# The Association of Demographic Characteristics and Top Management Team Heterogeneity on Hospital Performance

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**Abstract**

This study aims to show how the demographic characteristics and heterogeneity of the top management team (TMT) associate with hospital's performance as measured by the balanced scorecard (BSC). The study employs cross-sectional primary data from hospitals in Central Java Indonesia, collected from 242 hospitals. The result shows that the demographic characteristics including age, female, period of experience serving as TMT, level and specialization of education, were not associated with the hospital's performance. Likewise, the short period of experience in the organization inside or outside of a hospital's TMT members was not associated with the hospital's performance. However, TMT's heterogeneity showed a positive result towards the hospital's performance. The academic and practical implications of the findings are discussed.

**Keywords:** demographics characteristics; top management team heterogeneity; hospital's performance
**JEL Classification:** M0

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## 1. Introduction

The characteristics and demographic heterogeneity of the hospital's top management team (TMT) and and the diversity of leadership resources in the team can improve organizational performance of the hospitals (Mudasetia, 2020). The hospitals' performance depends on the role of top management in formulating strategy, and gaining legitimacy in making decisions. Therefore, the demographic characteristics are related to changes in company strategy while the TMT influences the direction and decisions of the organization and is closely related to the strategy of success and organizational performance (Díaz-Fernández et al., 2014).

Previous study proves that the development of TMT's demographic characteristics and heterogeneity model is related to changes in strategy and company performance, which is based on Hambrick & Mason's (1984) upper-echelons theory. The composition and characteristics of the TMT influenced the company's strategic choices and changes. Younger managers with short work experience, higher levels of education have an effect on organizational performance. Companies that undergo strategic changes are more often managed by TMT with characteristics; younger age, shorter tenure in the organization, longer tenure in TMT, higher education level, heterogeneity of educational specialization, and academic training that have been undertaken.

High performance results can be achieved if process management is carried out on human resources (including the TMT), and changing organizational practice strategies. Efforts to carry out the process require input in the form of organizational structure and culture. The organizational structure and culture of a hospital is complex, because it has many human resources networks involving a number of professional groups, departments and specialists. This complexity requires a series of innovations and changes to improve service quality and hospital performance. However, most hospitals find it difficult to innovate, especially in their managerial systems and culture, thus requiring effective collective leadership to produce continuous change, in a competitive climate (Chatterjee et al., 2018), to make the best performance.

The work demands of hospital's TMT are very large and complex, because hospitals are organizations with labor-, capital, and technology-intensive activities, which require effective and efficient management in order to have high performance. The demands of high performance require the support of organizational behavior models at the individual, group and organizational levels, from the input and process stages. The hospital's TMT may make changes in strategy and have a potential impact on improving and achieving the best performance, so criteria are needed regarding demographic characteristics.

The empirical studies on the demographic characteristics and heterogeneity of hospital's TMT have never been conducted, and how the combination of heterogeneity of expertise and professionalism composition that is able to produce the best performance has not also been proven. Ideally, hospital's TMT in a heterogeneous composition of the team will eliminate gaps and obtain the

ideal conditions for top management, with demographic characteristics and heterogeneity, to achieve the best performance that may be measured using Balanced Scorecard (BSC). BSC is the most popular model, that uses four perspectives; (1) finance, (2) customers, (3) internal business processes, and (4) learning and growth, thus providing a balanced picture of current operational performance and driving future performance (Hegazy et al., 2022). This study will prove that the demographic characteristics and heterogeneity of hospital's TMT include; age, gender, organizational experience, experience working in a team, terminal education level and specialization, associate with hospital performance as measured by the BSC.

## 2. Methodology

The cross-sectional study design proves the characteristics and demographic heterogeneity of TMT roles on hospital performance as measured by BSC. Secondary data from the results of full-filled questionnaire about the demographic characteristics and heterogeneity of all TMT members, by the HR department staff. The hospital performance questionnaire as measured by the BSC perspective was assessed by a member of the TMT. The research subjects were 242 hospitals in Central Java who were sent questionnaires physically and by email, during March to May 2021. Each subject was asked to fill out the questionnaire and followed up within 14 working days. Completely filled data, verified and approved by the main director were analyzed, as many as 98 files (subjects).

### 2.1. Demographic Characteristics and Heterogeneity Data of Hospital's TMT

The data contains; hospital identity, age, group, gender, organizational experience inside and outside the hospital, experience as a hospital's TMT, highest education level, and specialization (administration and business, science and engineering, and others). The age data divided into; (1) to 55 years and (2) >55 years. The group data is homogeneous (in TMT there is only 1 age group), and heterogeneous (in TMT there are 2 age groups). The gender data divided into; men and women, with homogeneous groups (in TMT there is only 1 gender group) and heterogeneous (in TMT there are 2 gender groups). Data on organizational experience inside/outside the hospital is length of time working in same/different organization, either as a leader or regular staff, inside or outside hospital, divided into; (1) 0–6 years and (2) >6 years. The group is homogeneous (in TMT there is only 1 group with experience in organization) and heterogeneous (in TMT there are 2 groups with experience in the organization).

