Private Hospital’s Analysis Based on Physician and Non-Physician Differences in Leadership

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Abstract: Hospital performance metrics are an indicator of leadership performance. However, there is inadequate research on whether physician or nonphysician chief executive officers (CEOs) perform better in the private hospitals of Pakistan. The purpose of this study was to examine which type of leaders is better. Leadership trait, situational leadership, and leadership behavior theories constituted the theoretical foundation. The key research question examined the relationship between a hospital’s outcomes, which in this study, included hospital net income, patient experience ratings, and mortality rates, and the type of CEO in that hospital: physician or nonphysician. A quantitative, causal comparative design was used to answer this question. Three hypotheses were tested using multivariate analysis of variance. The independent variable was the type of hospital CEO: physician and nonphysician. A sample of 60 private hospitals was drawn from private hospitals based on number of staffed beds (n = 60). No significant differences were found between nonphysician and physician CEOs on hospitals’ net income (p = .911), patient experience ratings (p = .166), or mortality rates (p = .636). Thus, the null hypotheses were retained. Based on these findings, hospital boards can view CEO applicants equally when considering whom to hire and understand private hospital leadership.

Keywords: Private Hospital, Physician, Non-Physician, Leadership

Introduction

Hospitals must provide quality health care and, at the same time, make a good return on their investment. Doing so requires very effective leadership (Ellis & Normore, 2015). With the advent of the Patient Protection and Affordable Care Act 2010 (Congress.Gov 2010), private hospitals are finding it increasingly difficult to provide good value for money for their patients and quality-focused delivery frameworks which are better than volume-focused delivery frameworks (Delnoitoff & Lazarus, 2014). Again, hospitals require very effective leadership (Ellis & Normore, 2015).

Leadership candidates in any industry have on-the-job experience, certifications, and academic qualifications (Dotson & Nuru-Jeter, 2012). In hospitals, such candidates are medical doctors. However, physicians are not directly involved with day-to-day business management of the hospitals as non-physician managers in various hospital management departments. The non-physician managers are then found to have required on-the-job experience which physicians do not have because of the jobs.

In this study, I wanted to find out who was best suited for hospital leadership: physician chief executive officers (Physician CEOs) of non-physician chief executive officers (Non-Physician CEOs). I analyzed three types of hospital outcomes: net incomes, patient experience ratings, and mortality rate. Study findings may help hospital boards in choosing CEOs who can meet the standards stipulated in the Affordable Care Act (CMS, 2016), like: quality-focused delivery frameworks which are better than volume-focused delivery frameworks. Study findings may also provide insight about who is better at leading hospital management teams: physician CEOs or non-physician CEOs. Goodall (2011) found that physicians CEOs outperform non-physician CEOs on overall hospital quality scores. Goodall used digestive disorders, heart, and heart surgery as dependent variables. However, I used a different set of variables to determine the hospital outcomes. The hospital outcomes for this study net income, patient experience ratings, and mortality rate. This study might trigger a desire in both physicians and non-physicians who aspire to become hospital CEOs and be a part of the hospital management system. They may be spurred to take courses in health care management and administration, as well as business
management and administration in order to be prepared for such positions. This study might contribute to positive social change in understanding hospital leadership; could impart knowledge to the public on hospital outcomes, physician CEOs and non-physician CEOs; and could encourage academic researchers to carry out further studies in this area, thus enhancing knowledge base on this subject. Chapter 1 covers the background of the study, the problem statement, research question and hypotheses, theoretical framework, the significance of the study, assumption, delimitations, and limitations of the study.

