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Machiavellian Orientation among Medical Representatives in Pharmaceutical Industry

Molugulu Nagashekhar^α, Ravindran Ramasamy^ο

Abstract - Machiavellianism is an essential personality attribute for medical representatives in the pharmaceutical industry. The purpose of the study is to find out the Machiavellian orientation among gender and domestic or multinational pharmaceutical companies. Data is collected using a simple random and cluster sampling through a structured questionnaire using Mach IV scale (n=300). The research design is hypothesis testing and it is a cross-sectional study. Results indicate that male and multinational company medical reps are low Machiavellians compared to female and domestic company medical representatives. If the pharmaceutical companies can determine Machiavellianism of medical representatives at the time of their selection itself this can be a litmus test to determine their potential as productive medical representative. Machiavellian orientation will be more beneficial in the short term, and may damage the long term relationship with wholesalers and the medical fraternity. Hence, there is a need of more studies on long term relationships.

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I. INTRODUCTION

The word Machiavellianism derived from the Niccolo Machiavelli (1469-1527) who wrote the "The Prince" advising others on how to acquire and maintain power. Christie and Geis (1970) were the first psychologists to study Machiavellianism. Machiavellianism is defined as "a process by which the manipulator gets more of some kind of reward than he/she would get without manipulating, while someone else gets less, at least within the immediate context" (Christie and Geis, 1970). Machiavellianism (MACH) used as a personality trait or dimension to classify people for several decades. The core of this personality type explains in terms of manipulative, exploitation, expediency, deviousness and is devoid of the traditional virtues of trust (Tang T L P and Yuh-Jia Chen 2008). Individuals having a Machiavellian personality trait or style may extol the virtues of using guile if necessary to achieve their objectives and they are self-oriented as far as personal goals concerned. A twentieth century Machiavellian may employ aggressive, manipulative, exploiting and devious behavior to achieve personal and organizational goals (Jamal A A et al 2007; Tang T L P and Yuh-Jia Chen 2008). In addition to this, it is also

proved that high mach's employ aggressive and devious methods to achieve goals without regard for feelings, rights and needs of other people (Shapiro et al, 1995; Wilson et al., (1996).

Numerous studies have been carried out by many researchers on this personality concept in the west. In addition, a couple of studies are also available in the Arab world (Mostafa M M, 2007). A small number of studies have been carried out in the Indian scenario, but hardly any studies on medical representatives in the pharmaceutical industry. The present study fills the gap and tries to study the reliability and gender comparisons and type of company of Mach IV scale in Indian scenario, especially among medical representatives in the pharmaceutical industry.

Firstly, the main objective of the study is to find out the Machiavellianism orientation among medical representatives in the pharmaceutical industry. There is a need to study this concept especially in the medical representatives as they are dealing with business minded wholesalers and retailers and professionals like doctors on the other side. Sales targets and pressure from the managers to achieve the sales quotas place the medical representatives under significant pressure to perform. For example, medical representatives are likely to exaggerate the indications, side effects, availability of the drugs that they sell. In addition to this, some medical representatives, are becoming so desperate that they will stop at nothing, from backstabbing representatives on their own team to running bogus deals through accounting (Ya-Hui Hsu et al, 2008). This type of manipulative, exploitive, aggressive and devious tactics and war-type of sales environment has become progressively worse in the last few years causing conflicts among them and also adversely affect the society at large (Stewart, 2003; Marchetti, 1997; Ya-Hui Hsu et al, 2008; Gulhati C M, 2004). Presently, in the competitive promotion of pharmaceutical products, the medical representatives are led to depend on the tried and trusted 3C's: *Convince* if possible, *confuse* if necessary and *corrupt* if nothing else works (Gulhati C M, 2004). Hence, the present study tries to fill the gap in examining the reliability of the Mach IV scale in an Indian scenario, especially among medical representatives in pharmaceutical industry.

