Identifying potential academic leaders

Predictors of willingness to undertake leadership roles in an academic department of family medicine

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Abstract

Objective To identify variables associated with willingness to undertake leadership roles among academic family medicine faculty.

Design Web-based survey. Bivariate and multivariable analyses (logistic regression) were used to identify variables associated with willingness to undertake leadership roles.

Setting Department of Family and Community Medicine at the University of Toronto in Ontario.

Participants A total of 687 faculty members.

Main outcome measures Variables related to respondents' willingness to take on various academic leadership roles.

Results Of all 1029 faculty members invited to participate in the survey, 687 (66.8%) members responded. Of the respondents, 596 (86.8%) indicated their level of willingness to take on various academic leadership roles. Multivariable analysis revealed that the predictors associated with willingness to take on leadership roles were as follows: pursuit of professional development opportunities (odds ratio [OR] 3.79, 95% CI 2.29 to 6.27); currently holding at least 1 leadership role (OR 5.37, 95% CI 3.38 to 8.53); a history of leadership training (OR 1.86, 95% CI 1.25 to 2.78); the perception that mentorship is important for one's current role (OR 2.25, 95% CI 1.40 to 3.60); and younger age (OR 0.97, 95% CI 0.95 to 0.99).

Conclusion Willingness to undertake new or additional leadership roles was associated with 2 variables related to leadership experiences, 2 variables related to perceptions of mentorship and professional development, and 1 demographic variable (younger age). Interventions that support opportunities in these areas might expand the pool and strengthen the academic leadership potential of faculty members.

EDITOR'S KEY POINTS

- This study provides quantitative evidence of predictors of faculty members' willingness to undertake leadership roles based on a survey of both leaders and non-leaders in one academic department. Leadership willingness was most strongly associated with interest in professional development opportunities, current leadership experience, previous leadership training, the perception that mentorship is important, and younger age.
- These findings broadly support a strategy of developing academic leadership capacity by encouraging younger faculty members to take on progressively more senior roles and providing support through mentorship and skills training.
- Willingness to lead as an outcome measure was a practical way for respondents to indicate self-assessed leadership potential. Respondents' willingness to lead can be perceived as combining important leadership traits such as self-confidence and motivation.

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Comment détecter les leaders académiques potentiels

Les facteurs permettant de détecter les professeurs d'un département universitaire de médecine familiale intéressés à exercer un leadership

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Résumé

Objectif Identifier chez les professeurs d'un département universitaire de médecine familiale les facteurs associés à un intérêt pour exercer un leadership.

Type d'étude Une enquête en ligne. On s'est servi d'analyses bi-factorielles et multifactorielles (régressions logistiques) pour identifier les variables associées à un intérêt à adopter un rôle de leadership.

Contexte Le département de médecine familiale et communautaire de l'Université de Toronto, en Ontario.

Participants Un total de 687 professeurs.

Principaux paramètres à l'étude Les variables associées à un intérêt de la part des répondants à assumer certains rôles de leadership comme professeurs.

Résultats Sur les 1029 professeurs invités à participer à l'enquête, 687 (66,8%) ont répondu. Parmi les répondants, 596 (86,8%) ont précisé leur niveau d'intérêt à assumer différents rôles de leadership académique. L'analyse multivariée a révélé que les prédicteurs associés à l'intérêt d'exercer un rôle de leader étaient les suivants : une occasion d'avancement dans la carrière (rapport de cotes [RC] 3,79, IC à 95% 2,29 à 6,27); le fait d'occuper au moins 1 poste de leadership (RC 5,37, IC à 95% 3,38 à 8,53); le fait d'avoir eu une formation en leadership (RC 1,86, IC à 95% 1,25 à 2,78); l'idée que le mentorat est important pour le rôle de chacun (RC 2,25, IC à 95% 1,40 à 3,60; et le fait d'être plus jeune (RC 0,97, IC à 95% 0,95 à 0,99).

