JAPMA Article In Press
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Factors Associated with and Barriers to the Journal Publication of Oral Abstracts From the American Podiatric Medical Association: 2010-2014

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Abstract:

Not all abstracts accepted for oral presentation at the American Podiatric Medical Associations (APMA) annual conference ultimately go on to successfully navigate the

peer review process to achieve journal publication despite its obvious merits. The purpose of the present study was to identify the factors associated with, and barriers to the journal publication and time to publication for oral abstracts from the APMA conference from 2010 to 2014. Databases containing information on the abstracts were procured and predictor variables categorized as abstract-or author specific. Bivariate analysis was conducted using the Mann-Whitney U-Test, Fisher's exact test, chi-square test of independence, or Spearman's rank correlation. Multivariable logistic regression, and generalized linear regression models were utilized to analyze predictor variables. A questionnaire was distributed to the primary authors of any unpublished abstracts to determine the current status of the abstract, as well as the reasons for the failure to pursue, or achieve journal publication. Overall, oral abstracts by authors without a formal research degree were published more often than abstracts by authors with a research degree, as were funded projects (p=0.031). No other associations were identified between any of the abstract and author specific variables and successful conversion of an oral abstract to a journal publication or the time to publication. Six barriers questionnaires were completed. At the time of the survey, 2 oral abstracts had since achieved publication, 2 had been submitted for publication but were rejected, and 2 had never been submitted. The principal reason citied by the authors for the failure to pursue or achieve journal publication was insufficient time for manuscript preparation.

National society conferences are used to disseminate the latest research and innovations through oral and poster abstract presentations annually (1-6). However, not

all of the presented abstracts ultimately go on to successfully navigate the more rigorous peer review process to achieve journal publication (JP), despite its obvious merits. From 2010 to 2014, 14 of the 31 (45.2%) oral abstracts presented at the annual American Podiatric Medical Association (APMA) conference subsequently achieved JP. However, the factors associated with, and barriers to the successful conversion of the abstracts remains unclear. The purpose of the present study was to identify the factors associated with, and barriers to the JP and time to publication (TP) for oral abstracts from the APMA conference from 2010 to 2014.

Materials and Methods:

Factors Associated with Publication

From a previous study (1), a database containing information on the oral abstracts accepted for presentation at the APMA conference from 2010 to 2014 was procured. The database included basic information originally compiled and provided by the APMA office (author names, abstract titles, year of presentation), as well as information determined subsequently thereafter (publication incidence, meantime to publication, journal of publication, and publication within 3 years of conference presentation) for the purposes of the original study (1). For each abstract (n=31), PubMed, Google Scholar, and Scopus searches were repeated to confirm the publication status (published, unpublished) previously identified (1). Manual searches (www.google.com) were then performed using the database to identify and record predictor variables potentially associated with the abstracts successful conversion. The

variables were classified as either abstract-or author specific (7). Abstract specific variables included the institution type (academic versus non-academic), type of research (patient oriented, basic/laboratory), study design (meta-analysis, systematic review, randomized controlled trial, prospective cohort, retrospective cohort, case-control, case-series, or laboratory study), and funding (yes, or no). Author specific variables included the primary authors level of training (faculty, fellow, resident, student), number of prior journal publications (preceding the respective date of abstracts presentation), and presence of a research degree (doctoral, masters, none).

Barriers to Publication

Questionnaires were distributed in November of 2018 to the primary authors (n=17) of the unpublished oral abstracts via email (APMA Membership Directory, or private email) to assess the current status of the projects (8). In the electronic message, a summary of information relevant to the study was provided along with the title of the authors unpublished oral abstract, and the barriers questionnaire summarized below. If a response was not obtained within 2 weeks of the initial query (n= 14), repeated attempts were made to contact the authors via email until communication was established or 3 failed attempts.

Questionnaire

The primary authors were first asked to select one of the following statements: 1) the oral abstract has been published in a journal, 2) the oral abstract has been

published outside of a journal, 3) the oral abstract has been accepted for JP (in-press), 4) the oral abstract is currently under peer-review by a journal, 5) the oral abstract was submitted, and rejected by a journal, 6) the oral abstract was submitted, but withdrawn prior to JP, and 7) the oral abstract was never submitted for JP. If an author responded with either: the oral abstract has been published outside of a journal (statement 2), or the oral abstract was never submitted for JP (statement 7); they were subsequently prompted to select one or more reasons (limit of 3) for why JP had not been pursued, or achieved. These reasons included: 1) insufficient time, 2) insufficient institutional support (financial, material, staff), or formal research mentorship, 3) low priority, 4) difficulty with co-authors, 5) responsibility tasked to another co-author, 6) poor results and/or outcomes, 7) low likelihood of perceived journal acceptance owing to methodological weaknesses, and 8) the study is still currently on-going.

