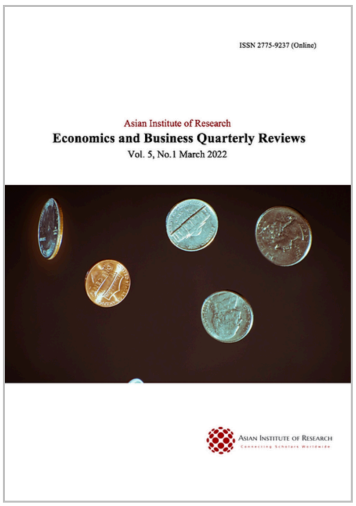

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Correlates and Clusters of Factors Influencing Perceived Organizational Performance of Pharmaceutical Managers in Nigeria: A Cross-Sectional Study

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Abstract
There is limited evidence to show how pharmaceutical managers are profiled based on managerial roles: operational, product, and strategic management level, using clustering and multivariate analyses. The constructs evaluated were:self-efficacy (SE), reward-structure (RS), policy-involvement (PE), task-environment (TE), communication-engagement (CE), and perceived organizational performance (OP). Study objectives were to investigate the profile of pharmaceutical managers based on functional roles and task constructs influencing their performance. Secondly, to assess the influence of SE, TE, PE, CE, and RS on OP of pharmaceutical managers. A literature-guided questionnaire cross-sectional study was administered by stratified random sampling to 241 managers involved in pharmaceutical marketing in Nigeria. Multivariate analyses were used to examine relationships between variables. Two-step Cluster analysis was used to explore the distinct structure of constructs. Kruskal Wallis test compared cluster groups at $p \leq .05$. Associations existed between demographic attributes and managerial roles except for gender ($p=0.085$), and qualification as pharmacist or non-pharmacist ($p=0.124$). The regression model showed that SE, TE, and PE were significant predictors of OP. CS and RS had no significant influence on OP. Significant positive relationships were found between six constructs. Three clusters were computed with an overall median cluster score of 24.13. Strategic managers formed the dominant cluster 1 (mean=24.39) with comparatively higher value of PE than Clusters 2 (product managers) and 3 (operational managers). Higher performance scores were related to higher levels of perceived self-efficacy among managers. The study recommends need-specific interventions to address role-specific challenges affecting managers. Adopting improved communication and reward systems to improve overall performance is recommended.

Keywords: Cluster Analysis, Human Resource Management, Nigeria, Organizational Performance, Pharmaceuticals, Pharmaceutical Management, Sales Workforce Capacity

1. Introduction

In the pharmaceutical marketing industry, the optimal engagement and harnessing of the human workforce capacity is critical to actualizing sales targets and objectives for the company in particular and the industry as a whole [Berberoglu, 2018: Oamen, 2021]. The management of the vast human, financial, and material resources in the industry is hinged on the quality of the management team saddled with the responsibility to initiate and execute a variety of functional and operational roles in the marketing process [Rezvani, 2017:Balogun, 2003:Tokarski et al., 2016]. In a thriving pharmaceutical industry like Nigeria, the management structure generally assumes three key categories: operational, product, and strategic management roles. Operational managers are first-line sales managers who are the functional link between the management team and the field workforce. They are involved in the implementation of day-to-day marketing and supervisory roles with field sales or medical representatives, healthcare providers, and the supply chain network. They usually operate at the regional or district level. Product managers are primarily tasked with developing market penetration strategies as well as product knowledge materials for marketing medicines. On the other hand, strategic managers are tasked with the responsibility of conceptualizing, planning, and developing actions or strategies that are in line with set organizational objectives. Heads of Business units and marketing heads typically belong to this group [Rezvani, 2017: Balogun, 2003: Tokarski et al., 2016]. Moreover, although psychology and management research literature has identified the various factors or constructs influencing the performance of employees in organizations, not much has been done to investigate how the profile of pharmaceutical managers influences organizational performance based on their functional roles [Bandura, 2006]. The key constructs considered in this study include Policy Engagement (PE), Communication Engagement (CE), Task Environment (TE), Reward System (RS), Perceived Self-Efficacy (SE), and Perceived Organizational Performance (OP)**.**