Conclusion L'intérêt à adopter un rôle nouveau ou additionnel de leadership était associé à plusieurs variables : 2 d'entre elles avaient rapport à des expériences de leadership; 2 autres, à une occasion de mentorat ou d'avancement dans la carrière; et une dernière, d'ordre démographique, soit un plus jeune âge. Toute intervention susceptible de fournir plus d'occasions dans ces domaines pourrait accroître le nombre de leaders potentiels et améliorer le potentiel de leadership académique chez les professeurs.

POINTS DE REPÈRE DU RÉDACTEUR

- Cette étude apporte des données quantitatives sur les facteurs permettant de prévoir les professeurs intéressés à agir comme leaders, et ce, à partir d'une enquête auprès des membres leaders ou non leaders d'un département universitaire. L'intérêt à exercer un leadership était surtout associé à une occasion d'avancement professionnel, au fait d'agir déjà comme leader ou d'avoir reçu une formation dans ce domaine, à l'idée que le leadership est important et au fait d'être plus jeune.

- Ces observations suggèrent qu'il serait opportun d'adopter des stratégies susceptibles d'augmenter la capacité de leadership universitaire en encourageant les jeunes professeurs à assumer des niveaux de responsabilité plus élevés et en offrant du soutien par l'entremise du mentorat et du développement des compétences.

- Mesurer l'intérêt qu'ils ont à devenir des leaders est une façon pratique pour les répondants d'évaluer leur intérêt pour un tel choix. On peut concevoir que l'intérêt des répondants à jouer ce rôle dépend d'une combinaison des principales caractéristiques propres à un leader, telles que la confiance en soi et la motivation.

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Leadership is essential to the success of any enterprise.[1,2] In academic medicine, leadership requires a range of skills, knowledge, aptitudes, and personal qualities.[3-12] Researchers have identified the lack of an established pipeline of physician leaders as a concern.[13,14] Almost 25 years ago, Green and colleagues identified an insufficient pool of academic leaders in family medicine.[15] Developing leadership capacity in family medicine is particularly relevant at this time of reshaping health care delivery and focusing on quality improvement.[16-21]

Faculties of medicine and health science centres expend considerable resources to identify, develop, attract, and retain leaders to advance their academic and clinical missions.[6,7,22] There is copious literature on the qualities needed for leadership in academic medicine[23-25] and a growing body of research on the attributes, perceptions, and preparation of these leaders.[26-29] However, there is a paucity of quantitative research findings on how to identify emerging leaders among medical faculty members. The purpose of this study was to identify variables associated with willingness to undertake leadership roles among academic family medicine faculty.

METHODS

In 2011, we conducted a work, life, and leadership survey for all 1029 faculty members in the Department of Family and Community Medicine (DFCM) at the University of Toronto in Ontario. This survey was based on findings from our previous qualitative research,[30] published literature, and questions from the DFCM Academic Leadership Task Force.[31] Validated measures (such as the Maslach Burnout Inventory[32]) were used whenever possible. We pretested and pilot-tested the survey before its distribution. The questionnaire collected information about demographic characteristics, practice settings, activities, roles, training needs, mentorship, job satisfaction, health status, stress, and burnout, as well as perceptions of supports provided, recognition, communication, retention, workload, teamwork, respect, resource distribution, remuneration, and infrastructure support. Survey questions were designed to reflect concepts such as "teamwork," "workload," and "leadership" by seeking responses to specific attributes or descriptors related to these terms. A copy of the questionnaire is available at **www.dfcm.utoronto.ca/AssetFactory.aspx?did=34808**.

We used a modified Dillman approach[33] and incorporated activities to promote the survey. Draw prizes were offered as incentives: 2 tablet computers and 2 $100 gift cards. The survey included up to 7 e-mail contacts: notification from the DFCM Chair; endorsement from the local department chief; an e-mail with a link to the online survey; a thank you or reminder to all faculty; and up to 3 additional reminders to nonrespondents.