Data on experience as a hospital's TMT is the length of time served as a TMT in a hospital organization, either as the main director, or as a director or deputy director, divided into; (1) to 6 years and (2) >6 years. The group is homogeneous

(in TMT there is only 1 group of experience as hospital's TMT), and heterogeneous (in TMT there are 2 groups of experience group as hospital's TMT).

The education level data is the level of formal education completed by respondent based on the latest certificate graduation on data written from filled out form with a reference to the latest diploma or CV, divided into; (1) diploma, (2) strata-1 (bachelor), (3) strata-2 (master, specialist), and (4) strata-3 (PhD, doctoral). Data on the heterogeneity of education levels is divided into; (1) homogeneous (in TMT there is only 1 group of education level) and (2) heterogeneous (in TMT there are more than 2 groups of education level).

The education specialization data is the level of professional education, additional, formal or non-formal, training etc., completed by the respondent based on the latest certificate held with reference to the latest diploma or CV, divided into; (1) doctor, (2) doctor + specialist, (3) doctor + admin, business, finance, (4) non-doctor, (5) non-doctor + specialist, (6) non-doctor + admin, business, finance, (7) doctor/ non-doctor + hospital-specific training, and (8) doctor/non-doctor + science and engineering. Data on the heterogeneity of educational specialization is divided into two; (1) homogeneous (in TMT there are less than 4 groups of educational specializations) and (2) heterogeneous (in TMT there are 4 groups or more educational specializations).

## 2.2. Hospital's Performance Data

The hospital performance data is filled out by one of the hospital's TMT members, verified and approved by the main director. The hospital performance form based on BSC, contains four perspectives; (i) financial; (ii) patient; (iii) internal business process; and (iv) learning and growth.

From a financial perspective, the sub-variable "increase in operating income" is hospitals ability to earn income (total revenue after deducting production costs/paid expenses) during 2020. The sub-variable "get cost savings" is the ability to save costs (routinely) in period 2020. The sub-variable "increases hospitals profits", namely hospitals ability to generate profits (total revenue after deducting production costs/paid and calculated) in 2020. The sub-variable "debt decreases" is the ability to reduce debt during 2020. Sub-variable "overall average for finance" is average financial performance of the hospital during 2020 that is better than previous year.

In patient's perspective, the sub-variable "increase patient satisfaction", namely patient satisfaction in the 2020 period is higher than previous year. The sub-variable "reduce patient complaints", namely fewer patient complaints in 2020 than previous year. The sub-variable "get patient acceptance" i.e. patients receive hospital services assessed from compliance with officer instructions, fulfilling patient obligations to hospital without any complaints during 2020. The sub-variable "increase patient retention" is ability to maintain good business relationships, continuous relationship with patients in long term, as assessed by compliance with controls and repeated visits during 2020. The sub-variable "overall average

for patients" is average hospital performance in perspective of patients during 2020, better than previous year.

In perspective of internal business processes, the sub-variable "improvement of product quality" is the quality of service products during 2020 that is better than previous year. Sub-variable. "services and programs improve the efficiency of internal processes", namely efficiency of services and programs during 2020, that was better than previous year. The sub-variable, "improvement of management efficiency" is that management efficiency during 2020 that was better than previous year. The sub-variable, "improvement of patient safety and health through risk management" is that patient safety and health during 2020 that was better than previous year, as evidenced by a decrease in sentinel incidence and length of stay. The sub-variable, "overall average for internal business processes", which is the average overall performance of internal business during 2020 is greater than previous year. In learning and growth perspective, the sub-variable "improve employee training and learning", namely the hospital carried out more and more quality training and learning activities during 2020 than previous year. The sub-variable, "increases employee satisfaction and attitudes towards work", namely employee satisfaction and attitudes towards work during 2020 that was greater than previous year. The sub-variable, "encouraging the development of creativity and innovation", namely the creativity and innovation of the hospitality community during 2020 that was greater than previous year. The sub-variable, "allow feedback and continuous learning process", i.e. the number of feedback and continuous learning activities during 2020 period that was greater than previous year. The sub-variable, "overall average for learning and growth" i.e. overall average for learning and growth during the 2020 period is greater than the previous year.

Each variable was measured with a LIKERT scale as follows;( i) 1 = strongly disagree; (ii) 2 = disagree; (iii) 3 = agree; (iv) 4 = agree more; and (v) 5 = strongly agree. The total score of hospital performance is grouped into two, namely; i) score 0–75 (good), and ii) score 76–100 (very good).

## 2.3. Data Analysis

The One-Sample Kolmogorov Smirnov was done to test the normality of data distribution, and it is not normal so that the inferential analysis uses non-parametric statistics by the Statistical Package for Social Sciences (SPSS. 26) (Hinton, 2004).

# 3. Result and Analysis

## 3.1. Research Subjects and Objects Analysis

A total of 105 (44.38%) from 242 questionnaire-responses have been accepted by researchers. Only 98 (40.49%) questionnaires met the requirements for analysis, and 7 questionnaires are not included. Smith (2003) and Holbrook et al. (2007) noted that survey research response rates to questionnaires varied from 4% to

70%, with and an average of 30% for questionnaires sent by post and/or email. The average response rate increased to 67% for direct contact questionnaires. The response rate in this study was 44.38%, which is still higher than average of previous study, so it can be concluded that the involvement of hospitals in Central Java in this study was good, and the number of subjects met the quota.