1.1 Conceptual Framework

There is limited evidence in the literature to show the taxonomies of task-related constructs influencing the performance of managers in the pharmaceutical marketing industry in Nigeria. Hence, there is the need to investigate the natural groupings of characteristics obtained from cross-sectional data collected over 3 months from managers representing three managerial groups-operational, product, and strategic managers. The study explored the predictive and correlational relationships between the key constructs under consideration in an industry-specific context. The managerial role is the principal contextual factor for conducting the Two-step cluster analysis for constructs such as Policy Engagement (PE), Communication Engagement (CE), Task Environment (TE), Reward System (RS), Perceived Self-Efficacy (SE), and Perceived Organizational Performance (OP). [Crum et al., 2020: Farashah & Blomquist, 2021] This study is novel because it is the first study to explore the outcome of using clustering methods to evaluate perceived task-related factors influencing managerial performance in the pharmaceutical industry, in Nigeria.

1.2 Managerial role (Grouping Variable)

The Management role variable was operationalized into the operational, product, and strategic management roles. Operational managers typically consist of first-line, field sales managers, involved in pharmaceutical sales and marketing operations. They are usually situated in the regions or territories they manage, and have field sales executives under their supervision [Rezvani, 2017: Balogun, 2003: Tokarski et al., 2016]. Product Managers are saddled with the responsibility of developing knowledge and designing product-based strategies to enhance the marketability of assigned pharmaceutical products. Strategic Managers e.g. Heads of Business Units and Marketing heads are senior management staff tasked with developing strategies and actionable plans in line with set company objectives [Rezvani, 2017: Balogun, 2003: Tokarski et al, 2016]. In the study, operational managers were coded as 1, Product managers were coded as 2 while strategic managers were coded as =3.

1.3 Policy Engagement (PE)

The policymaking process defines the strategic and operational direction of any corporate organization. It is a collective, interactive bargaining process involving every layer of human resource at every level of management

[Bruijn & Heuvelhof, 2012: Tohidi & Jabbari, 2012]. Several authors have advocated the need for feedback and involvement of all stakeholders, to arrive at best-fit plans for the good of the organization [Bruijn & Heuvelhof, 2012]. The research study engaged the use of identifiers in the form of statements to evaluate respondents' perception of the level and nature of their involvement in policymaking and implementation [Omoy, 2010: Kumar & Saha, 2017].

1.4 Communication Engagement (CE)

Communication has been established as the bedrock of information sharing, dissemination, and decision making in any organization. In strategic settings, it is assumed that communication processes should be deliberately interactive and participatory across all levels of management [Betteke, 2018]. This, in essence, links the strategy formulation, testing, decision making, and implementation, all in one interactive loop [Betteke, 2018]. In the literature, the paradigm of communication in organizations has shifted from the simplistic, unidirectional view of mere exchange of information from a sender to a receiver, to a more multifaceted interactive relationship between superiors and subordinates and vice versa [Betteke, 2018: Torp, 2015: Aggerholm & Thomson, 2015]. Therefore, it is a critical tool used by managers in pharmaceutical settings where relations with peers, subordinates, healthcare practitioners, and supply chain management are inevitable [Bucata & Rizescu, 2017].

1.5 Task Environment (TE)

Intuitively, an enabling task or work environment as perceived by the employee is essential to ensuring enhanced employee performance both on an individual and corporate level [Berberoglu, 2018]. The right organizational climate is particularly relevant for managers as studies have revealed that toxic work environments yield less performance and productivity outcomes as compared to more collaborative environments [Anjum et al, 2018]. Key characteristics of optimal task-environment include: socially responsible, mutual respect, participatory decision making, positive feedback mechanisms, clear communication lines/channels, and safety-consciousness amongst others [Spector, 1997: Lane et al, 2010].

