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Managerial orientation and career success of physicians in hospitals

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Abstract

Purpose – This article aims to investigate the impact of managerial orientation on the career success of physicians employed in hospitals.

Design/methodology/approach – The authors collected data between August and October 2006 using a written questionnaire that was sent to all 278 physicians employed in two German hospitals. The data was analyzed using a multinomial logistic regression.

Findings – The data indicate that a pronounced managerial orientation has indeed a positive impact on the career success of physicians in hospitals. But the results vary with respect to the different dimensions of managerial orientation.

Practical implications – Some aspects of managerial orientation are more compatible with physicians' professional values and, consequently, more relevant for career success than others. The acquisition and improvement of management skills seems to be a crucial factor.

Originality/value – The impact of managerial orientation on the career success of physicians has been unclear so far. Physicians are trained and socialized according to professional values and norms that are considered to be the antithesis of a managerial orientation. Furthermore, the typical career paths of professionals are different from careers of other occupational groups. However, this paper shows that physicians employed in hospitals need a certain degree of managerial orientation to have a successful and satisfying professional career.

Keywords Hospital management, Doctors, Management skills, Career development, Germany

Paper type Research paper

Introduction

> The problem was that administrators didn't understand that we are here for patients – that it's patients we are looking after, not bags of beans or loaves or things like that.
>
> [. . .] they suggested things like, if you are short of a surgeon, what about using one of the radiologists. Now I see you smiling, but they really suggested that!
>
> They forget that our *raison d'être* is to look after patients.

These statements of English physicians with management responsibilities (Llewellyn, 2001) illustrate the difficulties that arise when health professionals and managers with business education work together in hospitals. The reasons for this problem are multifaceted (Golden *et al.*, 2000). One important reason is certainly the professional status of physicians, which comprises values and norms hardly compatible with the economic goals of hospitals (Abernethy and Stoelwinder, 1995). In addition, the very different specialized knowledge of physicians and business-trained managers complicates communication between these two professions. Shortell (1991) uses in

Journal of Health Organization and Management
Vol. 23 No. 1, 2009
pp. 70-84
© Emerald Group Publishing Limited
1477-7266
DOI 10.1108/14777260910942560

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this regard the metaphor of physicians and managers being two different "tribes" with different languages, values, cultures, rules, and patterns of thought (Shortell, 1991). Furthermore, physicians are often not interested in business issues or in assuming managerial responsibilities. Therefore, Pollitt *et al.* characterize physicians as "reluctant managers" (Pollitt *et al.*, 1988).

The difficulties arising from the collaboration of physicians and managers in hospitals have a long tradition. But in contrast to former times, nowadays they represent a serious threat for hospitals. This is caused by the market-oriented reforms implemented in the hospital sectors of most industrialized economies in the last two decades, in particular by the introduction of DRG-based prospective payment systems. In the competitive environment resulting from these reforms, hospitals will only survive if they use their resources efficiently and avoid persistent financial losses. This requires that physicians as key personnel in the service process of hospitals assume management responsibility, that they take into account financial goals in addition to medical goals, and that they possess management skills, which enable them to lead other personnel effectively and, thereby, to optimize hospital performance (Comerford and Abernethy, 1999). Obviously, physicians that meet these requirements are particularly valuable for hospitals. Thus, such physicians should have better chances for promotion and considerable advantages when negotiating pay rises compared to physicians with a weak managerial orientation.

However, in the hospital sector the positive impact of managerial orientation on career success is not as unambiguous as in most other industries. Physicians are trained and socialized according to professional values and norms that are considered to be the antithesis of a managerial orientation (Abernethy and Stoelwinder, 1995). Furthermore, the typical career paths of professionals are different from the careers of other occupational groups (Dalton *et al.*, 1977; Kanter, 1989). Many physicians consider, e.g. publications in leading professional journals or the ability to carry out sophisticated surgery more important for career success than leadership skills. Therefore, the link between managerial orientation and career success of physicians remains obscure. The objective of this study is to investigate this research gap theoretically and empirically.