The hospital's performance questionnaire as dependent variable was tested by expert opinion, stated that questionnaire was good and deserved to be circulated. The validity test with the product moment Pearson correlation and Cronbach's Alpha reliability test were done, as well as a set of questionnaires about leadership style as an intervening variable.

## 3.2. The Demographic Characteristics of Hospital's TMT

Table 1 showed that a total of 256 (69.9%) members of TMT are less than 55 years old, which was the reference for TMT's peak age limit to be the best performers (Khan & Vieito, 2013; Emestine & Setyaningrum, 2019). The gender of the hospital's TMT in this study was dominated by male (63.7%), thus further confirming the lack of female gender representation in highest levels of leadership in health organizations (Lantz, 2008; Sexton et al., 2014). The period of experience in TMT organization was dominated by the group of more than 6 years (72.4%), while the experience as a TMT in the same hospital was highest in the group of 1–5 years (33.3%). The terminal education level of TMT was strata-1 (48.9%) mostly, with non-medical (28.1%) was the most specialization. There were 86 doctors as TMT (23.5%), where all main directors of the hospital were medical professionals. The 10 hospitals were led by only one director. As many as 50% of hospitals were lead by 1 to 3 directors and the remaining 50% by 4 to 6 directors as TMT.

Table 2 indicated that most of the hospitals (77.3%) were managed by TMT with a homogeneous age group, namely less than 55 years, but the heterogeneous gender composition (64.8%) was greater. Most of organizational experience of TMT members (76.1%) were in a homogeneous group, which were more than 6 years. The experience period as TMT's member was the most (58.0%) in heterogeneous group, where there were new TMT's members and some who have long served on the board of directors. The terminal education levels of TMT's members were more heterogeneous (64.8%), from diploma to doctoral levels. Most of TMT's specializations were homogeneous, where a maximum of only three educational specializations were dominated by non-doctors (28.1%), doctors (23.5%), and specialists (16.9%).

Based on the discussion above, the characteristics and heterogeneity of hospital's TMT in Central Java were dominated by groups of men, aged >55 years who have organizational experience >6 years, education levels are S-1 and S-2 non-doctors and doctors.

**Table 1: Demographic Characteristics of Hospital's TMT**

| Variable | Frequency (%) |
|---|---|
| Age (N=366) | |
| Up to 55 yr | 256 (69.9%) |
| >55 yr | 110 (30.1%) |
| Gender (N=366) | |
| Male | 233 (63.7%) |
| Female | 133 (36.3%) |
| Organizational Experience Inside/Outside Hospital (N=366) | |
| Up to 6 yr | 101 (27.6%) |
| >6 yr | 265 (72.4%) |
| Experience as a Hospital's TMT (N=366) | |
| <1 yr | 37 (10.1%) |
| 1–5 yr | 122 (33.3%) |
| 5–≤ 10 yr | 94 (257%) |
| >10 yr | 113 (30.9%) |
| The Education Level (N=364) | |
| Diploma | 28 (7.7%) |
| Strata-1 (Bachelor) | 178 (48.9%) |
| Strata-2 (Master, Specialist) | 144 (39.6%) |
| Strata-3 (PhD, Doctoral) | 14 (3.8%) |
| The Education Specialization (N=366) | |
| Doctor | 86 (23.5%) |
| Doctor + Specialist | 62 (16.9%) |
| Doctor + Admin, Business, Finance | 53 (14.5%) |
| Non-doctor | 103 (28.1%) |
| Non-doctor + specialist | 0 (0%) |
| Non-Doctor + Admin, Business, Finance | 38 (10.4%) |
| Doctor/Non-doctor + Hospital-specific Training | 12 (3.3%) |
| Doctor/Non-Doctor + Sains and Engineering | 12 (3.3%) |

**Table 2: Demographic Heterogeneity of TMT (N=88)**

| Heterogeneity | Frequency (%) |
|---|---|
| Age | |
| Homogeneous (in TMT there is only 1 age group) | 68 (77.3%) |
| Heterogeneous (in TMT there are 2 age groups) | 20 (22.7%) |
| Gender | |
| Homogeneous (in TMT there is only 1 gender group) | 31 (35.2%) |
| Heterogeneous (in TMT there are 2 gender groups) | 57 (64.8%) |
| Organizational Experience Inside/Outside Hospital | |
| Homogeneous (in TMT there is only 1 group with experience in the organization) | 67 (76.1%) |
| Heterogeneous (in TMT there are 2 groups with experience in the organization) | 21 (23.9%) |
| The Experience as Hospital's TMT | |
| Homogeneous (in TMT there is only 1 group of experience as hospital's TMT) | 37 (42.0%) |
| Heterogeneous (in TMT there are 2 groups of experience group as hospital's TMT) | 51 (58.0%) |
| The Education Level | |
| Homogeneous (in TMP there is only 1 group of education level) | 31 (35.2%) |
| Heterogeneous (in TMP there are more than 2 groups of education level) | 57 (64.8%) |
| The Education Specialization | |
| Homogeneous (in TMT there are less than 4 groups of educational specializations) | 84 (95.5%) |
| Heterogeneous (in TMT there are 4 groups or more educational specializations) | 4 (4.5%) |

## 3.3. Hospital's Pperformance Based on BSC

Respondents assessed four perspectives of hospital performance as measured by the BSC method, based on a 5-LIKERT scale ranging from "1" (Strongly Disagree) to "5" (Strongly Agree) and the results are presented in Table 4. The BSC method aims to direct, help manage and change the hospital's long-term strategy, through measuring four perspectives; (1) finance, (2) customer perspective, (3) internal business processes, and (4) learning and growth (Table 3).

