring one’s peers within the specialty.⁸ Performance evaluation of our event indicated that attendees believed there was opportunity to engage with the WM community, and it is this interaction that is perhaps one of the most beneficial aspects of conference attendance.

Opportunity to interact with the community of WM is just one of many factors that have the potential to motivate conference attendance. Motivation can be broadly divided into 2 categories: intrinsic and extrinsic. Individuals are

Table 2. Motivating factors for conference attendance

	<i>Mean</i>	<i>SD</i>
Intrinsic motivating factors	3.3	1.3
Personal interest	4.6	0.6
Educational enrichment	3.8	0.8
Specific workshops	3.4	1.1
Specific lectures	3.4	0.1
Exploration in current trends	2.8	1.1
Specific speaker	1.8	0.9
Extrinsic motivating factors	2.7	1.5
Price	4.2	0.8
Timing	4.0	1.0
Travel opportunity	3.0	1.4
Career enhancement	3.0	1.3
Professional networking	2.9	1.3
Employer/School funded	1.6	1.2
FAWM/CME credit	1.4	0.8
Attendance requirement	1.2	0.8

FAWM/CME, Fellowship of the Academy of Wilderness Medicine/Continuing Medical Education.

Importance of motivating factors in conference attendance reported as mean scores, where 1 corresponds to "not at all important" and 5 corresponds to "critical."

driven to act for extrinsic reasons when they anticipate a tangible reward or payoff, such as monetary gain or savings. In contrast, individuals are said to be intrinsically motivated when they engage in activities for their own sake, such as to derive satisfaction in learning something new or discovering things of personal interest.⁹ Previous literature evaluating medical students' motivations for attending conferences concluded that although students found their experiences at conferences rewarding, they often felt as though attendance was necessary for career advancement.^{4,6} This suggests that students may attend

Table 3. Performance evaluation of conference

	<i>Mean</i>	<i>SD</i>
Cost of attendance	4.7	0.5
Convenience of dates	4.4	0.8
Interesting topics	4.3	0.7
WM community engagement	4.3	0.7
Quality of operations/logistics	4.2	0.7
Ease of registration process	4.2	0.8
Educational content	4.1	0.7
Quality of food/drink/amenities	4.0	0.9
Quality of social events	3.8	0.9
Networking opportunities	3.2	0.9

WM, wilderness medicine.

Attendees' impression of the conference performance reported as mean scores, where 1 corresponds to "poor" and 5 corresponds to "excellent."

Table 4. Behavioral intention

	<i>Frequency</i>	<i>Percentage</i>
Intention to recommend conference: "I am likely to recommend this conference to other friends/colleagues."		
Strongly agree	50	71
Agree	20	29
Neutral	0	0
Disagree	0	0
Strongly disagree	0	0
Intention to pursue WM education: "I am more interested in getting involved in wilderness medicine after this conference."		
Strongly agree	43	61
Agree	24	34
Neutral	3	4
Disagree	0	0
Strongly disagree	0	0
Intention to return: "I am likely to attend this conference again in the future."		
Strongly agree	34	49
Agree	28	40
Neutral	7	10
Disagree	1	1
Strongly disagree	0	0

WM, wilderness medicine.

Behavioral consequences of conference attendance reported as mean scores, where 1 corresponds to "strongly disagree" and 5 corresponds to "strongly agree."

out of a feeling of necessity rather than personal interest, and thus motivation is extrinsic rather than intrinsic.

This does not seem to be applicable to 2018 MASWMC attendees. In fact, our findings support an emerging shift in motivations from extrinsic motivators such as career advancement to intrinsic motivators such as personal interest and educational enrichment. We assessed 14 motivational factors, 6 intrinsic and 8 extrinsic. Our data demonstrated that as a whole, intrinsically motivating factors such as personal interest in the topics covered and the opportunity to attend specific workshops and lectures were significantly more important in determining MASWMC attendance than extrinsically motivating factors such as cost or convenience. Furthermore, our data directly contradict the previous observation that students predominantly attend conferences to advance their career.⁸ The importance scores for career enhancement and professional networking fall below that of intrinsically motivating factors such as educational enrichment, specific workshops and specific lectures. These findings may offer insight into

how to best attract attendees to future WM events to continue the growth of the field.