We analyzed the data using SPSS, version 21. Before analysis, we decided on the most appropriate ways to recode categorical data. We did not recode questions that employed continuous scales. The outcome variable was the response to "Rate your willingness to take on each of the following leadership roles at your local department." The 7 roles included department chief, senior hospital executive, undergraduate program director, postgraduate program director, professional development program director, research program director, and clinical leader. Respondents ranked each role on a 5-point Likert scale (with anchor values ranging from "not at all willing" to "very willing"). We considered individuals who were somewhat or very willing to take on any of these roles to be candidates for ongoing leadership roles versus those who were neutral, not very willing, or not at all willing. We selected willingness to take on any leadership role as the relevant outcome because we were interested in identifying leadership willingness broadly among a diverse faculty across all career stages. We also assessed willingness to take on interim leadership for the same positions.

Before analysis, we identified potential predictors of willingness to take on a leadership role. The questionnaire included several series of related questions that explored multidimensional constructs of a domain (eg, perceptions of teamwork). In these cases, we decreased the dimensionality of the analysis by collapsing responses into a single binary category. We did this by calculating the mean of all 5-point Likert scale questions comprising the given multidimensional domain. We then assigned respondents to a "low" group if their mean score was less than 4 (1=poor; 2=fair; 3=good) and to a "high" group if their mean score was 4 or higher (4=very good; 5=excellent). Using bivariate analyses (*t* tests and χ^2 tests as appropriate) we identified variables that were statistically associated with willingness to take on leadership roles. We used logistic regression analysis to identify a more parsimonious set of predictors of willingness to undertake leadership roles. We selected for multivariable analysis only those variables that were statistically significant from the bivariate analyses. We assessed goodness of fit (or usefulness) of the final logistic regression model using the Hosmer-Lemeshow goodness-of-fit test, McFadden's pseudo R^2, the Cox Snell R^2, and the Nagelkerke R^2. A probability level of $<.05$ determined statistical significance.

The Research Ethics Board of the University of Toronto approved the study.

RESULTS

The response rate was 66.8% (687 of 1029 faculty members). **Table 1** presents the demographic characteristics of the sample.

Table 1. Demographic characteristics of respondents

CHARACTERISTIC	VALUE*
Mean (SD) age, y	47.5 (10.6)
Female sex, n (%)	324 (52.3)
Married or common-law, n (%)	536 (87.0)
Ethnicity, n (%)	
• White	444 (72.4)
• Chinese	45 (7.3)
• South Asian	63 (10.3)
• Other	61 (10.0)
Born in Canada, n (%)	470 (75.6)
Has MD degree, n (%)	585 (94.5)
Has CCFP certification, n (%)	542 (78.9)
Years in practice, n (%)	
• 0–5 y	115 (19.0)
• 6–15 y	174 (28.8)
• ≥ 16 y	316 (52.2)
Mean (SD) no. of hours worked per week	46.4 (17.0)
Works on call, n (%)	604 (87.9)
Mean (SD) no. of on-call hours per month	70.7 (110.1)
Practice setting, n (%)†	
• Interprofessional practice	348 (56.7)
• Group practice	224 (36.5)
• Solo practice	42 (6.8)
• Community clinic	192 (31.3)
• Community hospital	171 (27.9)
• Nursing home	95 (15.5)
• Diverse settings	156 (25.3)
Remuneration mechanism, n (%)	
• Fee for service	277 (44.9)
• Salary	149 (24.2)
• Sessional payment	106 (17.2)
• Capitation	85 (13.7)

CCFP—Certification in Family Medicine, MD—medical doctor.
*Not all respondents answered all questions; percentages have been calculated accordingly.
†Respondents could give more than 1 answer.

We estimated bivariate associations between our outcome variable (ie, willingness to take on a leadership role) and 70 potential variables of interest. Significant associations between willingness to take on a leadership role and 26 variables are presented in **Table 2**. Of the 26 variables associated with leadership willingness, 8 relate to leadership experience and perceptions of training; 5 relate to time spent in and perceptions of academic activities; 2 relate to teaching activities; 3 relate to mentorship; 3 relate to demographic characteristics (hours worked, age, and marital status); 2 relate to perceptions of the local department (recognition and workload); 1 relates to work setting; 1 relates to perceptions of professional development; and 1 relates to self-rated stress. It should be noted that willingness to take on an interim leadership role was highly correlated with willingness to take on an ongoing role (Spearman correlation coefficient = 0.63) and that 22 of the 26 variables in **Table 2** were also associated with willingness to undertake an interim leadership position.