Table 1.
Matrix of Perceived Performance Outcomes for Physician Versus Nonphysician CEOs

<table>
<thead>
<tr>
<th>Medicine Versus Leadership</th>
<th>The Nature of Medicine</th>
<th>The Nature of Leadership</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prescribe and expect compliance</td>
<td>Lead, influence and collaborate</td>
<td></td>
</tr>
<tr>
<td>Immediate and short-term focus and results</td>
<td>Short, medium- and long-term focus and results</td>
<td></td>
</tr>
<tr>
<td>Procedures/episodes</td>
<td>Complex processes over time</td>
<td></td>
</tr>
<tr>
<td>Relatively well-defined problems</td>
<td>Ill-defined, messy problems</td>
<td></td>
</tr>
<tr>
<td>Individual or small-team focus</td>
<td>Larger groups crossing many boundaries, integrated approach</td>
<td></td>
</tr>
<tr>
<td>Being the expert and carrying the responsibility</td>
<td>Being one of many experts and sharing the responsibility</td>
<td></td>
</tr>
<tr>
<td>Receiving lots of thanks</td>
<td>Encountering lots of resistance</td>
<td></td>
</tr>
<tr>
<td>Respect and trust of colleagues</td>
<td>Suspicion of being a &quot;suit&quot;</td>
<td></td>
</tr>
</tbody>
</table>

Goodall (2011) examined physician-leaders and hospital performance and found a strong positive association between the ranked quality of a hospital and whether the CEO was a physician (p < 0.001). Goodall’s study determined that physician-leaders outperform non-physician leaders. However, Goodall conducted a cross-sectional study and used one particular hospital quality ranking, which was one of the study’s major limitations. Therefore, the findings did not entirely prove that physicians make more effective leaders than non-physicians. The Goodall study used digestive disorders, heart, and heart surgery as dependent variables. This study used net income, patient experience ratings, and mortality rates.

This study will help hospital boards ascertain the right quality of leadership for hospitals, determine what can be done to improve hospital leadership, and achieve better health outcomes.

This study is needed because of the advent of the Affordable Care Act. This legislation has made it difficult for hospitals to achieve good value for their money, and/or achieve quality-focused delivery frameworks rather than volume-focused delivery frameworks (ACHE, 2015). Balancing effective delivery frameworks requires highly effective leadership (ACHE, 2015).

Problem Statement

Hospital performance metrics are an indicator of leadership performance (Patient safety & quality, healthcare reform implementation, financial challenges, governmental mandates, care for the uninsured or underinsured, patient satisfaction, physician-hospital relations, population health management, technology, and personnel shortages) (ACHE, 2015). However, physician and non-physician CEOs may produce similar outcomes in the hospitals they lead. The purpose of this study was to examine which leader performed better; physician CEOs or non-physician CEOs.

Research has found that the number one challenge facing hospital CEOs is financial (ACHE, 2015). CEOs have a duty to stakeholder to come up with outcomes that best serve their organizations. Some CEOs manage this challenge while some CEOs do not manage. According to Drummond (2013), physicians who have become CEOs have problems coping with leadership roles because they are used to issuing orders, working independently, and being a center of attention. Many physician CEOs expect complete adherence
to their orders and instant action. However, this physician leadership phenomenon does not work outside of the trauma room.

Literature I have read has also shown that non-physician CEOs are better able to cope with leadership roles, as they are groomed for leadership and have the requisite qualifications in hospital finance, administration, strategic management, and management in general to be successful. Therefore, the problem was that while it is known what the physician CEO brings to the position of hospital leadership and what the non-physician CEO brings to the position of hospital leadership, it is not known how the two groups compare in performance based on the variables of this study.

It was from this premise that this study wanted to understand the leadership of hospitals in order for the hospitals to start having healthy net incomes, increased growths, and higher revenues. Such change would give rise to better facilities, satisfied employees, satisfied owners, and ultimately satisfied patients/customers. Effective leadership does not mean increased prices to make more money but prudent cost effective management of business processes/hospital processes.

**Operational Model**

The operational model is depicted in Figure 1. The dependent variables are represented by ovals on the right of the model while the independent variables are represented on the left side by rectangles. Arrow represent the direction of effect, and eta-squared ($\eta^2$) represents the size of the effect.

![Figure 1. Operation model depicting the hypothesized relationship between CEO type and three hospital performance metrics.](image-url)

**Conceptual Framework**

The three theories provide elements from which this study was drawn. This study was looking at effectiveness in leadership between physician CEOs and non-physician CEOs for hospitals. In general, effective leadership requires inspiration, optimism, integrity, facilitation, confidence, communication, and decisiveness (De Houwer et al., 2013; Hersey, 1985; Hersey, & Blanchard 1977). The three leadership theories are the foundation of effective leadership.