Our survey respondents indicated that the biggest motivator for them to attend the 2018 MASWMC was a personal interest in WM and the topics covered at the conference. Conference content included lectures and hands-on skills sessions focused on disaster medicine, global and public health, humanitarian response, travel and expedition medicine, austere surgery, military medicine, fire starting, litter building, knot tying, and swift water rescue. The 2018 MASWMC appealed to personal interest though targeted advertising. Our team used a publicity strategy aimed at reaching medical students we knew to be already interested in WM, as evidenced through affiliation with their institution's WMIG. Additionally, we sought out students who may potentially be interested by targeting institutional EMIGs and military medicine interest groups.

Although as a whole, intrinsic motivators were found to be more influential than extrinsic motivators, when looking at each factor individually the importance of affordable price and convenient timing cannot be overlooked. Cost factored into attendees' overall satisfaction, and it is an important factor to consider when hosting a regional conference. The price of our 2-d event, which included access to educational content, meals, and apparel, ranged from \$35 to \$50 depending on level of education and timing of registration. When looking at other WM conferences, the cost ranged from \$50 to \$450 (USD) for medical students.^{10–13} More than 85% of medical students graduate with debt, with the average debt carried exceeding \$170,000 (USD) per student;¹⁴ thus, it is important to keep registration fees within a reasonable range.

Beyond financial stress, medical students have been taxed for time. Many studies cite the lack of free time as a result of medical school obligations as a major factor in the perceived reduced quality of life that medical students experience.¹⁵ The 2018 MASWMC was planned for a weekend kicking off a typical medical school spring-break window with the thought that students would have just concluded an examination block and feel they have more time to dedicate to extracurricular studies. Thus, with limited funds and limited time, it is immensely important that conferences that intend to attract students be affordable and convenient.

Finally, analysis of our data indicates that only 40% of respondents were affiliated with their institution's EMIG. This implies that 60% of those who responded are interested in WM, but not necessarily interested in EM. This is a significant finding because it suggests that a large demographic, potentially even a majority of all medical trainees, are missed in the current structure of WM training opportunities. Currently, the majority of WM fellowships are available exclusively to graduates of residences in EM.¹⁶ In

2016, 14 WM fellowships were listed through the Society for Academic Emergency Medicine;¹⁶ however, only 2 of these fellowship programs welcomed family medicine—trained physicians. This means that outside of EM and FM, there is no route for a physician in another specialty to pursue a Society for Academic Emergency Medicine—recognized WM fellowship. As the scope and practice of WM continue to evolve, the diversity of health-care providers who are interested in pursuing this field will likewise evolve. Our data support this trend, suggesting that a number of students who attended the MASWMC may be pursuing a career in a different specialty, as evidenced by their lack of affiliation with an EMIG. A regional WM conference can provide opportunities for students interested in other specialties to gain WM knowledge and skills and adapt those skills to their specific interests and practice scope.

Additional studies should examine the distribution of intended specialties in the population of students who identify as interested in WM. This unaddressed potential to incorporate WM content into other specialty training programs should be explored and formally studied. Such research will provide further insights into how the WM community can continue to grow by connecting with other, less traditional postgraduate tracks to a career in this field. Another potential area of interest would be to follow up with student respondents in 5 y to learn how attendance affected their choice of specialty.

This study has several limitations. While 296 people registered to attend the conference, only 136 attended. This may have been, in part, due to a large snow storm that hit the northeast just before the conference weekend making travel difficult. Regardless, the survey was sent to all registrants of the conference; attendance by respondents was presumed because the component studied here was part of a larger survey evaluating specific lectures and workshops. However, the possibility of responses outside of attendees cannot be excluded. Furthermore, survey response rate was 51%, effectively omitting half of the available attendee data. There is a possible selection bias in motivating factors, especially personal interest, because recruitment methods specifically targeted populations who were inherently interested in WM due to their affiliation with their institution's WMIG or EMIG. Finally, the survey was only distributed to those who registered for the event, but results may be more all-inclusive if those who received the targeted e-mail ads from their school's interest group, but decided not to register, were also surveyed.

Conclusion

Our data suggest that conferences such as the 2018 MASWMC offer an accessible experience and are capable

of encouraging and maintaining learner involvement in the field of WM. The growth of this unique branch of medicine depends on expanding opportunities to engage with the field. These opportunities should continue to foster curiosity and attention in students who have existing interest, but perhaps more importantly should inspire those who have not yet considered WM as a career.

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