1.6 Reward System (RS)

Rewards and Incentives as a consequence of positive efforts and performance of employees by management of organizations have been proven to be an established recipe for increased performance and motivation [Francis et al, 2020: Ngwa et al, 2019]. This expectation applies to all employees irrespective of the level of engagement in an organization [Oamen, 2021]. On the other hand, it is implicit from the part of management that such measures engender more productivity and achievement of assigned objectives [Allen & Helms, 2002]. This study incorporates items in the questionnaire representing respondents' perception of rewards and incentive structure in their current position. They were represented by four (4) items for the construct. They include; I am well rewarded for my efforts; I receive significant bonuses and incentives; I am paid according to industry standards, and I receive verbal and written commendation from my superiors.

1.7 Perceived Organizational Performance (OP)

OP in the development of the study represented the impact and effects of the managers' involvement in the achievement of organizational goals. This construct was evaluated in the context of impact on subordinates, superiors, and the organization as a whole. OP was rated on ordinal Likert scale from 1 to 5 where 1=low impact, 3=moderate impact, and 5=high impact, to four items: a) My work has improved sales output; b) my work has influenced policy changes significantly; c) my work improves my organization's productivity significantly; d) my work improves my subordinates' productivity significantly; e) my overall leadership and management style has benefited my company significantly [Berberoglu & Secim, 2015: Gyurak et al, 2020].

1.8 Perceived Self-Efficacy (SE)

SE implies an individual's self estimation of his or her capacity and capability to achieve results when faced with a given task or challenge [Bandura, 2006: Chen et al, 2001]. SE was rated on a 3-point Likert scale, to rate participants' evaluation of the individual level of self-efficacy: where: low-l, moderate-3, and high-5 based on their level of assessment. Seven (7) item questions were extracted from literature such as I am very effective on my Job: I am very efficient on my job: I take timely actions and decisions: I always proactively address issues: I am not limited by the unfavorable work environment, policies, and limited resources to work: I adopt creative, innovative methods to solve work-related problems, and I am very adaptable [Bandura, 2006: Chen et al, 2001].

1.9 Study hypotheses

The hypotheses of the study were stated as follows:
H1: There is a significant influence of SE, PE, TE, CS, and RS on OP of pharmaceutical managers
H2: There is a significant difference between the cluster groups in the study
H3: There is significant correlational relationship between constructs in the study

2. Methods

2.1 Study design and Participants

A questionnaire-guided cross-sectional survey of pharmaceutical managers in Nigeria administered using a stratified random sampling method. Study participants were persons with active managerial roles and stratified into three functional groups or categories; operational managers, product managers, and strategic managers. Data were collected from September 2021 to November 2021.

2.2 Sample size determination

G*Power 3.1.9.7. statistical tool was used to determine the sample size for a study involving three independent groups (operational, product, and strategic managers respectively) as adopted in behavioral research studies [Marx-Fleck et al, 2021: Faul et al, 2009]. The computed total sample size for the study was 167. This tool was based on the following parameters for computation; alpha= 0.05, power=0.80 and medium effect size=0.4, and F-test at 1.87 significance level [Marx-Fleck et al, 2021: Faul et al, 2009]. The final sample obtained was 241, and thus adequate for further analysis.

2.3 Ethical Considerations

Ethical approval for the study was obtained from the department of health planning, research, and statistics, state research ethics committee, Ogun state, Nigeria. The approval number is HPRS/381/416, dated November, 21st, 2021.

2.4 Cluster Analysis Procedure

Two-step cluster analysis in IBM Statistical Package for Social Sciences was adopted as an exploratory method to categorize or classify dataset set into clusters or groups based on similarity of characteristics shared by the sample [Crum et al, 2020; Farashah & Blomquist, 2021: Leonard & Droege, 2008: Rodriguez et al, 2019]. In this study, the managerial role was used as the main grouping variable in the classification process; and each managerial role is computed using SPSS Two-step cluster to create clusters. Then, the mean score of each standardized construct in assigned cluster/s is compared to the baseline median value of the construct and rated as either low or high. Subsequently, the Kruskal-Wallis test was used to evaluate differences in cluster groups [Farashah & Blomquist, 2021: Kent et al, 2014].