Statistical Analyses

Data were collected, and entered into a statistical database. Duplicate searches, assessments of reliability, and logic checks (accuracy of data entered) were performed. Univariate descriptive statistics were calculated for all study variables. Bivariate analysis were conducted using the Mann-Whitney U-Test, Fisher's Exact test, chi-square test of independence, or Spearman's rank correlation as appropriate. Multivariable logistic regression or a generalized linear model regression were employed to analyze variables as potential predictors of successful abstract conversion (yes vs, no) and time-to-publication (months). Variables in the final logistic models with

p-values less than 0.20 from the bivariate analysis were selected. R 3.4.2 was used for all data analysis (6), and statistical significance was a $P<0.05$. All data were analyzed using STATA, version 12 (StataCorp, College Station, TX).

Results:

Factors Associated with Publication

A total of 31 abstracts were accepted for oral presentation at the APMA conference from 2010 to 2014. Of these abstracts, 45.2% (14/31) achieved JP prior to the previously established cutoff off date (1) at mean of 24.2 (range 0 to 47) months following the conference. Overall, most accepted abstracts were led by attending faculty (97%) from non-academic institutions (55%), and were unfunded (87%). Ninety percent of projects were patient oriented research, while 10% were basic/laboratory research. Retrospective cohorts (n=8, 26%), case series (n=8, 26%), and prospective cohorts (n=5, 16%) were the most frequently accepted study designs. Per project, the mean number of prior journal publications for the primary presenting authors was 34.5 (range, 0 to 153), and most did not possess a formal research degree (n=26, 86%). Descriptive statistics for the abstract/author specific variables, and bivariate associations with respect to JP, and TP are summarized in **Tables 1-2**. A logistic regression model was employed to predict successful JP (academic degree, number of prior publications), and a generalized linear regression model employed to predict TP (academic degree, and funding)(7). Funding was excluded from the logistic regression model since all funded studies were published. Neither multivariate model identified

any significant predictors with respect to the JP or TP. However, bivariate analyses revealed that abstracts by authors without a formal research were published more often than abstracts by authors with a research degree (p= 0.031).

Barriers to Publication

A total of 17 oral abstracts (17/31, 54.8%), each from a different primary presenting author failed to achieve JP prior to the previously established cutoff date (1). Of the 17 authors surveyed, statements were recorded for 6 questionnaires; representing a response rate of 35.3% (6/17). At the time of the survey, 2 (12%) abstracts had since achieved JP, 2 (12%) had been submitted for JP but were rejected, and 2 (12%) had never been submitted for JP (**Table 3**). Thus, the overall JP incidence for oral abstracts from the APMA from 2010 to 2014 increased from 45.2% (14/31) to 51.6% (16/31). Regarding the reasons for failing to pursue or achieve JP, an insufficient amount of time for manuscript preparation (100%) was most commonly cited.

Discussion:

The publication of an abstract in a peer-reviewed journal is the natural and expected outcome for such a presentation and represents the completion of the research pathway, and a forum for the dissemination of the findings (9). However, not all presented abstracts from national society meetings ultimately go on to successfully navigate the more rigorous peer review process to achieve JP, despite its obvious

merits. To the best of our knowledge, no previous study had sought to assess the factors associated with or the barriers to the JP and TP of oral abstracts from the APMA conference. For this purpose, we categorized potential predictor variables as either abstract or author specific, and surveyed the primary authors of the unpublished abstracts (1).

Overall, APMA abstracts by authors without a formal research degree achieved JP more often, as did funded projects (p= 0.031). No other associations were identified between any of the abstract and author specific variables and the successful conversion of an oral abstract to a JP (Table 1-2). Similarly, no associations were identified with respect to the TP of an abstract in a peer-reviewed journal. Regarding the barriers to JP, 6 of the 17 questionnaires originally distributed were completed and returned. At the time of the survey, 2 oral abstracts had since achieved JP, 2 had been submitted for JP, but were rejected, and 2 had never been submitted for JP (**Table 3**). The principal reason citied by the presenting authors for the failure to pursue or achieve JP was an insufficient time for manuscript preparation; identical to the findings of a previous study which assessed barriers to the JP of abstracts from the ACFAS conference (8).