In this study, the physicians were perceived to have developed leadership traits that were in tune with their work environment like the ER or examination rooms – (where they were used to issuing orders, work independently, and were a center of attention) (Drummond, 2013). While non-physicians were perceived to have develop leadership traits that were in tune with their work environment like the general offices where they worked with teams, were groomed for leadership, and have qualifications in hospital finance, administration, strategic management, and management in general (Drummond, 2013; Blendon, Benson, & Hero, 2014; McCullough, 2012; Saunders & Hagemann, 2009). The traits developed by both groups were tested based on the dependent variable Hospital Outcomes and the hypotheses.

The tenants of situational leadership theory purports that there is no single best style of leadership; rather, effective leadership is task-relevant (Hersey, & Blanchard 1977). Situational leadership theory plays the role of putting together hospital leaderships, both groups physician CEOs and non-physicians CEOs in the same situation in order to eliminate biases. The hospitals for this study were of similar levels (minimum 450 staffed beds), therefore functions of the CEOs were deemed similar. The qualifications of the CEOs, experiences, and hospital goals were similar. This gave the independent variables equal situations.

Behaviorist theorized that behaviors were a function of conditioning and therefore posited that leaders were created from environmental conditioning rather than genetic factors (De Houwer et al., 2013; Hersey, 1985; Hersey, & Blanchard 1977). It was perceived that the leadership behavioral theory would play the role of determining the behaviors of the CEOs. However,
the initial environments for both groups of CEOs were different, the ER or examination rooms are different from the administration, accounting, and management offices. It was from this premise that this study wanted to understand which environment prepared the most effective hospital leadership – effective hospital leadership based on the dependent variable: Hospital Outcomes (net income, patient experience rating, and mortality rate).

**Hospital Leadership Studies**

There is more literature on hospital leadership from articles with credible archival data but just a few fully fledged studies. There are many studies on leadership based on different perspectives, but there is just one study by Goodall (2011) which is close to this study. Thus far, only Amanda H. Goodall has conducted studies on hospital leadership. Her main hospital leadership study was “Physician-leaders and hospital performance: Is there an association?” She followed this study with discussions and articles that supported the findings of her study as well as the assertion of other scholars (Dwyer, 2010; Goodall, 2013; Stoller, 2014) – that hospitals are “better run by medical doctors than non-medically trained managers” (Goodall, 2013, p. 37). The study that is closely related to this study looked at physician-leaders and hospital performance, the results indicated a strong positive association between the ranked quality of a hospital and whether the CEO was a physician (p < 0.001). It was established that physician-leaders outperform non-physician leaders (Goodall, 2011). However, Goodall (2011) asserted that the results were cross-sectional associations and used one particular hospital-quality ranking and thus it was one of the major limitations. Therefore, the findings did not prove that physicians make more effective leaders than non-physician. The Goodall (2011) study used Digestive Disorders, Heart, and Heart Surgery as dependent variables.

**Situational Leadership Theory**

Situational leadership (theory) is a leadership model developed by Hersey and Blanchard in the 1970s (Hersey, 1985). The theory was first introduced as the Life Cycle Theory of Leadership but was later renamed situational leadership theory (Hersey, & Blanchard 1977). The tenants of situational leadership theory purports that there is no single best style of leadership; rather, an effective leadership is task-relevant. The authors theorized that the most successful leaders adapt their leadership style to the maturity of the individual or group they are attempting to lead or influence. According to theory, they

(a) set high but attainable goals, (b) demonstrate willingness and ability to take responsibility for the task, and (c) procure relevant education and/or experience of an individual or a group for the task (Hersey, & Blanchard 1977). Accordingly, effective leadership varies by person’s or group’s influence and depends on the task, job, or function that needs to be accomplished.

Situational leadership theory plays the role of putting together hospital leaderships of both groups: physician CEOs and non-physicians CEOs within the same situations in order to eliminate biases. The hospitals were of similar levels (minimum 450 staffed beds), therefore functions of the CEOs were similar. The qualifications of the CEOs, experiences, and hospital goals were similar depending on group (physician or non-physician). This gave the independent variable equal situations.