**Table 3: Hospital's Performance Based on BSC***

| Perspectives | Min. | Max. | Mean | Std. Deviation |
|---|---|---|---|---|
| Financial | | | | |
| a) Increase in operating income | 1 | 5 | 2.39 | 1.410 |
| b) Get cost savings | 1 | 5 | 3.04 | 1.192 |
| c) Increases hospitals profits | 1 | 5 | 2.46 | 1.247 |
| d) Debt decreases | 1 | 5 | 2.79 | 1.115 |
| e) Overall average for finance | 1 | 5 | 2.45 | 1.176 |
| Patient | | | | |
| a) Increase patient satisfaction | 1 | 5 | 3.04 | 0.888 |
| b) Reduce patient complaints | 1 | 5 | 2.89 | 1.000 |
| c) Get patient acceptance | 2 | 5 | 3.31 | 0.758 |
| d) Increase patient retention | 2 | 5 | 3.43 | 0.992 |
| e) Overall average for patients | 1 | 5 | 3.23 | 1.028 |
| Internal Business Process | | | | |
| a) Improvement of product quality | 2 | 5 | 3.41 | 1.011 |
| b) Services and programs improve the efficiency of internal processes | 1 | 5 | 3.27 | 1.061 |
| c) Improvement of management efficiency | 1 | 5 | 3.11 | 1.034 |
| d) Improvement of patient safety and health through risk management | 1 | 5 | 3.18 | 0.961 |
| e) Overall average for internal business processes | 2 | 5 | 3.03 | 0.902 |
| Learning and Growth | | | | |
| a) Improve employee training and learning | 1 | 5 | 2.67 | 1.063 |
| b) Increases employee satisfaction and attitudes towards work | 1 | 5 | 2.92 | 1.083 |
| c) Encouraging the development of creativity and innovation | 2 | 5 | 3.59 | 0.990 |
| d) Allow feedback and continuous learning process | 1 | 5 | 2.94 | 1.084 |
| e) Overall average for learning and growth | 1 | 5 | 2.86 | 1.101 |
| Overall Average for Hospital's Performance | 1.25 | 5 | 3.00 | 1.055 |

Note: *SCALE 1=Strongly Disagree; 2=Disagree; 3=Agree; 4=Agree More; 5=Strongly Agree.

## 3.4. Financial Perspective

Financial perspective measure; (i) increase in hospital operating income, (ii) savings in hospital costs, (iii) increase in hospital profits, (iv) decrease in hospital debt, and (v) average overall financial measurement. Measurements were made during the 2020 Covid-19 pandemic. The average value of the overall financial perspective shows that most respondents do not agree that during 2020, under the conditions of the Covid-19 pandemic, the overall average hospital's financial

performance is better than previous year (Mean ± SD = 2.45 ± 1.176). The mean value of 2.45 is in the mid range between 'disagree' to 'agree', so it can be interpreted that average hospital's financial performance during 2020 not better than 2019.

During pandemic, the hospital also did not experience an increase in operating income. Average score for questions; "Hospital has increased operating income" by Mean ± SD = 2.39 ± 1.410, or is in the mid range between 'disagree' to 'agree'. Respondents stated that hospital could not increase profits (Mean ± SD = 2.46 ± 1.247) and could not repay debt (Mean ± SD = 2.79 ± 1.115). The financial performance of the hospital also only showed sufficient ability in cost savings with an average value of 3.04 (SD = 1.192). Based on BSC measurements, the 2020 financial performance of hospitals in Central Java during the Covid-19 pandemic was lower than 2019, thus requiring a change in strategy and long-term performance arrangements.

## 3.5. Patient Perspective

The patient's perspective is based on the cumulative experience of all interactions shaped by hospital's culture (vision, mission) during the course of care (Wolf et al., 2014). Patient experience scores are indicators of the health system (Kumah et al., 2017) that differentiate hospital performance (Galstian et al., 2018; Manary et al., 2015). The patient perspective is measured by assessing; (i) increasing patient satisfaction, (ii) efforts to reduce patient complaints, (iii) efforts to gain customer acceptance, (iv) increasing customer retention, and (v) overall average for customers/patients). The overall result was Mean ± SD = 3.23 ± 1.028, or good. In a pandemic situation, hospitals were able to increase customer retention (Mean ± SD = 3.43 ± 0.992), which is the highest score in the performance assessment of this perspective. Respondents considered that customers were quite accepting of the hospital conditions in serving them, where the customer acceptance score Mean ± SD = 3.31 ± 0.758. Respondents also think that the hospital is quite good in an effort to increase customer satisfaction (Mean ± SD = 3.04 ± 0.888).