Physicians and hospital management

Traditional role of physicians in hospitals

Physicians are considered to be archetypal professionals. Professionals are members of occupational groups, which have very much power, prestige and specialist knowledge, and which have a fundamental influence on important social needs and values (Abbott, 1988). They identify strongly with their profession and have collective values and norms. Furthermore, there are generally accepted, institutionalized professional associations that control if the members of their profession comply with certain rules of conduct. The ethical principles of their profession give the interests of their clients or patients first priority (Starbuck, 1992). This is reflected in the Hippocratic oath, which commits physicians to comprehensive care obligations and professional discretion, and which demands from physicians to carry out their profession in a way that primarily optimizes the well-being of the patients, whereas other considerations –, e.g. economic issues – are only secondary (Sharma, 1997). The altruistic attitude of physicians has often been challenged (e.g. Berlant, 1975). However, the perception of the physician as

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unselfish agent of the patients is deep-seated in our society and contributes substantially to the prestige of the medical profession.

As a matter of course, the professional status of physicians affects their behavior and thus the way they are integrated in the service and management processes of hospitals. In the past an organizational form denominated as "autonomous professional organization" or "professional bureaucracy" has proved to be particularly suitable for organizations with service processes dominated by professionals (Scott, 1982; Mintzberg, 1980). In the case of hospitals this organizational form implies a strict separation of the clinical sphere from the administrative areas. The top management of the hospital delegates to the physicians considerable and far-reaching responsibility and autonomy for defining and implementing the clinical goals, for carrying out medical treatment, for setting performance standards, and for seeing to it that standards are maintained. The emergence and success of this organizational form is usually attributed to the special characteristics of the medical tasks, which are regarded as unusually complex, uncertain, and of great social importance. To ensure the best possible results under these difficult circumstances, the physician has to be placed as close as possible to the individual patient and be enabled to make decisions and act autonomously in a responsible and expert fashion. Evaluation and control of medical decisions are difficult and can only be conducted by professional colleagues; lay control is viewed as inappropriate (Scott, 1982).

The sharp demarcation between medical and administrative zones of control implies that the administrators or managers accept the definition of their own domain as limited to organizational support or maintenance objectives, whereas physicians perform the key patient care tasks and have a prerogative to control patient care goals. Since there are obvious overlaps in the actual functions of physicians and managers, physicians also have to deal with administrative matters. However, the amount of administrative tasks of physicians should be moderate, so that they can focus on their real function, which is patient treatment. Consequently, the economic goals of the hospital and the financial impact of medical decisions only play a minor role in the day-to-day business of physicians.

Such "professional bureaucracies" with a very strict separation of the clinical and administrative areas are typical of the hospitals in the 1970s and 1980s and certainly do not describe adequately the typical organization of hospitals in industrialized economies in the twenty-first century (Vera and Kuntz, 2007). Nevertheless, the demarcation between clinical and medical sphere can still be found in most hospitals – but in a less pronounced version. Most notably, this is reflected in the vocational attitude of physicians working in hospitals, who are rarely inclined to accept management functions and who are only marginally interested in the financial results of their hospital. In view of the current conditions in the health care market, this attitude seems to be inappropriate.

Today's requirements on physicians in hospitals

In the last decades the hospital sectors of all industrialized economies have been subject to fundamental political reforms which are seeking to increase the efficiency and transparency by introducing market mechanisms and competition (Covaleski *et al.*, 1993). The key targets of these reforms have been results-orientation, a shift to

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quantification, incentives to improve efficiency, and "voice" for the citizen and the patient respectively as consumer (Hood, 1995). A crucial factor to achieve these objectives was the shift away from retrospective payment systems which reimbursed hospitals based on actual costs to DRG-based prospective payment systems which reimburse hospitals based on predetermined prices. Managing a hospital in a DRG environment is similar to managing a multi-product firm (Fetter and Freeman, 1986). DRGs can be interpreted as product lines, and effective product-line management demands an organizational structure, which assigns financial as well as medical responsibility for these product lines to those who control the service process, i.e. physicians. This, in turn, requires the integration of the physicians into the formal management structures of the hospitals (Comerford and Abernethy, 1999).

Under these conditions physicians working in hospitals should at least be able to roughly estimate the reimbursement resulting from a diagnosis, and the costs resulting from different therapies – although that is at odds with their professional values and norms. Advisable are also a basic knowledge of business administration and management skills (Kumpusalo *et al.*, 2003; Lane and Ross, 1998). The importance of these skills increases with the hierarchical status. Physicians that lead an organizational unit – be it a team, a department or a hospital – do not only make medical treatment decisions, but they also influence the resource consumption of their subordinates. Therefore, it is of utmost importance that senior physicians with managerial responsibilities and in particular chief physicians possess entrepreneurial and managerial skills.