**Leadership Behavioral Theory**

In reaction to Trait Leadership Theory, behavioral theorists offered a new approach that focused on behaviors of the leaders rather than their mental, physical, or social characteristics (Hersey, 1985; Hersey, & Blanchard 1977). Behaviorist theorized that behaviors were a function of conditioning and therefore posited that leaders were created from environmental conditioning rather than genetic factors. With the evolutions in psychometrics, researchers were able to measure behavioral characteristics that were related to leadership (De Houwer et al., 2013). The basic tenant assumes that anyone blessed with the right conditioning could have access to the executive boardroom enjoyed by gifted leaders. In other words, leaders are made not born (De Houwer et al., 2013; Hersey, 1985; Hersey, & Blanchard 1977).

It was perceived that the leadership behavioral theory would play the role of determining the behaviors of the CEOs. The environments for both groups of CEOs were the ER or examination rooms, which is different to the administration, accounting, and management offices. It was from this premise that this study wanted to understand which environment makes more effective hospital leadership. Effective hospital leadership based on the dependent variables: Hospital Outcomes (net income, patient experience rating, and mortality rate).

**Trait and Behavioral Theory**

The link between leadership and a person’s being is an old adage that is of interest to
all. Thus, personality trait theory assumes that people born to be leaders show identifiable personality characteristics and tangible traits that set them apart from non-leaders (Bass, 1990; McCauley et al., 1998; Statistics Solution, 2011; Zampetakis, 2014). The era of dyadic situational, and contingency leaderships-involvement (unidimensional) evolved to multi-focused leadership, which is linked to place, condition, and situation (Statistics Solution, 2011; Zampetakis, 2014). This did not stop here but went further as researchers wanted to expand the scope of leadership from the perspective of leadership in the context of group interactions to leadership as a major item in interactive process across an organization (Dering, 1998; Van Seters & Field, 1990). Researchers in their past studies have found out that a leader’s behavior has a direct impact on a team’s performance, organization, and subsequently outcomes (Bass, 1990; Bass, Avolio, Jung, Berson, 2003; & Flood et al., 2000).

**Conceptual Framework**

Three theories were used to inform and guide this research; specifically, Leadership Trait Theory (LTT), Situational Leadership Theory (SLT) and Leadership Behavior Theory. All three theories provided elements from which this study was drawn. The study was looking at effectiveness in leadership between physician CEOs and non-physician CEOs for hospitals. In general, effective leadership requires inspiration, optimism, integrity, facilitation, confidence, communication, and decisiveness (Cartine, & Morris, 2013; Faulkner, Cartine, & Morris, 2013; Harwood & Burnham, 2015; Hudson, 2013).

**The Qualities of a Healthcare Leader**

The three leadership theories were the foundation of effective leadership. The three leadership theories were revealed in the results – how the independent variables affected the dependent variables. Previous researchers who have studied leadership agree that core leadership competencies regarding healthcare leadership are similar worldwide and are similar to those of other health sectors or public administration (Dolan, 2013; Edmonstone, 2013; Smith, 2014). There are many models of defining a health care leader, like the model developed by the NCHL (2015), which has twenty six competencies set into three domains: transformation, execution, and people. It also has five leadership competency areas personal skills and knowledge, social skills, transactional leadership skills, TFL skills, and knowledge of policy and procedures. The model by Healthcare Leaders Alliance (2014), has eight sets of skills:

1. Analytic/Assessment Skills
2. Policy Development/Program Planning Skills
3. Communication Skills
4. Cultural Competency Skills
5. Community Dimensions of Practice Skills
6. Healthcare Sciences Skills
7. Financial Planning and Management Skills
8. Leadership and Systems Thinking Skills
9. Core transformational competencies
10. Political competencies
11. Trans-organizational competencies
12. Team building competencies

These qualities are a combination of the three theories that are forming the foundation of this study. The independent variables (physician CEOs and non-physician CEOs) must have these qualities in order to be effective in producing the best results.