Although the hospital is quite good in its efforts to "increase patient satisfaction" and "customer retention", this was not showed as hospital's ability to reduce customer complaints, because the Mean ± SD = 2.89 ± 1,000. This explains that patient satisfaction and retention are not related to hospital perfomance's complaints. In the era of the Covid-19 pandemic, hospital's performance from the perspective of patients remains good or the same as 2019, and so this can be used as leverage for strategies and long-term performance arrangements.

## 3.6. Internal Business Perspective

The hospital's internal business processes assess; (i) improvement of product quality, (ii) improvement of services and programs to improve internal process efficiency, (iii) improvement of management efficiency, (iv) improvement of

patient safety and health through risk management, and (v) overall average for internal business processes.

The entire internal business process average value is Mean ± SD = 3.03 ± 0.902, or it means quite well. During the Covid-19 pandemic conditions, respondents recorded the highest average score on improving service quality (Mean ± SD = 3.41 ± 1.011), followed by hospital improvements in internal business process efficiency (Mean ± SD = 3.27 ± 1.061). Hospitals can improve management efficiency (Mean ± SD = 3.11 ± 1.034) and patient safety (Mean ± SD = 3.18 ± 0.961).

In the era of Covid-19 pandemic, the hospital's performance of internal business processes in 2020 showed an increase in efficiency compared to 2019. Therefore, the hospital's performance strategy should be more directed to improve services which in turn will increase management efficiency. The internal business processes put more emphasis on internal hospital processes to increase patient satisfaction and loyalty.

## 3.7. Learning and Growth Perspective

This perspective assesses; (i) increased employee training and learning, (ii) increased employee satisfaction and attitudes towards work, (iii) encouraged the development of creativity and innovation, (iv) allowed feedback and continuous learning processes, and (v) overall average for learning and growth.

The overall average of learning and growth revealed that during 2020 under the Covid-19 pandemic, it was not good enough (Mean ± SD = 2.86 ± 1.101). However, hospitals experienced a strong push in the development of creativity and innovation (Mean ± SD = 3.59 ± 0.990). So, hospitals were advised to make adjustments to these conditions, by further improving organizational learning performance and growth.

The average value of the measurement "improve employee training and learning" is the lowest (Mean ± SD = 2.67 ± 1.063). The average value of the measurement "Improve employee satisfaction and attitude towards work" is Mean ± SD = 2.92 ± 1.083. This shows that during pandemic era, hospitals were less able to increase employee satisfaction through the support that provided by management, such as training and skills development. This condition is then followed by a low mean value of the "Allow continuous feedback and learning process", where Mean ± SD = 2.94 ± 1.084. This implies that learning and growth performance is not better than before. Based on the description above, the hospital's performance of 2020, as measured by the BSC, shows an achievement that is no better than 2019. So, it is necessary to change strategies and performance arrangements that focus more on customer satisfaction and loyalty.

The BSC method is expected to be implemented and evaluated better in hospitals, although initially as a multidimensional measurement instrument that integrates financial and non-financial indicators. However, in its development,

the BSC method is used as an important instrument for measuring hospital performance to be considered. Four perspectives of hospital performance measurement according to the BSC, are used to review the role of demographic characteristics and heterogeneity of TMT, including its leadership aspect on hospital performance, so that it can be functioned as a hospital management tool.

## 3.8. The Demographic Characteristics of TMT and Hospital Performance

### 3.8.1. Age

Table 4 and 5 showed the Asymp value. Sig. (2-tailed) on the Pearson Chi-Square test p=0.980 (p>0.05), it means that the average age factor of TMT members does not play a negative role in hospital performance. The older you get, the more positive your performance will be. The next test to assess the role of age heterogeneity factor on hospital performance got p=0.345 (p>0.05). This means that the age heterogeneity factor of TMT members also does not associate positively with hospital performance, or it can be said that age variations have no effect on performance.

The role of age on company performance is still controversial. Some experts argue that older leader has the better performance (Kusumastuti et al., 2007). The results of this study support this opinion. Mudasetia (2020) also noted that the age limit for young company leaders in Indonesia is 50 years. In this study, the age limit of 55 years as a 'cut off' for TMT age grouping that is based on the study of Khan & Vieito (2013).

In this study, the proportion of age <55 years compared to >55 years in achieving very good performance, almost comparable (8%: 5%), of the total proportion of subjects (61%: 39%). This illustrates that the older TMT also performs very well and is comparable to the performance of the younger TMT. Emestine & Setyaningrum (2019) argue that the older CEO had more skilled in doing business. The study of Cheng et al. (2010) also stated that older TMT will perform better.

Based on the results of this study, it was concluded that the average age factor had no association with hospital performance as measured by BSC. The age of TMT members >55 years also resulted in comparable performance to those of <55 years of age, and the age heterogeneity of TMT members also did not associate with the hospital's performance.

### 3.8.2. Gender

The female gender factor has an Asymp value. Sig. (2-tailed) in Pearson Chi-Square test p=0.137 (p>0.05). It means that the presence of female hospital TMP members does not associate positively with hospital performance. The gender heterogeneity factor gets the p value = 0.615 (p>0.05), it means that gender heterogeneity in TMT members does not associate positively with hospital performance.