Secondly, the Mach IV scale developed by Christie and Geis (1970) is the best known instrument to

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measure the Machiavellianism in an individual. This standard instrument contains 20 items with a seven point Likert scale. Many studies reported a reliability coefficient below the acceptable Cronbach's alpha values, for example, studies showed 0.54, 0.36 and even 0.31 among undergraduate students (Whitney, 1976; Zook, 1985; Mudrack and Mason, 1995). Reliability studies are very important in empirical research as it provides confidence that the empirical findings accurately reflect the proposed constructs and also it provides consistent results in repeated uses (Gatewood and Field, 1990).

Hence, the research objective of the study is to investigate the Machiavellianism orientation among male and female medical representatives in the pharmaceutical industry in India. In addition to this, to test the reliability of the Mach IV scale in Indian scenario especially among medical representatives in the pharmaceutical industry.

Various studies offers evidence of differences in the Machiavellian orientation associated with demographic descriptions such as gender, age, education background and religiosity. Number of studies argues that females have high Machiavellian scores compare to their counterparts (Rayburn and Rayburn, 1996, Bolino and Turnley, 2003; Webster and Harmon, 2002). In contradiction to this, a study found that males are high Machiavellians compare to females (Hegarty and Sims 1978) and another study identified Machiavellian orientation of females and males were significantly different (Chonko, 1982). Research says that young managers are more Machiavellians than older ones (Hunt and Chonko, 1984). Research also says that there is no significant relationship between religiosity and Machiavellianism (Quah, C H et.al, 2008).

Hypothesis

Against this background, the present study hypothesizes Machiavellianism concept as:

H1. Male medical representatives will exhibit higher Machiavellian scores than female medical representatives in the pharmaceutical industry.

H2. Domestic pharmaceutical company medical representatives have high Machiavellian scores compare to Multinational pharmaceutical company medical representatives.

Table 1 Demographic description of medical representatives

Gender	Male	213	71.0
	Female	87	29.0
Company type	Domestic	214	71.0
	Multinational	86	29.0

Among the 300 respondents, 71% are males and 29.0% are females. Similarly, 214 (71%) are working for domestic pharmaceutical companies whereas 86 (29%) respondents are working for multinational companies.

II. METHODOLOGY

This study uses the hypothesis statistical testing. It utilizes both descriptive and inferential statistics to test the hypothesis. There are two important hypotheses based on the demographic description of the medical representatives. The extent of researcher interference with the study is minimal because the researcher collects data from medical representatives (through a structured questionnaire). Beyond that the researcher has not interfered with the normal activities or the work of medical representatives. It is a correlational study and is conducted in non-contrived settings. The data is collected only once in the study for a period of 12 weeks and hence, it is a cross-sectional study (Sekaran U, 2003). The purview of this research focuses on pharmaceutical industries and products related to allopathic formulations. Medical representatives working for domestic and multinational pharmaceutical companies in Allopathic formulations with an at least one year experience are selected in the study's population. Data is collected among 300 medical representatives using simple random and cluster sampling method. The questionnaire consisted of four demographic description items of respondents and 19 items of Mach IV scale with a five point Likert scale from strongly disagree (one) to strongly agree (five). The item called "P.T. Barnum was wrong when he said that there's a sucker born every minute" is removed from the Mach IV scale after the pilot study, because many respondents were not convinced with the language used in the item.

III. RESULTS AND DISCUSSION

The population for the present study consists of all medical representatives working for domestic and multinational companies in Karnataka State, India. The sample in the study covers all parts of the Karnataka state like north, south, central and coastal areas. Major cities involved are Bangalore, Mangalore, Manipal, Mysore, Bellary, Tumkur, Davanagere, Hubli, and Belgaum. Data is gathered through a structured questionnaire and personal visits.