Research on management skills is absolutely not scarce. There are plenty of studies dealing with the identification of relevant skills, their importance at different hierarchical levels and their impact on organizational performance, career success, etc. (Katz, 1974; Mintzberg, 2004; Hill, 2004; Raelin, 2004; McCall, 2004). These studies lead to rather extensive models comprising a multitude of non-observable attributes, abilities, and skills, which can only be assessed subjectively. The model of management competencies of Hogan and Warrenfeltz (2003), for example, includes 26 intrapersonal, interpersonal, business and leadership skills such as self-esteem, extrovertedness and charisma. The reliable measurement of the management skills of an individual using such a complex model is hardly feasible. Therefore, to empirically investigate the impact of management skills, it is advisable not to measure the actual management skills, but the attitude towards these skills. This approach takes into consideration that, although some management skills are congenital or determined during the childhood and adolescence, the bulk of business and management skills can be acquired and improved after entry into working life, e.g. attending management trainings (Hogan and Kaiser, 2005). Individuals with a very positive attitude towards management competencies will rather tend to acquire and improve these skills than individuals who attach little or no importance to them. In the long run, thus, a positive attitude towards management skills such as persuasive power or strategic mindset should have a positive impact on the actual management skills of an individual.

Under DRG conditions, hospitals depend on physicians with such a positive attitude towards management skills to be successful in the competitive environment. In addition, they need physicians who care about the financial performance of the hospital and who are not only interested in achieving the medical goals but also the economic goals of the hospital. These both aspects – weight of economic goals and attitude

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towards managerial skills – combined constitute the "managerial orientation" of physicians in the present study.

Managerial orientation of physicians and career success

In a competitive environment, physicians with a pronounced managerial orientation should be particularly valuable for hospitals. Therefore, such physicians should have better chances for promotion and considerable advantages when negotiating pay raises compared to physicians with a weak managerial orientation and, consequently, they should more frequently climb the job ladder and reach a high hierarchical level, e.g. chief physician (Anderson and Pulich, 2002). This leads to the following hypothesis:

> *H1.* A pronounced managerial orientation has a positive impact on the career success of physicians in hospitals.

This interrelation between managerial orientation and career success seems to be trivial, however, in the case of professionals and in particular in the case of physicians it is not as unambiguous as in most other industries. The typical career paths of professionals are different from the careers of other occupational groups (Dalton *et al.*, 1977; Kanter, 1989). In the bureaucracy model typical of non-professionals, career success means "advancement" in terms of climbing the career ladder and reaching higher hierarchical levels as quickly as possible. But in the professional model, career rather means "growth" in terms of achieving higher qualifications, more specialist knowledge and better reputation. "Growth" usually results in more sophisticated and important tasks, whereas the formal hierarchical level in the organization may not change for longer periods. Of course professionals also strive for higher hierarchical levels, but it plays a less decisive role than for non-professionals. This is attributed to fact that professionals typically choose their profession because they enjoy performing the tasks associated with that profession. Therefore, they often experience a promotion to a higher hierarchical level as unsatisfying, if this "advancement" prevents them from exercising their profession on an operational level (Lorsch and Mathias, 1987).

This applies in particular to physicians as archetypal professionals. Thus, most chief physicians traditionally do not consider themselves to be full-time managers of their department or their hospital, but only part-time managers at most. They spend a good portion of their working time performing clinical tasks in order to remain respected by their professional colleagues (Llewellyn, 2001). Physicians are not only loyal to their hospital but at least to same degree to their profession (Gouldner, 1957; Abernethy and Stoelwinder, 1995). Their performance is exclusively evaluated by other physicians. Hence, their career depends heavily on their reputation with more experienced and renowned professional colleagues who are also guided by the values and norms of the medical profession (Luke, 2003). Consequently, many physicians traditionally consider, e.g. publications in leading professional journals or the ability to carry out sophisticated surgery more important for career success than leadership skills or a proven record of success in meeting economic goals.

However, this traditional approach to filling top management positions is not appropriate in the competitive environment that has emerged in the last decades in the hospital sectors of most industrialized economies. As a result of the competitive pressure and the financial constraints faced by hospitals, management orientation

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should have become more important for career success of physicians (Anderson and Pulich, 2002). In the following we will investigate empirically if this is actually the case.