**Table 4: The Demographic Characteristics of TMT and Hospital Performance**

| Variable | Hospital's Perfomance Category (BSC Score) | | TOTAL | Asymp. Sig. (2-tailed) |
|---|---|---|---|---|
| | GOOD (%) | VERY GOOD (%) | | |
| Age | | | | |
| Up to 55 yr | 52 (53%) | 8 (8%) | 60 (61%) | 0.980 |
| >55 yr | 33 (34%) | 5 (5%) | 38 (39%) | |
| Total | 85 (87%) | 13 (13%) | 98 (100%) | |
| Gender | | | | |
| Male | 68 (69%) | 8 (8%) | 76 (78%) | 0.137 |
| Female | 17 (17%) | 5 (5%) | 22 (22%) | |
| Total | 85 (87%) | 13 (13%) | 98 (100%) | |
| Organizational Experience Inside/Outside Hospital | | | | |
| Up to 6 yr | 22 (22%) | 1 (1%) | 23 (23%) | 0.150 |
| >6 yr | 63 (64%) | 12 (12%) | 75 (77%) | |
| Total | 85 (87%) | 13 (13%) | 98 (100%) | |
| Experience as a Hospital's TMT | | | | |
| <1 yr | 11 (11%) | 1 (1%) | 12 (12%) | 0.769 |
| 1–5 yr | 30 (31%) | 4 (4%) | 34 (35%) | |
| 5–≤10 yr | 11 (11%) | 3 (3%) | 14 (14%) | |
| >10 yr | 33 (34%) | 5 (5%) | 38 (39%) | |
| Total | 85 (87%) | 13 (13%) | 98 (100%) | |
| Education's level | | | | |
| Diploma | 26 (27%) | 1 (1%) | 27 (28%) | 0.227 |
| Strata-1 (Bachelor) | 54 (55%) | 11 (11%) | 65 (66%) | |
| Strata-2 (Master, Specialist) | 5 (5%) | 1 (1%) | 6 (6%) | |
| Total | 85 (87%) | 13 (13%) | 98 (100%) | |
| Education's specialization | | | | |
| Doctor | 21 (21%) | 1 (1%) | 22 (22%) | 0.331 |
| Doctor + Specialist | 25 (26%) | 5 (5%) | 30 (31%) | |
| Doctor + Admin, Business, Finance | 28 (29%) | 5 (5%) | 33 (34%) | |
| Non-Doctor + Admin, Business, Finance | 1 (1%) | 1 (1%) | 2 (2%) | |
| Doctor/Non-doctor + Hospital-specific Training | 7 (7%) | 0 | 7 (7%) | |
| Doktor/Non-doctor + Sains and Engineering | 3 (3%) | 1 (1%) | 4 (4%) | |
| Total | 85 (87%) | 13 (13%) | 98 (100%) | |

Note: *Pearson Chi-Square, $p<0.05$ (significant)
Hospital's Perfomance Category (BSC Score)
Score 0–75 = GOOD
Score 76–100 = VERY GOOD

Several studies provide different conclusions about the gender role of leaders on company performance. Female and male leaders have the same opportunity to perform well (Emestine & Setyaningrum, 2019). This study shows that gender factors and heterogeneity of TMT members do not associate with hospital performance. Female's TMT and the presence of female in TMT have no effect on performance. The consequence is that the recruitment process for TMT members no needs to provide gender requirements. Hospitals are not advised to give priority to TMT positions on the basis of gender, although empirically, female leaders perform better on communication and social skills (Liu et al., 2014; Gulamhussen & Santa, 2015; Post & Byron, 2015).

The conclusion of this study has the opportunity for sample bias, because only one third of TMT members are female, even 13 hospitals do not have female TMT members. This bias will certainly lead to inaccurate conclusions, so that although the filling of the TMT position does not consider gender aspects, the presence of women in the TMT, may; (1) enriching information, social diversity, management behavior and motivating other women in lower levels (Dezsö & Ross, 2012; Peni, 2014; Ellwood & Garcia-Lacalle, 2015; Bennouri et al., 2018); (2) communicate better with stakeholders (Dezsö & Ross, 2012; Green & Homroy, 2018); (3) implementing a transformational leadership style (Eagly et al., 2003); and (4) wiser, willing to admit mistakes, build trust, problem solving, collaboration, transparency, and compassion (Paustian-Underdah et al., 2014).

### 3.8.3. Organizational Experience Inside/Outside Hospital

The TMT members certainly have experience in organization before serving as TMT. This study proves whether the average period of experience (tenure) associate with hospital performance. The results of this study get the Asymp value. Sig. (2-tailed) on the Pearson Chi-Square test, $p=0.150$ ($p>0.05$), it means that the average short experience in the organization inside or outside the hospital from TMT members does not associate positively with hospital performance. However, the heterogeneity test of the organizational experience obtained the p value = 0.037 ($p<0.05$, or significant). It means that the heterogeneity of the experience period inside or outside the hospital has a positive associate with hospital performance, but the more heterogeneous of experience period, their role is decreasing.

The period of organizational experience used as a 'cut-off' is 6 years, based on the study of Zanger & Lawrence (1989) and Emestine & Setyaningrum (2019). Those states that after this period of time, a leader will have sufficient knowledge and experience to organize a team. Alexander & Lee (1996) also states that the failure rate of hospital performance will decrease when managed by a CEO with a tenure of less than 6 years.