Table 2 Comparison of reliability studies of the past with the current study

Past studies	Sample size	Cronbach's alpha value
Al-Khatib et al., 1995	318	0.57
Ashton et al., 2000	610	0.72
Boon, 2002	451	0.76
Christie and Geis, 1970	1477	0.79
Corzine et al., 1999	183	0.62
Deluga, 2001	39	0.85
Dion and Banting, 1988	302	0.64
Ghosh and Grain, 1996	54	0.74
Hunt and Chonko, 1984	1076	0.76
Macrosson and Hemphill, 2001	50	0.71
O'Connor and Morrison, 2001	501	0.70
Shackleton et al., 1990	102	0.64
Singhapakdi, 1993	367	0.75
Siu and Tam, 1995	50	0.61
Tan, 2002	451	0.76
Topol and Gable, 1990	212	0.70
Tziner et al., 1996	51	0.69
Vitell et al., 1991	394	0.62
Wastell and Booth, 2003	100	0.51
Webster and Harmon, 2002	280	0.68
Mostafa M M, 2007	482	0.63
Current study coefficient alpha value	300	0.80

The Mach IV survey instrument is measured for the reliability test which consisted of 19 items. The squared multiple correlations in the items range of 0.5 to 0.853. Maximum scale mean if item deleted is 62.573 and maximum scale variance if item deleted is 100.726.

The average Cronbach's Alpha value for the Machiavellianism scale is 0.801. Some of the reliability studies are mentioned and compared with the present study in the table 2 which is adopted from Mostafa M M, 2007.

Table 3 Normality distribution of Mach IV scale

Mach IV Items	Mean	Std. Deviation	Skewness	Kurtosis		
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
MACH 1	3.500	1.023	-0.368	0.141	-0.970	0.281
MACH 2	3.263	1.142	-0.042	0.141	-1.293	0.281
MACH 3	3.287	1.093	-0.047	0.141	-0.572	0.281
MACH 4	2.857	1.292	0.307	0.141	-0.936	0.281
MACH 5	3.237	1.222	-0.085	0.141	-0.978	0.281
MACH 6	3.900	1.178	-0.818	0.141	-0.447	0.281
MACH 7	3.863	1.147	-0.734	0.141	-0.344	0.281
MACH 8	3.933	1.110	-0.664	0.141	-0.768	0.281
MACH 9	4.070	0.974	-0.885	0.141	0.008	0.281
MACH 10	3.800	1.130	-0.719	0.141	-0.507	0.281
MACH 11	3.930	1.072	-0.844	0.141	-0.155	0.281
MACH 12	3.487	1.003	-1.234	0.141	0.647	0.281
MACH 13	2.827	1.175	-0.107	0.141	-1.185	0.281
MACH 14	2.580	1.201	0.061	0.141	-1.298	0.281
MACH 15	3.477	0.909	-0.846	0.141	0.326	0.281
MACH 16	3.757	1.010	-1.044	0.141	0.932	0.281
MACH 17	3.413	1.222	-0.533	0.141	-0.803	0.281
MACH 18	3.393	1.308	-0.722	0.141	-0.747	0.281
MACH 19	2.393	1.179	0.664	0.141	-0.522	0.281

Normality tests were carried out for all the items of Mach IV scale. In the table 3, all z values of skewness and kurtosis are within the range of -2.58 to +2.58. However, item number 12 shows a negative skewness

of more than one (-1.234). This item need not be transformed to natural log as it is close to standard one. Only abnormal skewness of two or three needs transformation (Bajgier, S M., & Aggarwal, L K, 1991;

Barnett, V., & Lewis, T., 1996). Thus, it is evident that all the items have relatively normally distribution.

Table 4 Male and female Mach IV scores

	Gender	N	Mean	Std. Deviation	Std. Error Mean	Error
Machiavellianism	Male	213	64.498	9.727	0.666	
	Female	87	66.115	10.717	1.149	

The average mean of Machiavellianism score for male is 64.498 while female is 66.115 with a standard deviation of 10.717, which imply that the female medical

representatives in the sales force are high Machiavellians compared to male counterparts.