Methodology

Data

Data were collected between August and October 2006 using a written questionnaire that was sent to all 278 physicians employed in two German hospitals in the metropolitan area of Cologne. Hospital 1 with 160 physicians and 602 beds was insignificantly larger than hospital 2 with 118 physicians and 569 beds. Both hospitals are owned by the Protestant Church of Germany. Participation on the survey was voluntary and anonymous, but strongly supported by the top management of both hospitals. A total of 82 questionnaires were completed and sent back, 46 from hospital 1 and 36 from hospital 2. Thus, the return quota was 28.75 percent in hospital 1, 30.5 percent in hospital 2, and 29.5 percent in total.

Measurement

The central methodical challenge of this study was the measurement of the management orientation of physicians in hospitals. Although there already were empirical studies on management orientation, we could not use their measurement instruments in the present study, because they were either not accurate enough or only investigated partial aspects or management orientation (e.g. Gerpott *et al.*, 1988; Herriot *et al.*, 1994; Parnell *et al.*, 2003; Carraher, 2005). Consequently, we had to develop a new measurement concept. In order to capture both basic aspects of the managerial orientation of physicians identified above – weight of economic goals and attitude towards managerial skills – our measurement model includes two dimensions.

The first dimension measures the relative importance physicians attach to the economic goals of the hospital. A physician exhibits a high degree of managerial orientation, if he puts much weight on the economic goals as compared to the medical goals of the hospital. In our questionnaire we measured this dimension by asking the participants to rate on scale from 0 to 100 how much importance should be attached to medical quality on the one hand and to economic goals on the other hand in decision-making. The relative weight of economic goals is calculated by dividing the value given for the economic goals by the value given for the medical quality. Thus, the more weight is put on the economic goals as compared to the medical goals, the higher the value of this variable will be. If the both dimensions are equally important, the variable will take a value of 1. An interesting feature of this variable is its ability to measure simultaneously the professional orientation of the physicians. This is attributed to the fact that a high weighting of medical goals as compared to economic goals usually is an indication of a high degree of professional orientation (Abernethy and Stoelwinder, 1990). Low values of the variable (or high values of the reciprocal) indicate a pronounced professional orientation. This interrelation implies a fundamental incompatibility of managerial and professional orientation, so that a pronounced professional orientation of a physician always comes along with a weak managerial orientation and vice versa.

However, this trade-off approach is too simplistic to grasp the complexity and comprehensiveness of both managerial and professional orientation (Wallace, 1995; Golden *et al.*, 2000). A chief physician may by all means exhibit a high degree of

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professional orientation and put much more weight on medical goals than on economic goals, and at the same time have a very positive attitude towards management skills, and for this reason be able to manage his clinical department successfully from an economic as well as from a medical point-of-view. Such a physician would possess a pronounced professional and a pronounced professional orientation. Therefore, to allow for a correct measurement of managerial orientation of physicians, it is crucial to include a second dimension, which measures the attitude towards certain managerial skills.

Our measurement instrument for this second dimension borrows from the model of management skills of Hogan and Warrenfeltz (2003). But as their model is rather extensive and was not developed for measurement purposes, it only served as a rough orientation. Finally, we used the following seven skills from the leadership and business domains as items to measure the second dimension of managerial orientation of physicians:

(1) recruiting and retaining talented personnel;
(2) building and maintaining effective teams;
(3) motivating other team members;
(4) projecting and promoting a vision for the team;
(5) supporting and guiding other team members;
(6) developing effective strategies; and
(7) entrepreneurial mindset.

The participating physicians were asked to rate on a scale from 1 (very little) to 7 (a great deal) how much importance they attach to the each of these skills. The mean of these seven items measures the second dimension of managerial orientation. High values stand for a particularly positive attitude towards management skills. The reliability of this variable was evaluated on the basis of Cronbach's Alpha. This estimator should be at least 0.6 for newly developed scales and at least 0.7 or 0.75 for established scales (Crano and Brewer, 2002). With respect to the second dimension of managerial orientation Cronbach's Alpha is 0.85, thus, the internal consistency of the variable is acceptable.

Finally, the participating physicians were asked in the questionnaire for their professional experience (in years), their gender (male or female), and their hierarchical status in the hospital (in Germany usually: assistant physician, senior physician, or chief physician).