**Independent Variables and the Study Theories**

The conceptual framework of the study revealed that the independent variables (physician CEOs and non-physician CEOs) have personality traits that determines the individual’s personality of effective leadership. Must have adapted a leadership style through experience and maturity that is task-relevant, thus make them able to accomplish their job. But, at the same time, they must have had their behaviors conditioned by the environment they had been exposed to, rather than genetic factors. They are not born leaders, but leaders that have been trained, and have developed traits for effective leadership (Henson, 2016).

The conceptual framework of the study revealed that the dependent variables (Net Income, Patient Experience Ratings, and Mortality Rate) are a direct outcome of a type of leadership as influenced by the three theories (Leadership Trait Theory, Situational Leadership Theory, and Leadership Behavior Theory). The direct effect size was represented as eta-squared ($\eta^2$) (Figure 1).

**The Choice of the Study Variables**

The variable of this study are; Independent Variables (Physician CEOs and Non-Physician CEOs). Dependent variables (net income, patient experience Ratings, and mortality rate).

Physician CEOs, the choice was obvious because they form a part of the area of study so that the outcome told us what needs to happen or
continued to be worked on in order to improve the hospital outcomes under this leadership. Angood and Birk (2014), posited that physician leadership would be key in attainment of higher quality, consistent safety, streamlined efficiency, and becoming value-based in hospitals. They asserted that there are only 5% physician hospital leaders, therefore training of physicians is essential in achieving the higher quality, consistent safety, streamlined efficiency, and value-based. The assertion agrees with the study results of Goodall (2011), but does not look into the financial aspect which is a major issue as pointed out by ACHE, (2015) in their study and publication. However, Cohen (2014) posited, that physicians are not ready to go back to school to study business management after being in college for 7 years.

Non-physician CEOs, again the choice was obvious because they form a part of the area of study so that the outcome told us what needs to happen or continued to be worked on in order to improve the hospital outcomes under this leadership. They form 95% of Hospital Leadership. Angood and Birk (2014), posited that physician leadership would be key in attainment of higher quality, consistent safety, streamlined efficiency, and becoming value-based in hospitals. They asserted that there are only 5% physician hospital leaders, therefore training of physicians is essential in achieving the higher quality, consistent safety, streamlined efficiency, and value-based. The assertion agrees with the results of Goodall (2011) results, but does not look into the financial aspect which is a major issue as pointed out by ACHE, (2015) in their study and publication.

Research Design and Rationale

This is a quantitative, causal comparative research study, that was intended to determine the difference in performance of hospitals lead by non-physician versus physician CEOs using dependent variables: net income, patient experience ratings, and mortality rate. Sixty hospitals of Pakistan were targeted. The data were collected, coded into Excel, and analyzed in SPSS. Data collection were not from individuals and hospitals were not asked to participate in any way.

Multivariate analysis of variance (MANOVA) was used to test the Hypotheses (Creswell, 2013). The purpose of MANOVA, in this study, was to determine if type of CEO affects hospital performance, both independently and at a multivariate level (Creswell, 2013). The dependent variables for Hypotheses were net income, patient experience ratings, and mortality rate while the predictor variable was type of CEO employed by a hospital.

Methodology

In quantitative studies, “Quantitative Designs” use deductive reasoning technique, and are used to support theory, while qualitative studies are inductive by nature (Sternberg, 2009). When using deductive reasoning technique reasoning, specific conclusions are reached based on generalizations, while when using inductive reasoning techniques researchers examine events and subsequently create generalizations (Sternberg, 2009). Because the three hypotheses were generated from the research question based on this study’s dependent variables and the independent variables being two groups, a quantitative approach was appropriate for this study. According to Alreck and Settle (2004), comparative research studies like this study researchers measure the difference between two groups on a continuously scaled variable. Measures of effect for the study were $p$, $F$, and $\eta^2$. $P$ represented the probability of error, $F$ reflected the ratio between and within groups, $\eta^2$ represented the effect size. $P$ was set at <.05, which means that the probability of error found from testing the hypotheses would need to be less than 5% to be considered significant.