2.5 Evaluation Criteria for Dominant Cluster

The cluster group with the highest numerical mean value and number of constructs is considered the most dominant group. The study assumes that values below the baseline median as low and those above the median value as high. The aggregate median value was set as a baseline reference value for evaluating cluster quality.

2.6 Measurement of Variables

PE, CE, TE, RS were measured on a 5-point Likert scale of 1 to 5 where 1 (Strongly disagree), 2 (disagree), 3 (neither agree nor disagree), 4 (agree), and 5 (strongly agree). Responses obtained from participants were transformed into composite variables using the SPSS transform function. SE and the dependent variable OP were measured on an ordinal scale of 1 (low), 3 (moderate), and 5 (high). Furthermore, SE Likert scale responses were operationalized into three categories namely; low (1.0 to 1.67), moderate (1.68 to 3.67), and high (3.68 to 5.00), obtained by dividing the scale width of 4 (5-1) by the number of items n=3, to give an interval of 0.67. This analytical approach was adopted in a previous study [Oamen & Omorenuwa, 2021].

2.7 Data Analysis

Data were analyzed using Statistical Package for Social Sciences version 25 (SPSS-25). Descriptive statistics such as mean and standard deviation were appropriately applied. Pearson's correlation coefficient was used to compute correlation values between variables. Cluster analysis was determined using Two-step cluster analysis algorithm. Chi-square test was used to evaluate associations between categorical variables. Kruskal Wallis test was used to compare cluster groups. Significance level was set as *p* less than 5%.

3. Results

3.1 Demographic characteristics of the sample

Two hundred and forty-one managers (241) responded out of 300 questionnaires administered representing an 80.3% response rate. 71% (171) were male and 29% (70) were female. The sample consisted of 102 (42.3%) pharmacists and 139 (57.7%) non-pharmacists by training. 147 presenting 61.0% of total sample, work in privately-owned companies while 94 (39.0%) managers work in multinational companies. There were 83 managers (34.4%) in the sales department, 35 (14.5%) in marketing, and a majority (123, 51%) operate in combined roles in the marketing and sales department. The largest age group was 31 to 40 years (140, 58.1%) while the lowest group were those greater than 50 years (14, 5.8%). Three Managerial categories were explored: strategic managers (64, 25.6%), product managers (39, 16.2%), and the largest category were operational sales managers (138, 57.3%). In terms of the span of control, a majority of respondents (n=152, 63.0%) manage between less than 5 to 10 persons while 89 (37.0%) manage between 11 to more than 20 persons. Furthermore, 179 (74.3%) managers had less than 5 to 10 years of managerial experience while 62 (25.7%) had between 11 to more than 15 years. Finally, in terms of overall pharmaceutical industry experience, 122 (50.6%) have less than 5 to 10 years of experience while 119 (49.4%) have between above 11 years of industry experience.

Table 1: Test of Association between Managerial Roles and Demographic Characteristics of Study Participants (N=241)

Variables /Managerial Roles	Strategic Managers	Product Managers	Operational Managers	Total	Results
	(n=64)	(n=39)	(n=138)	(N=241)	(χ2)
Gender		n (%)			
Male	43 [17.84]	23 [9.54]	105 [43.57]	171 [70.95]	**χ2=4.921, df=2, p=0.085**
Female	21 [8.71]	18 [7.47]	33 [13.69]	70 [29.05]	
Age					
less than 30 years	4 [1.66]	3 [1.24]	3 [1.24]	10 [4.15]	**χ2=45.767, df=6, p<0.01**
31 to 40 years	17 [7.05]	30 [12.45]	93 [38.59]	140 [58.09]	