Results

Table I gives some descriptive statistics of the variables used in the analysis. We see that one questionnaire did not contain information about the hierarchical status and the gender of the participant and was therefore excluded from further analysis. Furthermore, we see that all three hierarchical levels and both genders are adequately represented. The professional experience of the participating physicians was approximately 11 years and ranges between 1 and 35 years with a standard deviation of nearly nine years. Furthermore, we can see that the correlations between the three metric variables are all very low and not significant.

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	n	%	Mean	SD	Correlation (1)	(2)	(3)
Hierarchial status: assistant physician	43	52.4					
Hierarchical status: senior physician	24	29.3					
Hierarchical status: chief physician	14	17.1					
Hierarchical status: non available	1	1.2					
Gender: male	48	58.5					
Gender: female	33	40.2					
Gender: non available	1	1.2					
Professional experience (1)	82	100	11.32	8.96	1		
Relative weight of economic goals (2)	82	100	0.86	0.15	− 0.02	1	
Attitude towards management skills (3)	82	100	5.65	0.84	0.05	0.19	1

Table I.
Descriptive statistics

To test the hypothesis that a pronounced managerial orientation has a positive impact on the career success of physicians in hospitals, we carried out a multinomial logistic regression (e.g. Hosmer and Lemeshow, 1989). The hierarchical status was the dependent variable and the two dimensions of managerial orientation were the independent variables. In addition we included professional experience and gender as control variables. The model diagnostics are shown in Table II.

The likelihood-ratio test leads to a highly significant result at 0.1 percent level, so that the discriminatory power of the model with respect to the three hierarchical levels has to be characterized as very good. This is also reflected by the markedly high Pseudo-R-square values. Usually, Pseudo-*R*-square values higher than 0.4 are considered as good, and Nagelkerke-Pseudo-*R*-square values higher than 0.5 even as very good (Menard, 2002). Thus, we have to assume a good to very good model fit. Since Nagelkerke-Pseudo-*R*-square can be interpreted similarly to the coefficient of determination *R*-square in linear regressions, we can state that about 77 percent of the variation of the physicians' hierarchical status is explained by the three independent variables included in our model. The likelihood-quotient tests for the reduced models show highly significant effects at 0.1 percent level of the attitude towards management skills and of professional experience. The relative weight of the economic goals only has a marginally significant effect at 10 percent level, whereas the gender of the participants has no significant effect.

	2 log likelihood	Chi-square	Degrees of freedom	P	Pseudo R-square
Zero model (only constant)	161.997				
Final model	73.016	88.981	8	0.000	
Cox/Snell					0.667
Nagelkerke					0.771
McFadden					0.549
Relative weighting of economic goals	78.571	5.555	2	0.062	
Attitude towards management skills	87.355	14.339	2	0.001	
Professional experience	145.730	72.714	2	0.000	
Gender	74.093	1.077	2	0.584	

Table II.
Model diagnostics

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Table III contains estimated regression coefficients, standard errors, Wald statistics and significance levels for the pair comparisons of the three hierarchical levels. The higher hierarchical level is used as reference category in each comparison.

The comparison of assistant physicians with chief physicians leads to highly significant coefficients at 0.1 percent level with respect to the attitude towards management skills and professional experience. Since the chief physicians serve as reference category, the negative signs of these coefficients indicate that a lot of professional experience and a very positive attitude towards management skills rather belong to chief physicians than to assistant physicians. The coefficients of the relative weight of the economic goals and of the gender are not significant.

The comparison of assistant physicians with senior physicians even leads to three significant coefficients: relative weight of the economic goals at 5 percent level, attitude towards management skills at 1 percent level, and professional experience at 0.1 percent level. Since the senior physicians serve as reference category, the negative signs of these coefficients indicate that a lot of professional experience and a pronounced managerial orientation – actually both dimensions – rather can be found with senior physicians than with assistant physicians. The coefficient of gender is again not significant.

And finally senior physicians and chief physicians are compared. This comparison leads to only one significant coefficient: professional experience at 5 percent level. Since the chief physicians serve as reference category, the negative sign of this coefficient indicates that a lot of professional experience rather belongs to chief physicians than to senior physicians. The other three coefficients are not significant.