In addition, since inferential statistics were used to draw conclusions, the possibility of committing a Type I error existed; that is, where a true null hypothesis was probably incorrectly rejected (Creswell, 2013; Field, 2013). However, to mitigate this concern, the confidence level to determine acceptance of the null hypothesis was set at .05 (Creswell, 2013; Field, 2013). This means that the probability of error was less than 5%. Finally, statistics that use the general linear model naturally limit generalizability given the nature of the variables. That is, the independent and dependent variables in the study were predefined by environmental course. Accordingly, a true experiment using random assignment could not be used. Thus, only relationships, rather than causation, were inferred from results (Creswell, 2013; Field, 2013).

Instrumentation and Operationalization of Constructs

No instrument was used to collect data. Rather, raw financial data, published hospital statistics, and published information on CEOs
background was obtained from the Internet and public domain databases. General information about each hospital was obtained and discussed to present a profile of the sample.

Results

The purpose of this study was to examine whether physician and non-physician CEOs may produce similar outcomes in the hospitals they lead. In this quantitative, causal comparative research study, I hoped to determine the difference in hospital net income between types of CEOs the hospitals employed non-physician CEO and physician CEO. Additionally, the difference in hospital patient experience ratings between types of CEOs the hospitals employed non-physician CEO and physician CEO. Lastly, the difference in mortality rates between types of CEOs the hospitals employed non-physician CEO and physician CEO. A single research question, along with three hypotheses was used to inform for this study.

Research Question

Is there any difference in hospital outcomes (NI, PER, and MR) between hospitals led by PCEOs compared to hospitals led by NPCEOs?

Research Hypotheses

H01: There is no difference on NI between type of CEO employed at the hospital PCEO and NPCEO.

H1: There is a difference on NI between type of CEO employed at the hospital PCEO and NPCEO.

H02: There is no difference in hospital PER between type of CEO employed at the hospital PCEO and NPCEO.

H2: There is a difference in hospital PER between type of CEO employed at the hospital PCEO and NPCEO.

H03: There is no difference in hospital MR between type of CEO employed at the hospital PCEO and NPCEO.

H13: There is a difference in hospital MR between type of CEO employed at the hospital PCEO and NPCEO.

Data Collection

I started collecting data in the Fall of 2016. The sample was 60 private hospitals. Data were collected, coded in Excel, and analyzed in SPSS. Data were not collected directly from individuals, and the non-federal, short-term, acute care hospitals did not participate. The sample had a minimum of hospitals with 450 staffed beds to ensure data fidelity (Creswell, 2013; Field, 2013). All the data were crosschecked for validity purposes. Data were not collected from individuals. No hospitals actively participated in this process. No historical or legal documents were used as sources of data.

Study Results

Inferential statistics were used to draw conclusions from the sample tested. The SPSS was used to code and tabulate scores collected from the survey and provide summarized values where applicable including the mean, central tendency, variance, and standard deviation. Independent-samples t-tests were used to evaluate the research question and hypotheses.

Prior to analyzing the research question, data cleaning and data screening were undertaken to ensure the variables of interest met appropriate statistical assumptions. Thus, the following analyses were assessed using an analytic strategy in that the variables were first evaluated for missing data, univariate outliers, normality, and homogeneity of variance. Finally, three independent samples t-tests were run to evaluate the research question and hypotheses.

Table 2

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Dependent variable</th>
<th>Independent variable</th>
<th>Statistical test</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Hospital net income</td>
<td>Type of CEO</td>
<td>Independent-samples t-test</td>
</tr>
<tr>
<td>H2</td>
<td>Experience rating</td>
<td>Type of CEO</td>
<td>Independent-samples t-test</td>
</tr>
<tr>
<td>H3</td>
<td>Mortality rate</td>
<td>Type of CEO</td>
<td>Independent-samples t-test</td>
</tr>
</tbody>
</table>

Demographics

Data were collected from a sample of 60 hospitals within the Pakistan (N = 60). Specifically, 30 hospitals employed physician CEOs (n = 30) and 30 hospitals employed non-physician CEOs (n = 30). The 30 hospitals with non-physician CEOs had an average of 98.5 beds (SD = 395.9). The 30 hospitals with physician CEOs had an average of 858.7 beds (SD = 392.1) having the greatest number of beds (n = 237).