41 to 50 years	33 [13.69]	5 [2.07]	39 [16.18]	77 [31.95]	
greater than 50 years	10 [4.15]	1 [0.41]	3 [1.24]	14 [5.81]	
Educational Qualification					
Pharmacist	30 [12.45]	23 [9.54]	49 [20.33]	102 [42.32]	**χ2=10.017, df=6, p=0.124**
Non-Pharmacist	34 [14.11]	16 [6.64]	88 [36.51]	139 [57.68]	
Type of Firm					
Privately owned	49 [20.33]	18 [7.47]	80 [33.20]	147 [61.00]	**χ2=10.660, df=2, p<0.005**
Multinational	15 [6.22]	21 [8.71]	58 [24.07]	94 [39.00]	
Territory of Coverage					
North	6 [2.49]	2 [0.83]	30 [12.45]	38 [15.77]	**χ2=121.934, df=8, p<0.01**
East	2 [0.83]	0 [0]	9 [3.73]	11 [4.56]	
West	9 [3.73]	5 [2.07]	80 [33.20]	94 [39.00]	
South	4 [1.66]	2 [0.83]	13 [5.39]	19 [7.88]	
National	43 [17.84]	30 [12.45]	6 [2.49]	79 [32.78]	
Experience in pharmaceutical Management (Yrs)					
less than 5 years	13 [5.39]	12 [4.98]	75 [31.12]	100 [41.49]	**χ2=44.293, df=6, p<0.01**
5 to 10 years	23 [9.54]	22 [9.13]	34 [14.11]	79 [32.78]	
10 to 15 years	16 [6.64]	3 [1.24]	26 [10.79]	45 [18.67]	
greater than 15 years	12 [4.98]	2 [1.24]	3 [1.24]	17 [7.05]	
Experience in the pharmaceutical Industry (Yrs)					
less than 5 years	4 [1.66]	1 [0.41]	13 [5.39]	18 [7.47]	**χ2=34.423, df=8, p<0.01**
6 to 10	18 [7.47]	24 [9.96]	62 [25.73]	104 [43.15]	
11 to 15	17 [7.05]	11 [4.56]	48 [19.91]	76 [31.54]	
15 to 20	16 [6.64]	3 [1.24]	12 [4.98]	31 [12.86]	
greater than 20	9 [3.73]	0 [0]	3 [1.24]	12 [4.98]	
Department					
Sales	17 [7.05]	4 [1.66]	62 [25.73]	83 [34.44]	**χ2=130.317, df=4, p<0.01**
Marketing	6 [2.49]	28 [11.62]	1 [0.41]	35 [14.52]	
Sales and Marketing (combined roles)	41 [17.01]	7 [2.90]	75 (31.12)	123 [51.04]	
Span of Control					
less than 5	4 [1.66]	5 [2.07]	41 [17.01]	50 [20.75]	**χ2=95.258, df=8, p<0.01**
5 to 10	16 [6.64]	6 [2.49]	80 [33.20]	102 [42.32]	
11 to 15	9 [3.73]	4 [1.66]	7 [2.90]	20 [8.30]	
15 to 20	12 [4.98]	4 [1.66]	6 [2.49]	22 [9.13]	
greater than 20	23 [9.54]	20 [8.30]	4 [1.66]	47 [19.50]	
Annual Salary (USD$)					
2,439 to 7,317	19 [7.88]	8 [3.32]	55 [22.82]	82 [34.02]	**χ2=27.949, df=8, p<0.01**
7,317 to 12,195	19 [7.88]	13 [5.39]	62 [25.73]	94 [39.00]	
12,195 to 17,073	11 [4.56]	6 [2.49]	11 [4.56]	28 [11.62]	
17,073 to 21,951	8 [3.32]	4 [1.66]	6 [2.49]	18 [7.47]	
greater than 21,951	7 [2.90]	8 [3.32]	4 [1.66]	19 [7.88]	