Table 3 presents predictors of taking on a leadership role based on a multivariable logistic regression model. In this model, the objective attributes of currently holding a leadership role and having leadership training and experience were associated with willingness to take on a leadership role. Subjective perceptions that professional development was important and that mentorship was important were also independent predictors of willingness to take on leadership roles. Age was also an important predictor in the model, with younger faculty members more likely to undertake leadership roles.

DISCUSSION

Key findings

This study provides quantitative evidence of predictors of willingness to take on a leadership role among academic medical faculty based on a comprehensive survey of all faculty members, both leaders and non-leaders. Multivariable logistic regression identified that leadership willingness was most strongly associated with interest in professional development opportunities, current leadership experience, previous leadership training, perceiving mentorship as important, and younger age. These findings broadly support a strategy of developing academic leadership capacity by encouraging younger faculty members to take on progressively more senior roles and providing support through mentorship and skills training.

Relationship to literature

Our results resonate with Taylor and colleagues' findings on "optimal learning experiences,"[28] Epstein's survey of medical group leaders,[13] McMullen and colleagues' study of how learning collaboratives establish patient-centred medical homes,[34] and Steinert and colleagues' systematic review of faculty development initiatives to promote leadership in medical education.[35] The strong correlation between willingness to take on an interim role with willingness to undertake an ongoing leadership position is robust quantitative evidence that extends the findings of Quillen and colleagues' qualitative study of 23 interim department chairs, which found that 17 were in leadership roles at the end of the 8 years.[36]

Qualitative research has explored the role and importance of mentorship in preparing and supporting academic leaders.[4,8,26,28,37-39] Our data showing that receiving mentorship for one's current role is strongly associated with willingness to take on a leadership role is the first

strong quantitative support for this relationship in academic medicine.

Women are underrepresented in academic leadership roles in American medical schools[40] and the Canadian situation has been described as comparable.[41,42] We did not find an association between sex and willingness to take on a leadership role. Yedidia and Bickel's qualitative study describes a number of barriers to women taking on leadership roles that can be related to willingness.[43] The lack of association between sex and willingness in our quantitative research might relate to the following context: women were strongly represented

Table 2. Predictors of taking on a leadership role among family medicine faculty members (N = 596) based on bivariate analyses