Discussion

The objective of this paper was to investigate the impact of managerial orientation on the career success of physicians in hospitals. Our empirical analysis has disclosed

	Coefficient	Standard error	Wald statistic	*P*
Assistant physicians vs. chief physicians				
Constant	33.570	9.483	12.532	0.000
Relative weighting of economic goals	−6.692	5.027	1.773	0.183
Attitude towards management skills	−3.260	1.104	8.716	0.003
Professional experience	−0.728	0.175	17.311	0.000
Gender: female	0.974	1.218	0.640	0.424
Assistant physicians vs. senior physicians				
Constant	27.851	8.462	10.832	0.001
Relative weighting of economic goals	−8.942	4.507	3.936	0.047
Attitude towards management skills	−2.264	0.909	6.195	0.013
Professional experience	−0.611	0.167	13.444	0.000
Gender: female	−0.987	0.974	1.027	0.311
Senior physicians vs. chief physicians				
Constant	6.707	5.059	1.758	0.185
Relative weighting of economic goals	2.250	2.735	0.677	0.411
Attitude towards management skills	−0.996	0.699	2.030	0.154
Professional experience	−0.117	0.055	4.467	0.035
Gender: female	−0.014	0.882	0.000	0.988

Table III.
Estimated coefficients

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several coherences that are important for this topic. The model diagnostics and in particular the very high values of the Pseudo-*R*-square show that the investigated variables play a major role in explaining the hierarchical status of physicians. With hindsight, the consideration of gender was unnecessary, but professional experience and managerial orientation obviously have a very relevant impact on the career success of physicians in hospitals.

The control variable professional experience has definitely the strongest impact on the career success of physicians in hospitals. All empirical results consistently show a significant positive effect. This finding is plausible, because the seniority principle doubtlessly plays a major role in promotions and salary increases. It is undisputed that professional experience – among other human capital related, demographical and organizational factors – is important for career success. This has been shown in numerous studies (e.g. McCall, 2004; Judge *et al.*, 1995; Tharenou, 1997; Wayne *et al.*, 1999). The topic had not been investigated explicitly for physicians in hospitals as yet. The present paper shows that physicians obviously do not represent an exception with respect to the relevance of professional experience for career success.

The control variable gender also leads to consistent results. In this case, all empirical analyses do not lead to significant results. Thus, we assume that gender has no major impact on the career success of physicians in hospitals. This finding is rather astonishing, because most studies show that women are disadvantaged compared to men with respect to promotions and salary increases (e.g. Perrewe and Nelson, 2004; Tharenou, 1990; Windsor and Auyeung, 2006). The topic had not been investigated explicitly for female physicians in hospitals as yet. Our data indicate that female physicians – at least in Germany – are not disadvantaged compared to male physicians. However, this unexpected finding should be interpreted very carefully, because gender was used only as a control variable in our model. To make robust statements about the relationship between gender and career success of physicians in hospitals, a more thorough theoretical examination of this topic and a corresponding study design are required.

Anyway, the focal point of the present study is the managerial orientation of physicians in hospitals. And here our study leads to mixed results.

Our empirical results concerning the attitude towards management skills are quite compelling. The Wald statistics lead to significant regression coefficients for the two comparisons assistant physician vs. senior physician and assistant physician vs. chief physician. These results have to be considered as a clear indication that a pronounced managerial orientation increases the probability of assistant physicians to be promoted to a senior physician and perhaps then even to a chief physician. Consequently, a pronounced managerial orientation has a positive impact on the career success of physicians in hospitals, which confirms the central hypothesis of our study.

This underlines the increasing importance of management skills for an occupation as a hospital physician. The traditional role perception of physicians as self-employed, autonomous, clinical generalists exclusively focused on the medical treatment of patients does no longer comply with the regulatory framework and the business conditions in the health care sectors of most industrialized countries (Abernethy and Stoelwinder, 1995). Instead, the functional specialization of health professional is permanently on the increase. As a consequence, patients are increasingly treated by medical treatment teams that consist of several specialists. Furthermore, physicians

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are increasingly employed by large hospitals, hospital groups or health care conglomerates that are operated according to bureaucratic and business principles. Under these conditions, leadership and management skills as well as the acceptance of the economic goals of the employer are indispensable for a satisfactory and successful occupation as hospital physician. This does not mean that physicians have to be less committed to quality of care and the wellbeing of their patients. They rather have to complement their professional values and norms with business and leadership aspects that are indispensable in contemporary health care (Comerford and Abernethy, 1999).