The period of experience in the organization is not a direct predictor of performance achievement, however, TMT members who have high knowledge and work experience will accelerate the team to work faster. On the other hand, TMT members with shorter tenures will actually bring progressive changes to the

**Table 5: Demographic Heterogeneity of TMT and Hospital Performance**

| Variable | Hospital's Perfomance Category (BSC Score) | | TOTAL | Asymp. Sig. (2-tailed) |
|---|---|---|---|---|
| | GOOD (%) | VERY GOOD (%) | | |
| Age Heterogeneity | | | | |
| Homogeneous | 60 (68%) | 8 (9%) | 68 (77%) | 0.345 |
| Heterogeneous | 16 (18%) | 4 (5%) | 20 (23%) | |
| Total | 76 (86%) | 12 (14%) | 88 (100%) | |
| Gender Heterogeneity | | | | |
| Homogeneous | 26 (30%) | 5 (6%) | 31 (35%) | 0.615 |
| Heterogeneous | 50 (57%) | 7 (8%) | 57 (65%) | |
| Total | 76 (86%) | 12 (14%) | 88 (100%) | |
| Organizational Experience Heterogeneity | | | | |
| Homogeneous | 55 (63%) | 12 (14%) | 67 (76%) | 0.037* |
| Heterogeneous | 21 (24%) | 0 | 21 (24%) | |
| Total | 76 (86%) | 12 (14%) | 88 (100%) | |
| Experience as Hospital's TMT Heterogeneity | | | | |
| Homogeneous | 31 (35%) | 6 (7%) | 37 (42%) | 0.548 |
| Heterogeneous | 45 (51%) | 6 (7%) | 51 (58%) | |
| Total | 76 (86%) | 12 (14%) | 88 (100%) | |
| The Education Level Heterogeneity | | | | |
| Homogeneous | 28 (32%) | 3 (3%) | 31 (35%) | 0.425 |
| Heterogeneous | 48 (55%) | 9 (10%) | 57 (65%) | |
| Total | 76 (87%) | 12 (13%) | 88 (100%) | |
| The Education Specialization Heterogeneity | | | | |
| Homogeneous | 73 (83%) | 11 (13%) | 84 (95%) | 0.498 |
| Heterogeneous | 3 (3%) | 1 (1%) | 4 (5%) | |
| Total | 76 (86%) | 12 (14%) | 88 (100%) | |

Note: *Pearson Chi-Square, $p<0.05$ (significant)
Hospital's Perfomance Category (BSC Score)
Score 0–75 = GOOD
Score 76–100 = VERY GOOD

company's strategy (Zanger & Lawrence, 1989). The results of this study prove that the heterogeneity had significant association with organizational experience in hospital performance, thus confirming and supporting this theory.

### 3.8.4. Experience as A Hospital's TMT

Controversy about the role of average tenure serving as TMT on performance still occurs. The results of this study get the Asymp value. Sig. (2-tailed) in the Pearson Chi-Square test, p=0.769 (p>0.05), which means that average length of work experience as a TMT does not have a negative association with hospital performance. The study of Henderson et al. (2006) differs from the results of this study, and states that CEO tenure is negatively related to organizational performance.

Based on the understanding of previous studies, actually a shorter tenure as a TMT will be able to achieve good performance, because they can collaborate more effectively, and have more innovative strategies. Newly appointed members of hospital's TMT should also be more willing to take risks and be more prepared for change, than those who have been in office for a long time (Finkelstein et al., 2009).

Hospital performance is not associated with the heterogeneity experience as TMT, with the Asymp value. Sig. (2-tailed) in the Pearson Chi-Square test, p=0.548 (p>0.05). It means that the length of work experience as a hospital TMT does not play a positive association with hospital performance. The variation in length of tenure of each member of the TMT does not associate with hospital performance either, although Michel & Hambrick (1992) states that long-serving CEOs produce more social cohesion. Therefore, a TMT with a homogeneous length of tenure of its members (eg, all of them more than 5 years), will create management who are reluctant to challenge the status quo. The results of this study prove that the factor of average tenure serving as a TMT and its heterogeneity does not associate with hospital performance. So, it still has not answered the existing controversy.

### 3.8.5. The Education Level

Our previous systematic study (Prasetyo et al., 2021), proved that higher and more sophisticated academic education levels have an effect on leadership roles, administrative competence, and better patient experience. The hospital's TMT mostly has a higher education level that focuses on the health sector. However, in the era of globalization, TMT must have management skills, administrative competencies, and leadership styles to meet market demands and patient satisfaction, and be able to respond to health sector policies and complexities in the healthcare environment. Top management is expected to demonstrate measurable, effective and efficient results, and also to practice evidence-based management (Ghanem, 2014; Berghout et al., 2017; Sfantou et al., 2017; Chatterjee et al., 2018; Ochonma et al., 2018; Vainieri et al., 2019).

There are five general competency domains for hospital leaders, namely; (1) communication and relational management; (2) professionalism; (3) leadership; (4) knowledge of the health care system; and (5) business skills and knowledge. At the same time, academic education and professional programs emphasize the achievement of competencies related to effectiveness and efficiency. These competencies can be achieved through educational and professional programs, so as to maximize hospital performance outcomes (Ochonma et al., 2018; Sarto & Veronesi, 2016).