Note: significance level was set at p<0.05, 1 USD$ is equivalent to 410 Nigerian naira

Table 1 shows the association between the socio-occupational demographics of respondents and their managerial roles as strategic, product, and operational sales managers. It revealed that significant associations were evident between managerial roles and age, type of firm, the territory of coverage, years of experience as a manager and in the industry, department of operations, the span of control, and salary scale (p<0.05). However, no significant associations were found with gender and educational qualification as either a pharmacist or non-pharmacist (p>0.05)

3.2 Regression Model Analysis of the study

A regression analysis was conducted to determine the influence of constructs on the perceived performance of managers. It was hypothesized that RS, PE, CS, SE, and TE have a positive predictive influence on organizational performance (OP). Results showed that an R^2 value of 0.216 reflecting that 21.6% of the variance in OP was collectively accounted for by the five (5) predictors as depicted by significant model parameters [F (5, 235) =12.966, p<0.001] (**Table 2).** Furthermore, the individual predictors produced significantly positive contributions to the model: PE (β=0.287, t=4.117, p<0.001), TE (β=0.163, t=2.439, p=0.015), and SE (β=0.176, t=2.714, p=0.007). RS and CS did not have any significant impact on the model. Hence hypothesis **(H1)** was only supported for PE, TE, and SE.

Table 2: Regression Analysis of Predictors on Perceived Organizational Performance

Variables	**Standardized coefficient**	**t-statistic**		**95% Confidence Interval**	
Predictor	**β**	**t-value**	***p*-value**	**Lower limit**	**Upper limit**
Policy Engagement (PE)	0.287	4.117	0.001	0.123	0.349
Communication-engagement (CE)	-0.048	-0.739	0.460	-0.256	0.116
Task Environment (TE)	0.163	2.439	0.015	0.035	0.327
Reward System (RS)	0.001	0.007	0.994	-0.077	0.078
Self-efficacy (SE)	0.176	2.714	0.007	0.056	0.351

β=standardized coefficient, significance level set bat p<0.05

Table 3: Assessment of Cluster Analysis Output for Constructs in the study (**N**=241)

Characteristics	**Overall median**	**Cluster 1**	**Cluster 2**	**Cluster 3**	**Dominant Cluster**
Grouping Variable		Strategic Managers	Product Managers	Operational Managers	
Cluster size n (%)		64 (26%)	39 (16.2%)	138 (57.3%)	
Constructs		**Median cluster scores**			
Policy Involvement (PE)	3.84	4.06	3.97	3.79	**cluster 1**
Self-efficacy (SE)	4.43	4.48	4.58	4.39	**cluster 2**
Task Environment (TE)	4.25	4.31	4.31	4.23	**cluster 1, cluster 2**
Reward System (RS)	3.01	3.06	2.97	3.10	**cluster 3**
Organizational Performance (OP)	4.60	4.53	4.57	4.52	**none**
Communication System (CS)	4.00	3.95	3.97	3.97	**none**
Aggregate cluster score	**24.13**	**24.39***	**24.37**	**24.00**	**cluster 1**

**highest mean score relative to the overall median score for six construct*

In table 3, the two-step cluster analysis showed that operational managers had the largest cluster size (n=138, 57.3%, cluster 3) compared to strategic managers in cluster 1 (n=64, 26%), and the smallest was product managers in cluster 2 (n=39, 16.2%). The analysis further revealed that strategic managers had the highest score in policy engagement-PE (4.06); product managers had a higher mean score in self-efficacy-SE (4.58), for task environment-TE, strategic and product managers had equivalent mean scores (4.31). Operational managers had the highest score in the reward construct-RS (3.10). However, there was no dominant cluster group for organizational performance-OP and communication system-CS constructs. Referencing the overall median score of 24.13, the dominant cluster was Strategic managers (cluster 1) with an aggregate score of 24.39.