Analysis of Hypotheses 1-3

Hypotheses 1-3 were evaluated using independent-samples t-tests to determine if any significant differences in hospital profits,
productivity, and mortality rates existed between non-physician CEOs and physician CEOs. Specifically, the dependent variable for hypothesis 1 was hospitals’ 2014-2015 profits as measured by the net income percentage. The independent variable for hypotheses 1-3 were weather the private hospital’s CEO was a physician (n = 30) or not (n = 30), data were collected from Private Hospital Reviews, (2015).

Results of Hypotheses 1-3

Using SPSS 23.0, independent samples t-tests were used to determine if any significant differences in hospitals’ net income (H1), patient experience rating (H2), and mortality rates (H3) existed between non-physician CEOs and physician CEOs. Results indicated that there were no significant differences between non-physician CEOs and physician CEOs (hospitals’ net income p = .911, patient experience rating p = .166, and mortality rates p = .636). Similar results were found using the non-parametric Kruskal-Wallis tests (hospitals’ net income p = .639, patient experience rating p = .167, and mortality rates p = .851) and the transformed net income scores (p = .591). Thus, null hypotheses 1-3 were retained. Displayed in Table 3 are summary statistics of the independent-samples t-tests and Kruskal-Wallis tests conducted for hypotheses 1-3.

<table>
<thead>
<tr>
<th>Variable</th>
<th>t</th>
<th>df</th>
<th>Sig. (p)</th>
<th>Mean difference</th>
<th>Std. error difference</th>
<th>χ²</th>
<th>Sig. (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net income</td>
<td>0.394</td>
<td>58</td>
<td>0.695</td>
<td>0.328</td>
<td>0.832</td>
<td>0.404</td>
<td>0.525</td>
</tr>
<tr>
<td>Transformed net income</td>
<td>0.540</td>
<td>58</td>
<td>0.591</td>
<td>-0.083</td>
<td>0.154</td>
<td>0.404</td>
<td>0.525</td>
</tr>
<tr>
<td>Patient experience</td>
<td>-1.044</td>
<td>58</td>
<td>0.301</td>
<td>-0.167</td>
<td>0.160</td>
<td>0.773</td>
<td>0.379</td>
</tr>
<tr>
<td>Mortality rate</td>
<td>0.135</td>
<td>58</td>
<td>0.893</td>
<td>0.060</td>
<td>0.445</td>
<td>0.083</td>
<td>0.773</td>
</tr>
</tbody>
</table>

Note. Independent variable = Type of CEO (physician, nonphysician). Total N = 60

As determined by the independent-samples t-test and Kruskal-Wallis test conducted for hypothesis 1, there were no significant differences in hospitals’ net income between CEO types. That is, hospitals with physician CEOs had statistically similar net incomes (M = 2.722, SD = 3.247) as compared to those with non-physician CEOs (M = 3.050, SD = 3.200). A means plot of hospitals’ net incomes by CEO types are displayed in Figure 2.

Figure 2. Means plot of hospitals’ net income by CEO types
As determined by the independent-samples t-test and Kruskal-Wallis test conducted for hypothesis 2, there were no significant differences in hospitals’ patient experience ratings between CEO types. That is, hospitals with physician CEOs had statistically similar patient experience ratings ($M = 3.167, SD = 0.531$) as compared to those with non-physician CEOs ($M = 3.000, SD = 0.695$). A means plot of hospitals’ patient experience ratings by CEO types are displayed in Figure 3.

As determined by the independent-samples t-test and Kruskal-Wallis test conducted for hypothesis 3, there were no significant differences in hospitals’ mortality rates between CEO types. That is, hospitals with physician CEOs had statistically similar mortality rates ($M = 10.410, SD = 1.828$) as compared to those with non-physician CEOs ($M = 10.470, SD = 1.611$). A means plots of hospitals’ mortality rates by CEO types are displayed in Figure 4.
Table 4
Summary of Results for Hypotheses 1-3

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Dependent variable</th>
<th>Independent variable</th>
<th>Statistical test</th>
<th>Sig. (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Hospital net income</td>
<td>Type of CEO</td>
<td>Independent-samples t-test</td>
<td>0.695</td>
</tr>
<tr>
<td>H2</td>
<td>Patient experience rating</td>
<td>Type of CEO</td>
<td>Independent-samples t-test</td>
<td>0.301</td>
</tr>
<tr>
<td>H3</td>
<td>Mortality rate</td>
<td>Type of CEO</td>
<td>Independent-samples t-test</td>
<td>0.893</td>
</tr>
</tbody>
</table>

*Note. Total N = 60*

The next chapter and final chapter, there will be discussions on the interpretation of this study findings, the limitation of this study, the recommendations, and this study’s implications.