POTENTIAL PREDICTOR VARIABLES	SOMEWHAT OR VERY INTERESTED (N = 340)*	NOT AT ALL, NOT VERY, OR NEUTRAL INTEREST (N = 256)*	*P* VALUE	ODDS RATIO	95% CI
Activities and meaning					
• Mean (SD) percentage of time spent in patient care with teaching component	30.1 (22.4)	26.1 (23.5)	.033	1.01	(1.00 to 1.02)
• Mean (SD) percentage of time in patient care with *no* teaching component	44.3 (27.2)	57.1 (29.4)	<.001	0.98	(0.97 to 0.99)
• Mean (SD) percentage of time spent teaching without patient care	7.1 (8.8)	4.3 (6.1)	<.001	1.06	(1.03 to 1.09)
• Mean (SD) percentage of time spent in administration	12.4 (15.0)	8.21 (14.2)	<.001	1.02	(1.01 to 1.04)
• Academic activities are somewhat or very meaningful, n (%)	266 (60.3)	175 (39.7)	.007	1.66	(1.15 to 2.41)
Work settings					
• Work settings do not include private office or clinic, n (%)	218 (66.7)	109 (33.3)	<.001	2.41	(1.73 to 3.36)
Teaching activities					
• Participated in clerkship teaching, n (%)	208 (61.4)	131 (38.6)	.015	1.50	(1.08 to 2.09)
• Participated in resident teaching, n (%)	267 (61.4)	168 (38.6)	<.001	1.92	(1.33 to 2.76)
Professional development					
• Pursuing professional development opportunities is somewhat or very important, n (%)	142 (81.1)	33 (18.9)	<.001	4.85	(3.17 to 7.41)
Leadership					
• Currently in leadership roles, n (%)	153 (81.4)	35 (18.6)	<.001	5.33	(3.50 to 8.12)
• Barriers to leadership role are somewhat or very important, n (%)	40 (52.6)	36 (47.4)	.037	1.75	(1.03 to 2.96)
• Somewhat or very confident in ability to take on leadership, n (%)	58 (76.3)	18 (23.7)	<.001	2.59	(1.49 to 4.52)
• Somewhat or very likely to accept interim leadership role, n (%)	58 (93.6)	4 (6.4)	<.001	12.90	(4.62 to 36.0)
• Have participated in previous leadership courses or training, n (%)	200 (68.7)	91 (31.3)	<.001	2.59	(1.85 to 3.62)
• Somewhat or very likely to participate in leadership training, n (%)	71 (85.5)	14 (16.5)	<.001	4.56	(2.50 to 8.30)
• Leadership skills are somewhat or very important in current work, n (%)	225 (66.6)	113 (33.4)	<.001	2.48	(1.77 to 3.46)
• Somewhat or very likely to participate in leadership skills training, n (%)	154 (75.1)	51 (24.9)	<.001	3.33	(2.29 to 4.84)
Mentorship					
• Receiving mentoring monthly or more frequently, n (%)	305 (60.4)	200 (39.6)	<.001	2.54	(1.59 to 4.05)
• Receiving mentoring is somewhat or very important, n (%)	154 (76.6)	47 (23.4)	<.001	3.70	(2.53 to 5.43)
• Have provided mentoring, n (%)	309 (59.0)	215 (41.0)	.005	2.05	(1.23 to 3.43)
Demographic characteristics					
• Mean (SD) working hours per week, excluding on call	48.3 (17.5)	44.6 (15.4)	.008	1.01	(1.00 to 1.03)
• Mean (SD) age, y	45.9 (10.1)	49.1 (10.7)	<.001	0.97	(0.96 to 0.99)
• Marital status (single, separated, widowed, or divorced), n (%)	49 (69.0)	22 (31.0)	.032	1.78	(1.05 to 3.03)
Faculty ratings of local department					
• Rating of local department on recognition (good, fair, or poor), n (%)	234 (61.1)	149 (38.9)	.020	1.51	(1.07 to 2.13)
• Rating of local department on workload and practice (good, fair, or poor), n (%)	229 (61.9)	141 (38.1)	.026	1.51	(1.05 to 2.18)
Health status					
• Rating of stress in life (quite or extremely stressful), n (%)	71 (67.0)	35 (33.0)	.024	1.66	(1.07 to 2.59)

*Not all respondents answered all questions; percentages have been calculated accordingly.

Table 3. Predictors of taking a leadership role based on a multivariable logistic regression model*: *N* = 539.

POTENTIAL PREDICTOR VARIABLES	ODDS RATIO	LOWER LIMIT 95% CI	UPPER LIMIT 95% CI	*P* VALUE
Pursuing professional development opportunities is somewhat or very important	3.79	2.29	6.27	<.001
Currently holds at least 1 leadership role	5.37	3.38	8.53	<.001
Has some leadership training	1.86	1.25	2.78	.002
Perceives mentoring to be important in current role	2.25	1.40	3.60	<.001
Age (per year increase)	0.97	0.95	0.99	.002

*To assess goodness of fit (or usefulness) of the final logistic regression model, the following were used: Cox Snell residual (R^2 = 0.25); Nagelkerke (R^2 = 0.34); McFadden's pseudo R^2 (R^2 = 0.21); Hosmer-Lemeshow goodness-of-fit test (P = .06).

at leadership positions within this department. It might also reflect the fact that the survey assessed junior and intermediate leadership roles, as well as senior ones.