The issue of how best to increase research productivity among APMA and ACFAS members remains the subject of a continued debated. Recommendations to improve the publication incidence for future abstracts from the ACFAS have been suggested previously, and are similarly applicable (8). These include: 1) allocation of a realistic and consistent amount of dedicated research time (weekly, monthly) to complete a project within a predetermined timeframe, 2) inclusion of co-investigators

equally as committed to the project, 3) clear outlines regarding the roles and responsibilities for those co-investigators to attain eventual authorship (abstract, manuscript), and 4) involvement of podiatric physicians with a research focus and/or considerable publication experience. From an organizational standpoint: 1) increasing the availability and funding for investigator initiated research grants, 2) establishment of a consortium record patient reported outcome measures and 3) recruitment of young research oriented APMA members to committees and task forces within the organization. Although it can be argued that research at any point in a physician's career remains perhaps the most challenging of any professional endeavor, research remains critical to the continued advancement of the profession. Given that abstracts by authors without a formal research degree from both society's annual meetings were more likely to achieve JP compared to projects by authors with a formal degree, it is clear that meaningful research contributions stand to be made by all podiatric physicians; irrespective of any formal research experience.

This study has several limitations inherent to its design. These include selection biases as discussed previously (1). For each abstract (n=31), PubMed, Google Scholar, and Scopus searches were initially performed to confirm the publication status (published, unpublished) previously identified (1). Manual searches (www.google.com) for the primary presenting authors were then performed utilizing any and all-available online resources to identify and record the abstract/author specific predictor variables at the time of the respective conference. These efforts were exhaustive, and especially difficult for abstracts that failed to achieve journal publication. In particular, determining

funding and the study design for unpublished abstracts was problematic. It is plausible that unpublished abstracts deemed "unfunded" might have indeed received funding, or a study design might have been mis-categorized. The listing of only a single primary author for a majority of the abstracts presented was also problematic and complicated comparison efforts with abstracts presented at other national foot and ankle society conferences (7-8). Furthermore, unidentified factors may have contributed to the publication of an abstract and therefore represent potential confounding variables. Regarding the barriers questionnaire, the response rate (35.3%) was lower than the authors had originally anticipated. Although it is unclear why authors would choose not to participate, reporting false information offers no foreseeable advantage(s) for those who chose to respond, and therefore we are confident in the results obtained. Strengths of the present study include the duplicate database searches, duplicate assessments of the data reliability and multiple accuracy checks of the data entered (logic checks).

In conclusion, the present study broadens our understanding regarding the factors associated with, and the barriers to, the JP and TP of oral abstracts from the annual APMA conference from 2010 to 2014. However, the issue of how best to increase research productivity among APMA members remains a question of continued debate. Although research at any point in physician's careers remains perhaps the most challenging professional endeavor, it remains critical to the advancement of the profession. Given that abstracts by authors without a formal research degree from both the APMA and ACFAS annual meetings were more likely to achieve JP compared to

projects by authors with a formal degree, it is clear that meaningful research contributions stand to be made by all podiatric physicians; irrespective of any formal research training.

Financial Disclosure: None

Conflict of Interest: None

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Figure Legend:

Table 1: Descriptive Statistics for Abstract-Specific Predictors, and Bivariate Analysis for journal publication (JP)/time to publication (TP)

Table 2: Descriptive Statistics for Author-Specific Predictors, and Bivariate Analysis for

journal publication (JP)/time to publication (TP)

Table 3: Current Oral Abstract Status

Table 1:

Predictor	Total Sample (n= 31)	P-Value (JP/TP)
Institution type		
Non-Academic	17 (55%)	0.623/0.415
Academic	14 (45%)	
Type of Research		
Patient oriented	28 (90%)	0.081/0.482
Basic/laboratory	3 (10%)	
Study Design		
Case-series	8 (26%)	0.218/0.387
Retrospective cohort	8 (26%)	
Prospective cohort	5 (16%)	
Systematic review	4 (13%)	
Laboratory study	3 (10%)	
Case-control	1 (3%)	
Cross sectional	1 (3%)	
Randomized controlled trial	1 (3%)	
Meta-analysis	0 (0%)	
Funded		
No	27 (87%)	0.031/0.670
Yes	4 (13%)	

Table 2:

Predictor (JP/TP)	Total Sample (n= 31)	P-Value
Level of training (primary author)		
Faculty	30 (97%)	NS/NS
Student	1 (3%)	
Research Degree		
None	26 (84%)	0.048/NS
Masters	5 (16%)	
Doctoral	0 (0%)	

Table 3:	**Abstracts (n=17)**
Published in a journal	12% (2/17)
Submitted, but rejected by a journal	12% (2/17)
Never submitted for journal publication	12% (2/17)
Response not obtained	65% (11/17)