**Discussion, Conclusions, and Recommendations**

The purpose of this study was to examine whether physician and non-physician CEOs may produce similar outcomes in the hospitals they lead. In this quantitative, causal comparative research study, I hoped to determine the difference in hospital net income between types of CEOs the hospitals employed non-physician CEO and physician CEO. Additionally, the difference in hospital patient experience ratings between types of CEOs the hospitals employed non-physician CEO and physician CEO. Lastly, the difference in mortality rates between types of CEOs the hospitals employed non-physician CEO and physician CEO. A single research question, along with three hypotheses was used to inform for this study.

The results indicate that there were no significant differences between non-physician and physician CEOs. I conducted this study with intention of contributing to positive social change regarding hospital leadership. The Goodall (2011) study results indicate a strong positive association between the ranked quality of a hospital and whether the CEO was a physician ($p < 0.001$). Goodall established that physician leaders outperform non-physician leaders. However, Goodall asserted that the results were cross-sectional associations and used one particular hospital-quality ranking and thus it was one of the major limitations. My study’s results from the independent-sample t-tests for Hypotheses 1-3 indicate that there were no significant differences between non-physician and physician CEOs on hospitals’ net income ($p = 0.911$), patient experience rating ($p = 0.166$), and mortality rates ($p = 0.636$).

**Recommendations**

There are two major recommendations for future studies I would like to make. The first is increasing the number of hospitals considering that there are 5,414 non-federal, short-term, acute care hospitals in the US (AHA, 2016), making 60 hospitals just 1.108%. Furthermore, there are only 5% of hospitals with physician CEOs (Becker's Hospital Reviews, 2015; Robeznieks, 2014), meaning there are +/- 270 non-federal, short-term, acute care hospitals with physician CEOs. Out of these 270 hospitals, a top 200 could be used for the physician CEOs and another top 200 from the remaining 5,144 non-federal, short-term, acute care hospitals could be used for the non-physician CEOs. This recommendation is based this study methodology ranging from sampling technique, inferential statistics, and the type of statistical analysis that was used. A convenience sampling methodology was used meaning that generalization to the greater population could have been affected, though to mitigate this concern, the confidence level to determine acceptance of the
null hypothesis was set at .05 (Creswell, 2013; Field, 2013). This study used a sample of 60 non-federal, short-term, acute care hospitals, this formed two groups of 30 hospitals labeled as A and B. This sampling strategy was based on the accepted number for quantitative study using inferential statistics (Alreck & Settle 2004).

The second recommendation is to look into whether or not the physician CEOs had professional trained in business management or they had on-the-job training. This approach would make us be able to know how a physician CEO without training and physician CEO with training performed against a non-physician CEO.

**Conclusions**

The purpose of this study was to examine which leader performs better: a physician or non-physician CEO. The results indicated that there were no significant differences between non-physician CEOs and physician CEOs on hospital outcomes. The study by Goodall (2011) looked at hospital leadership (physician and non-physician) and the dependent variables were hospital performance: comprising overall hospital quality scores using Digestive Disorders, Heart, and Heart Surgery. The results indicated a strong positive association between the ranked quality of a hospital and whether the CEO was a physician (p<0.001). The study established that physician-leaders outperform nonphysician leaders. However, Goodall (2011), asserted that the results were cross-sectional associations. This study’s results from the independent-sample t-tests for hypotheses 1-3 indicated that there were no significant differences between non-physician CEOs and physician CEOs on hospitals’ net income (p = .911), patient experience rating (p = .166), and mortality rates (p = .636).

**References**