Interestingly, the comparison senior physician vs. chief physician is the only comparison that does not lead to significant results concerning the attitude towards management skills. This suggests that this dimension of managerial orientation is only important for the promotion from a non-leading to a leading position, whereas it is apparently of little importance for the career move from senior physician to chief physician, i.e. from middle management to top management. Regrettably, our study does not provide the factors that play a decisive role in this career move – apart from professional experience. But we suppose that management aspects have to play a very important role, in particular because strategic management and leadership are considered to be very difficult in professional service firms (Mintzberg, 1998). However, we assume that to reach a top management position in a hospital, the actual management skills of physicians are much more relevant than the attitude towards management skills measured in our study.

Clearly less compelling than our results concerning the attitude towards management skills, are our empirical results concerning the other dimension of managerial orientation, i.e. the relative weighting of the economic goals of the hospital. Only the comparison assistant physician vs. senior physician leads to a significant positive coefficient, which indicates that physicians that put much weight on the economic goals as compared to the medical goals of the hospital rather belong to the senior physicians than to the assistant physicians. The other two comparisons are not significant. Therefore, we have to conclude that the relative weighting of the economic goals barely contributes to corroborate the hypothesis that a pronounced managerial orientation has a positive impact on career success of physicians in hospitals. Interestingly, it is again the comparison assistant physicians vs. senior physicians that is significant, thus indicating that managerial orientation is a relevant factor when promoting physicians from a non-leading to a leading position in hospital, whereas the promotion to top management depends on other factors.

The weak impact of the relative weighting of the economic goals may be attributed to the special characteristics of the medical profession. The fact that the medical goal "health" represents the most important social need, and the direct and intensive interaction between physicians and their patients, should entail that physicians feel more committed to the altruistic values and goals of their profession than other professionals, e.g. attorneys (Goode, 1969). Although the image of physicians as unselfish agents of the patient is questionable (Samuel *et al.*, 2005), there will be hardly any physicians who attach more importance to economic goals than to quality of care. This was also shown by the descriptive analysis of our data. Therefore, the relative weight of the economic goals is not particularly suited for the investigation of the impact of managerial orientation on the career success of physicians in hospitals.

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Obviously, the other dimension of managerial orientation – namely, the attitude towards management skills – is much more appropriate for this purpose. As already mentioned above, the acquisition and enhancement of management skills aims at improving the clinical performance as well as the economic performance of the hospital and does not imply an incompatibility of professional and managerial orientation. Thus, this dimension seems to represent a form of managerial orientation consistent with the basic understanding of physicians concerning their profession. It is against this background that the considerable influence of the attitude towards management skills on the career success of physicians found in this paper becomes plausible.

Conclusion and limitations

Summarizing, we can conclude that our data support the hypothesis investigated in this paper. A pronounced managerial orientation – and in particular a positive attitude towards management skills – have indeed a positive impact on the career success of physicians in hospitals. Furthermore, our data indicate that professional experience has a massive positive impact on career success, whereas gender has no effect at all.

However, as with any study, this paper has obvious limitations that should be recognized. A most important limitation is the study design, which is not appropriate for a doubtless and definitive demonstration of a causal effect of managerial orientation on career success. Our hypothesis is quite plausible, but we cannot rule out that the causal connection in fact is the opposite way around. One could argue that it is the assignment of managerial responsibilities resulting from a promotion that causes the more positive attitude towards management skills. Under these circumstances, managerial orientation would not be the cause, but rather the result of career success. To clarify the causal connection between these variables, it would be very useful to analyze longitudinal data. Nevertheless, the present study provides sound indications that the causal connection stated in our hypothesis is correct. In this regard, we would like to mention in particular the very low correlations between professional experience and both dimensions of managerial responsibilities shown in Table I and the consideration of professional experience as control variable in the logistic regression model.

Another limitation is the small sample size of only 81 physicians and the fact that they work in only two hospitals. More participants and a higher number of hospitals should improve the generalizability of our results. In addition, more demographic and human capital related factors could have been included as control variables to increase the robustness of our results. These limitations can be mentioned here, but they cannot be corrected in the scope of this study. However, they can serve as suggestions for follow-up studies, which can expand on and improve our results and which should lead to interesting findings in this largely neglected field of research.

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