Exploring the Relationship between Research and Health Care

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Introduction

Physicians' research activity has become a key element to guarantee scientific and technological progress, which is responsible to a large extent for the increase in quality of life and mortality/morbidity reduction experienced in recent decades. Despite this, a lack of interest on research has recently been observed within physicians of developed countries (Arias, 2004). This situation can be due to reasons related with labour conditions or the inadequate research organization within hospitals. In the aim of overcoming such a problem, an in-depth analysis is required to achieve a thorough understanding on the relationship between physicians' research activity and their professional performance (i.e. clinical practice, knowledge, etc.). In order to shed light on this relationship several organizational factors such as physicians' motivation or job satisfaction have been taken into account.

Previous studies on this topic are scarce as in comparison to the literature contribution to some other aspects of research policy. Nevertheless, several approaches have been applied successfully to analyse the relationship between research and clinical practice. First, the methods proposed by Lewison and Grant (Grant, Cottrell, Cluzeau, et al., 2000; Lewison, 2002) to identify the scientific knowledge used to elaborate clinical guides. Second, the approach based on the *Payback model* proposed by Buxton and his colleagues to organise the assessment of the outcomes of Health Research (Hanney, Grant, Wooding et al, 2004; Hanney, Packwood & Buxton, 2000).

Methods

Data

The analysis draws on the extensive empirical work undertaken since 2003 for the Health and Consumer Affairs Department of the Regional Government of Madrid. From all the responses, we have selected 278 the questionnaires corresponding to physicians-scientists working at hospitals.

Variables

The variables can be grouped into four major blocks. The first block refers to those factors related to individual characteristics such as gender and PhD degree. The second one comprises the variables related to motivation, job satisfaction and research environment. The third one measures the physicians' research productivity. Finally, the fourth block captures the perceived impact of R&D on different aspects of physicians' professional performance.

While some of these variables were taken directly from the survey, four constructs were computed from observed variables. We describe them bellow.

Motivation (**MOT**) is a composite of five properties measuring the physicians' interest on research.

Job satisfaction (**SAT**) uses 13 properties to measure "*the extent to which job factors desired by the individual are actually provided*" (Pelz & Andrews, 1976).

Research organization (**ORG**) is a construct that measure the appropriateness of research environment.

Overall impact (**IMP**) is a construct of eight items. Each of them measures the physicians' perceived impact of R&D on their professional performance (i.e. clinical practice, level of technical knowledge, relationship with patients, etc).

Methods

Several statistical techniques are used in this study. First, we have used correlation analysis to explain the bivariate relationships between variables. Second, in order to estimate the structural relationships among variables and constructs, we have applied SEM methods.

Results

Correlation Analysis

Motivation has a significant correlation coefficient both with *SCI* and *IMP* showing us that it could be a key factor to improve research returns in hospitals. Regarding *Job Satisfaction*, it is a less important factor, especially for scientific performance *(SCI)*. Finally, as regards *Research Organization (ORG)* we observe that it is a key factor for research performance *(SCI)* and irrelevant for the perceived impact of R&D.

Structural Analysis

The main findings from our multivariate analysis are summarized in Table 1 and Figure 1 where only the significant coefficients are represented.

Table 1. Structural model standardized coefficients

Inpendent variable	Model 1	Model 2
	SCI	IMPACT
Job Satisfaction (SAT)	-0.060 (-1.064)	0.620 (1.131)
Research Organization (ORG)	0.188 (3.071)	0.033 (0.643)
Motivation (MOT)	0.197 (3.331)	0.236 (2.978)
PhD	-0.244 (-4.440)	-0.087 (-1.646)
Gender	-0.165 (-3.001)	0.061 (1.228)
SCI	--	0.061 (1.131)
R^2	0.165	0.489

Regarding research performance *(SCI),* we have found that PhD is its strongest predictor (-0.244). This result can let to suggest to policy-makers the need to improve the physicians' research training. Two constructs, motivation *(MOT)* and research organization *(ORG)*, and the variable Gender have a significant impact on the number of scientific papers. The other main factors of SCI are the physicians' Motivation *(MOT)* and *Research Organization (ORG)*. These results imply by one hand that physicians who are more motivated are also the more productive ones and, by other hand, that the way research is organised within hospitals could be relevant to improve the research output. Regarding *Gender* results show that it could be recommendable to encourage women to participate in research activities.

With regard to the perceived impact of R&D on professional capabilities *(IMP),* the analysis revealed that both *motivation* and *job satisfaction* are significant factors with a strong positive effect. As a consequence, to develop appropriate human resources policies within hospitals could be a good way to optimize the R&D impact on health care.
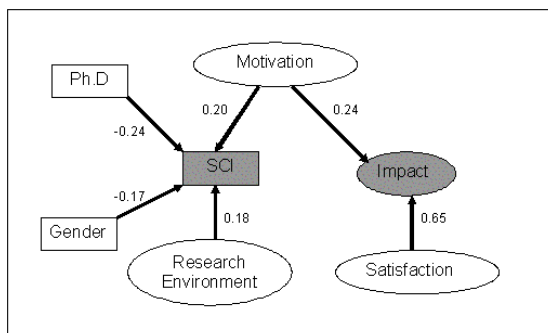

Figure 1. Structural Model for R&D Performance and Impact

Conclusions

We have conducted a survey among physicians from Madrid (Spain). Two main findings have been obtained. First, both physicians' motivation and research organization are key factors to increase the scientific productivity. Second, the physicians' job satisfaction and motivation have a significant effect on the impact that research activities have on professional performance.

Acknowledgments

References

Arias, I.M. (2004). "Bridge Building Between Medicine and Basic Science". In National Research Council (Ed), Bridging *the Bed-Bench Gap: Contributions of the Markey Trust.* Washington D.C: The National Academic Press.

Grant J., Cottrell R., Cluzeau F. & Fawcett G. (2000). Evaluating "payback" on biomedical research from papers cited in clinical guidelines: applied bibliometric study. *British Medical Journal* 320: 1107-1111.

Hanney S., Packwood T. & Buxton M. (2000). Evaluating the benefits from health R&D centres: a categorisation, a model and examples of application. *Evaluation: The International Journal of Theory, Research and Practice*, vol 6, no 2, pp 137-160.

Hanney S., Grant J. Wooding S. & Buxton M. (2004). Proposed methods for reviewing the outcomes of research: the impact of funding by the UK's Arthritis Reserach Campaign, *Health Research Policy and Systems*, vol 2.

Lewison, G. (2002). From Biomedical Researhc to Health Improvement. *Scientometrics*. 54(2): 179-92.

Pelz, D.C & Andrews, FM (1976). "*Scientists in Organizations. Productive Climates for Research and Development*". Ann Arbor (MI): Institute for Social Research.