The hospital's TMT with advanced education level was positively associated with better ability, management skills and performance. The ability to facilitate organizational adaptation, motivate followers, and their effect on patient experience and satisfaction is also related to the technical, human resources, business and conceptual skills of a TMT (Galstian et al., 2018). Formal education can equip leaders with better leadership theory and practice, as well as management skills to identify the drivers and barriers to change. Formal education is also used to implement the most effective approach in improving patient satisfaction and experience, as well as improving hospital performance (Galstian et al., 2018; Aiken et al., 2003).

Research has proven that leaders with an academic degree at postgraduate level (strata-2) and above are more likely to exhibit transformational leadership behavior, according to modeling the role of behavior in achieving the desired goals (Galstian et al., 2018; Carlos Pastor & Mayo, 2008). Besley et al. (2011) states that leaders with higher education degrees are associated with better organizational performance, because they equip leaders with technical skills, understanding of human resources, understanding of business and conceptual (Reilly, 2004). Postgraduate education familiarizes TMT with the theory and practice of successful leadership. Top management teams with higher levels of education are more able to make effective evidence-based decisions, thereby reducing errors (Aiken et al., 2003; Rappleye, 2015).

Unfortunately, this study failed to prove the role of higher education on hospital performance. Asymp Value. Sig. (2-tailed) on Pearson Chi-Square test, $p=0.227$ ($p>0.05$), meaning that terminal academic degree of TMT does not have a positive association with hospital performance. The heterogeneity of education levels also does not has any association as well, where the Asymp score. Sig. (2-tailed) on Pearson Chi-Square test, $p=0.425$ ($p>0.05$).The results of this study are in line with the study of Emestine & Setyaningrum (2019) which states that CEO continuing education is not related to company performance, and CEOs can achieve higher performance with or without further education. The results of this study raise the assumption that further education for TMT that associate with hospital performance is in the form of courses and training. These courses and training are more important and support the improvement of hospital performance compared to formal education. So, the need for TMT's further education also needs to be distinguished according to the managerial needs of each hospital (Kartikaningrum, 2016; Trofimova, 2017). The results of this study prove that

the average level of TMT education and its heterogeneity do not associate with hospital performance. Informal education in the form of special courses and training on hospital management is more necessary and is thought to associate positively with hospital performance.

### 3.8.6. The Education Specialization

Educational specialization is a particular academic area, which can bring changes to the hospital in the direction of progress, findings and improvement. Hospitals need human resources with various specializations to support their performance, including doctors, specialists, nurses, technicians, general administration, finance, law, etc.

In the hospitals of United States, there is an increase in the number of leaders with higher education level, that specifically focuses on the field of health care, not the field of business management. The hospital's top management team must have the training experience and specific skills to manage effectively and successfully as hospital leaders (Matthews et al., 2013; Collins et al., 2009). The relationship between possession of a master's degree and top management positions, where more than 50% of health service leaders held a master's degree (mostly Master of Health Administration), where there was a significant relationship (Garman et al., 2010).

The results of this study prove that educational specialization and heterogeneity factors do not associate with hospital performance. Asymp Value. Sig. (2-tailed) on the Pearson Chi-Square test, $p=0.331$ ($p>0.05$), it means that the educational specialization of hospital's TMT members, with administrative and business disciplines, science and engineering – backgrounds, does not have a positive association with in hospital performance. The diversity factor of educational specialization has an Asymp value. Sig. (2-tailed) on the Pearson Chi-Square test, $p=0.498$ ($p>0.05$). It means that heterogeneity of TMT's educational specialization does not play a positive association with hospital performance.

This study only analyzes less than half of the population of hospitals in Central Java, so the conclusions are inadequate. The collected questionnaire data needs to be verified directly with the data source, so that it becomes primary data with better accuracy. The role of leadership style as a key factor in achieving hospital performance also needs to be analyzed.

## 4. Conclusion and Implication

The demographic characteristics and heterogeneity of hospital's TMT in Central Java are dominated by groups of men aged >55 years who have organizational experience >6 years, education levels are S-1 and S-2 non-doctors and doctors. During 2020, hospital performance in Central Java as measured by BSC was not better than 2019. So, it is necessary to change strategies and performance arrangements that are more focused on customer satisfaction and loyalty.

The TMT's demographic characteristics and heterogeneity do not associate with hospital performance as evidenced, with; (1) mean age (>55 years and <55 years performs the same, and age heterogeneity does not associate with hospital performance); (2) female and gender heterogeneity of TMT do not associate with hospital performance, but the presence of women is still needed to enrich information, social diversity, motivate other women, better communication, transformational leadership style, wiser, transparency, and compassion; (3) a short period of tenure in organizations inside or outside the hospital does not associate with hospital performance, but heterogeneity plays a positive role; (4) experience serving as hospital's TMT and its heterogeneity does not associate with hospital performance; (5) the highest level of education (terminal academic degree) of TMT members and its heterogeneity does not associate with hospital performance. Hospital management courses and training are more needed and are thought to have a positive association in improving hospital performance; and (6) specialization of education and heterogeneity of TMT members, with backgrounds in administrative and business disciplines, science and engineering, do not associate with hospital performance. Previous accreditation status as a history of hospital performance associate with hospital performance, where excellent hospital performance is mostly achieved by hospitals that were previously sufficiently accredited.

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