Table 5 Mean Differences between Male and Female Respondents

Variable	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Diff.
Machiavellianism	2.059	0.152	-1.268	298	0.206	-1.617	1.275

In the Table 5, there is a difference in both variance and in t test results. The groups behavior is not only different but also there is a small gap between the two groups (mean difference is -1.617). The results support the study of Mostafa, 2007 stating that females are more Machiavellian compared to their male counterparts. Women in India, have little control over many aspects in their lives. For example, especially after marriage, women are pressurized to quit their jobs and become full time mothers to take care of the children. In

addition, there is a strong belief that, women are suitable for domestic activities. Even the parents in the families, educate their sons rather than their daughters on the assumption that boys are greater economic asset than girls (El-Ghannam, 2002). The researcher strongly believes that, women may view all these constraints as personal and try to overcome these constraints and this may influence them to become high Machiavellians compare to male (Mostafa M M, 2007). Hence, based on the findings, H1 cannot be accepted.

Table 6 Mach IV scores of domestic and multinational company's respondents

	Company type	N	Mean	Std. Deviation	Std. Error Mean
Machiavellianism	Domestic	214	67.215	6.761	0.462
	Multinational	86	59.372	13.970	1.506

In the Table 6, Domestic pharmaceutical company's medical representative's Machiavellianism score is compared with the multinational company's medical representatives by using independent sample t-test which compares the two means for their significant differences. The average mean of Machiavellianism score for domestic pharmaceutical companies medial

representatives is 67.215 while multinational pharmaceutical companies medical representatives is 59.372, which imply that the domestic pharmaceutical companies medical representatives in the sales force are high Machiavellians compared to multinational pharmaceutical companies medical representatives.

Table 7 Mean difference between domestic and multinational medical representatives

	F	Sig.	T	Df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.
Machiavellianism	124.635	0.000	6.536	298	0.000	7.843	1.200

Machiavellianism score in the multinational pharmaceutical companies have significant difference when compared to domestic pharmaceutical companies, the mean difference is very high (7.843). It may be due to the high sales targets or pressure from the managers to perform or the presence of commission

structure or loose behavior control by their superiors or boundaries may conform to their own beliefs in making any decisions (Ya-Hui Hsu et al., 2008). It states that, additional attention by some domestic pharmaceutical companies is needed to adopt and adapt to the standards and guidelines of professional bodies like

IDMA (Indian Drug Manufacturers Association), OPPI (Organization of Pharmaceutical Producers of India) or IFPMA (International Federation of Pharmaceutical Manufacturers Association). In addition to this, medical representatives should not be ignored or given tacit approval by these managers even if the sales goals are not met (Manthan D J et al., 2007). Exposure by multinational companies to advanced induction programs or capsule training and periodical instructions by the managers may influence these medical representatives to score low in the Machiavellianism scores. Hence, based on the findings H2 is accepted.

It is a cross-sectional study, so data limits the type of inferences. The future researchers may be able to adopt a longitudinal study to track the respondents, because, initially the medical representatives follow the standards and guidelines of the company and later because of many organizational and external variables they become high Machiavellians. This study was conducted amongst the medical representatives of pharmaceutical companies based in Karnataka state only and the results cannot be considered as being the same for the entire industry in India.

There a need to compare Machiavellian orientation with the job satisfaction, as many medical representatives are under the dual pressures of their managers and the physician demands on the other side which is further proved by high turnover of these medical representatives. In addition to this, some medical representatives, may recognize that the presence of company imposed policies anticipate irregularities and questionable behavior and may encourage or discourage these activities which results in the sales performance (Ya-Hui Hsu et al., 2008).

Medical representatives with high mach's can be better performers compare to low mach's. If the pharmaceutical companies can determine Machiavellianism of medical representatives at the time of their selection itself this can be a litmus test to determine their potential as productive medical representative and they can be effective in selecting the medical representatives. However, this Machiavellian orientation will be more beneficial in the short term, and may damage the long term relationship with wholesalers and the medical fraternity. Hence, there is a need of more studies on Machiavellian orientation effect on long term basis.

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