3.3 Comparison between mean performance score with self-efficacy levels, and cluster groups using Kruskal-Wallis Test

A Kruskal-Wallis test revealed a significant difference in mean performance scores across three levels of perceived self-efficacy among managers, [H (df=1, N=241), p<0.001)=10.876]. Performance scores were higher in the high self-efficacy group (mean rank=125.36, median=4.60) compared to the moderate self-efficacy group (mean rank=75.36, median= 4.2) and the low self-efficacy group with zero response. Conversely, there was no significant difference in mean perceived performance scores in three cluster groups, [H(df=2, N=241), p=0.585)=1.072], with a mean rank performance score of 127.41 for Cluster 1(Strategic Managers), 123.45 for Cluster 2 (Product Managers), and 117.33 for Cluster 3 (Operational Managers)=117.33 and all clusters had equivalent median values (4.60).

Table 4: Correlation analysis between study constructs (**N**=241)

Constructs	**Code**	**Mean**	**SD**	**SE**	**PE**	**TE**	**CS**	**OP**	**RS**
Self-efficacy	SE	4.444	0.470	1					
Policy Engagement	PE	3.887	0.660	0.363**	1				
Task Environment	TE	4.261	0.490	0.350**	0.418**	1			
Communication System	CS	3.967	0.377	0.320**	0.429**	0.273**	1		
Organizational Performance	OP	4.529	0.544	0.321**	0.398**	0.331**	0.175**	1	
Reward System	RS	3.071	0.844	0.154*	0.236**	0.292**	0.188**	0.134*	1

SD=standard deviation, **p<0.01, *p<0.05

In table 4, results showed significant positive relationships between all six constructs at p<0.05 and 0.01 respectively using pearsons' correlation coefficient analysis: this implies that any change or increase in any of the constructs directly and positively impacts the other.

4. Discussion

The study adopted an exploratory approach to examine the relationship between key constructs as defined by the grouping variable-Managerial role. The central theme of the cluster analysis adopted was to profile the characteristics of the participants to uncover areas of comparative strength and weakness associated with each group of managers. The outcome of this analysis gave a robust indication of how managers at different levels of management fare in terms of perception of key constructs. In the same vein, regression analysis expounded the hypothesized effect of SE, PE, TE, CS, and RS on perceived organizational performance (OP) of managers as depicted in **Table 2**. The study showed that pharmaceutical managers' performance was highly predicted by PE, TE, and SE, and hence, hypothesis **(H1)** was supported. However, the reverse was the case with CS and RS, due to the insignificant, low predictive effect of communication and reward system on OP in this study. This is corroborated by studies that showed that performance is lowered when there is impaired communication and low

reward or unattractive incentive schemes [Betteke, 2018: Allen & Helms, 2002]. The results from the regression model revealed that perceived organizational performance is positively significantly influenced by policy engagement, enabling work or task environment, and self-efficacy of pharmaceutical managers. There are several imports of this finding to performance evaluation among managers namely - 1) when managers are made to be more involved in developing and designing policies, it positively influences the overall growth of the company as corroborated by several studies [Bruijn & Heuvelhof, 2002: Tohidi & Jabbari, 2012]. 2) managers thrive when there is a collaborative, conductive, and staff-friendly work environment that invariably engenders quality work and impacts their performance. This aligns with the assertion of some authors that employees tend to contribute more in conducive working conditions compared to those who are not [Berberoglu, 2018; Anjum et al, 2018]. 3) Managers influence organizational performance when they have high confidence and high sense of self-efficacy to achieve tasks and set goals in challenging conditions. This invariably impacts on positive and significant organizational performance of the individual. This is in harmony with established literature that connects higher levels of performance with employees or managers with high levels of self-efficacy [Bandura, 2006: Chen et al, 2001].