Willingness, intentions, and expectations have been extensively explored in the psychosocial literature[44] and in research on health behaviour.[45] In contrast, there has been limited investigation of "willingness" as a construct in the literature on academic medical leadership. We selected this outcome measure as a practical way for respondents to indicate self-assessed leadership potential. This choice incorporated findings from our earlier qualitative study, in which leaders expressed that they took on positions "by default" or were thrust into demanding roles that few people desired or found enjoyable.[30] Respondents' willingness to lead can be perceived as combining important leadership traits such as self-confidence and motivation,[46] along with their assessment of the position and external environment. Nevertheless, in our study, self-rated confidence in one's ability in a leadership role was not associated with willingness, nor with ratings of or experiences with one's own current academic leaders. The concept of leadership willingness can be considered to combine self-sacrificial leadership and self-confidence, identified by de Cremer and van Knippenberg as related to effectiveness.[47] The notion that self-reported willingness to lead might be a useful indicator of leadership potential is suggested by the congruence of our findings with Harris and colleagues' study of physician self-assessment of leadership skills, showing that confidence in critical leadership skills increased with leadership experience and training.[11]

Our finding that willingness to undertake a leadership role was associated with interest in professional development and previous leadership training might assist in interpreting studies of the effectiveness of leadership programs.[48] Studies showing that participants in a particular program subsequently are more likely to take on leadership roles than non-participants might simply reflect the pre-existing characteristics of successful applicants.[49-53]

Strengths and limitations

The response rate of 66.8% is high for a detailed faculty survey, and suggests the findings are reliable. Demographic characteristics of respondents were similar to statistical information from the department's faculty database, suggesting that the sample is representative. Many leadership studies focus solely on leaders[4]; a strength of this survey is that inclusion of both leaders and non-leaders allowed valid identification of differences relevant to leaders.

The study was conducted within one academic department. Nevertheless, because of the large number of faculty members and diversity of sites, the findings are likely relevant for academic family medicine and for multisite academic clinical departments that require large numbers and types of leaders to accomplish their academic missions. They are generally adopting models of distributed leadership.[54,55] Our survey instrument measured a number of such models' relevant attributes.

A limitation of this study is that it relied on self-report of participants' perceptions and experiences. Self-assessment of leadership competencies was indirect, with participants being asked to rate the importance of specific skills in their current work and their likelihood of participating in a program to develop those abilities. Our outcome measure (ie, willingness to lead) is linked to leadership traits, but we did not explore other traits or attempt to link this concept to psychological models of leadership traits.[4,44,46,56]

Future research

Survey findings reflect a point in time.[6] Longitudinal studies could determine the usefulness of willingness to lead as a summative identifier of emerging leaders by tracking leadership roles among those who have indicated willingness. Further analysis could also determine whether there are differences between those indicating willingness to undertake specific types of roles, such as a clinical lead compared with a research director or site chief.

Age was associated with willingness to undertake leadership roles, with faculty members becoming less willing to take on a leadership role with increasing age. Further research might illuminate the importance of this finding.

A similar survey involving multiple institutions and different health care disciplines would help to determine

the degree to which these 5 predictors of leadership willingness are generalizable; it could potentially identify contextual or discipline-specific differences.

Conclusion

This study found that a history of leadership training, currently holding at least 1 leadership role, the perception that mentorship and professional development opportunities are important, and younger age can predict faculty members' willingness to take on new or more senior academic leadership roles. Based on these findings, academic leadership capacity can be enhanced by identifying younger faculty members to take on progressively more senior roles and providing support through mentorship and skills training. A comprehensive survey of academic leadership serves as a baseline for measuring the effects of strategies to improve leadership recruitment, development, and capacity. Such strategies must be sustained because changes occur over extended periods. Measuring these outcomes at regular intervals might contribute to refining strategies and assessing their effects.

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Contributors

All authors contributed to the concept and design of the study; data gathering, analysis, and interpretation; and preparing the manuscript for submission.

Competing interests

None declared

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