In the two-step cluster analysis adopted in the study, the algorithm generated overall median scores for each construct. Each median was set as a baseline for comparison with mean scores for each managerial group assessment (**Table 3**). **T**he cluster analysis revealed that strategic managers (24.39) had the highest aggregate mean score compared to product managers (24.37), and the least was operational sales managers (24.00). This finding suggests that strategic managers had more robust capacity in terms of overall coping capacities and adaptability compared to other managerial roles in the pharmaceutical industry. This may be linked to higher levels of experience and better capacity to weather the challenges of the industry [Rezvani, 2017: Zaki et al, 2019: Rubina & Azam, 2004]. Furthermore, this finding was strengthened by the results of the Kruskal Wallis test used to compare the performance scores across the three levels of self-efficacy in the three Cluster groups. It revealed significant differences in the mean rank performance score of 127.41 for Cluster 1(Strategic Managers), 123.45 for Cluster 2 (Product Managers), and 117.33 for Cluster 3 (Operational Managers)=117.33. Therefore, the stated hypothesis (**H2)** was supported by the findings. This finding suggests that operational managers experienced low levels of SE compared to product and strategic managers. This implies that this disparity in OP deferred more favorably towards strategic managers who had higher levels of SE. The above finding is further strengthened by the fact that operational managers had the lowest mean cluster value in SE as shown in **Table 3**. Therefore, there is the need to enhance SE levels of operational managers who are most critical in translating strategies into tactics and actions for the good of their companies. There is therefore the need for regular, targeted modulated training and support systems for operational sales managers to develop their capacity collaboratively [Zaki et al, 2019: Katz & Stupel, 2015]. As shown in the correlation analysis model (**Table 4),** all constructs showed highly significant correlations (p<0.01;<0.05), this invariably implies that managers with high self-efficacy are most adequately involved in policy decision-making in an enabling environment, which would most certainly enhance their performance level. Furthermore, this scenario is optimally feasible in a highly communicative environment with attractive reward systems. Hence, hypothesis (**H3)** was supported. However, the results of the study as shown in **Table 2** suggests that more improvement is required in the area of enhancing effective, collaborative communication [Betteke, 2018: Aggerholm & Thomson, 2015]**,** and improved incentives for improved performance as depicted by non-significant regression with OP [Gyurak et al, 2020]

Implications for human resource management in pharmaceutical marketing practice

The outcomes of this study provided insight into the interrelationships that exist between task or work environment, communication, reward structure, self efficacy, and involvement in policy development and their ultimate influence on organizational performance of pharmaceutical managers. In other words, it provided information to aid and guide human resource managers to develop need-specific training and support programs for managers in the pharmaceutical industry. The application of cluster analysis provides firms with the necessary basis and tool to develop tailored programs for potentially at-risk managers. In addition, the study gives a framework that supports the identification of the key challenges facing managers who are usually rift with work pressure and high-performance targets. It is recommended that human resource managers conduct time to time or regular evaluation/s of management staff to ascertain their level of involvement in key activities

related to the success of their companies. Thereafter, such baseline data obtained can be analysed with appropriate clustering methods to give clarity and perspective to suggested measures to be executed or proposed for the improvement of managers' overall performance.

Conclusion

In the study, the use of cluster analysis facilitated a robust overview and provided evidence of how managers in pharmaceutical marketing form clear distinguishable groups based on a variety of construct characteristics. This provides a robust template for human resource managers to provide targeted training and support services that address the specific needs of managers based on their managerial cadre or rank. These focal strategies as a consequence will impact the overall performance of the strategic, product, and operational managers in the pharmaceutical marketing industry.

Limitations of the study

The study utilized a cross-sectional study design and hence, it is suggested that a lagged longitudinal study design approach is adopted in future studies to evaluate these constructs among pharmaceutical managers. Also, there is the possibility of respondent bias to the questions on perceived organizational performance in which they may tend to score themselves very high.

ABBREVIATIONS;

SE: self-efficacy, **RS**: reward-structure, **PE**: policy-involvement, **TE**: task-environment, **CE**: communication-engagement, and **OP**: perceived organizational performance.

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