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Human Resource Data Management Analytics and Employee Retention in Ghana

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Abstract:

Organizations, irrespective of size and location, are considering retaining employees for organizational sustainability. With all the challenges that employee retention poses, it has become necessary for scholars to research the factors that initiate employees to leave for other jobs. Employees are the intellectual capital behind the success of any organization. In pursuit of strategies to retain employees, the study aimed to assess HR data management analytics and employee retention in the public health sector in Ghana, specifically in teaching hospitals. A positivist research philosophy was deployed, which helped the study to formulate and test the hypothesis. Data was collected through structured questionnaires with a clustered sample of 240 through a single-stage sampling. The study drew from Galbraith's (1973) organizational information theory. The study found that human resource data management plays a role in employee retention through its quality, digital transformation, accessibility and confidentiality for decision-making and therefore recommends that management should pick the battles that are related to these since more insights can be drawn from this to curb the issues of low retention. The study also recommends that management invest in technological advancement where employees will be upskilled to be at par globally in the health sector.

Keywords: Employee retention, human resource data management analytics

1. Introduction

According to Boakye and Lamptey (2020), in business today, every effective response to any activity depends on the application of analytics of data. Analysis of the right data helps the HR development team to predict time delays and budget overruns; a manager can tell whether a project is on schedule and within budget before it becomes a problem. Google has a marketing strategy to know which products people prefer. Google does not just make an assumption that this product has such and such features or is quality, but rather they create in the database, and after some time, they analyze data based on how customers have visited the site and their contribution based on the analyzed data. Google decides which products to produce; their accounting fields have a dashboard where analyzed activities are clearly displayed for future forecasts. Now, we have health informatics, where patient data are analyzed to enhance the care given to patients and generate accurate prescriptions based on patient symptoms. In this era of the data-driven savvy, the HR team cannot be left out. The HR team has voluminous data on all employees and their work-related issues and must be turned into a meaningful way for decision-making.

Employee retention has become an issue in organizations. The HR team is the custodian of employee data. Moreover, with technological advancements, once the team begins to analyze challenges through this data, they are engaged in HR data analytics. Human resource analytics assert that in an organization, all important decisions must be primarily evidence-based.

Globally, Malinao and Agustin (2023), in the Philippines subjects of employee retention, say there is a tie of competition between public and private schools where private school staffs are losing employees to the public because of government incentives to support the public schools in the Philippines. They concluded that a conducive working environment, rewards, specifically 14th month pay training and development, and advancement for professional growth are being deployed to retain employees in the private sector.

Regionally, Elafty and Albadry's (2022) study reported from sme.ebi.gov.eg shows that the workforce in SMEs represents more than 73% of the total employed workforce, and employee turnover is high due to fringe benefits factored into the salary. They found that to retain employees, employers need to separate the component of fringe benefits from

salary as per the Egyptian Labor law, which demands that there should be an increment of about 6.9% of the salary every year. In addition, supervisor's support, working environment, and career opportunities induce retention.

Locally, Poku *et al.* (2023) focused on draining the specialized nursing brains. They stated that the issues affecting health sectors, which have a negative impact on the nation. The issue of brain drain in the health sector deprives the population of access to quality health care. According to Asamani *et al.* (2021), this has resulted from the gaps in the implementation of policies that affect human resources for health. In addition, most health graduates remain unemployed. Some scholars argue that the calling countries pay fiscal incentives to immigrants, the low-middle income countries (LMICs), to cushion those countries' national gross domestic product (GDP).

The authors support other scholars that this does not benefit low-middle-income countries because they are losing professionals, which in turn jeopardizes the health system in a country. They concluded that for a high retention rate, the government should find solutions to the triggers: economic, health system and social, professional, and political factors. In order to handle migration-related concerns and ensure ethical recruitment of medical personnel from LMICs, the Ghanaian health services have implemented a migration policy. Besides, all recruiters are to follow the outline provided by the WHO Global Code of Practice for the International Recruitment of Workforce mutual or bilateral collaboration.

According to Aiken *et al.* (2017), data management uses the collected data of employees within the policy of data regulation throughout the employee's lifecycle for better decision-making. Data management is carrying out and controlling data and information in an organization of employees to enhance its value for decision-making (DAMA International, Earley & Herdson, 2010). Marler and Boudreau (2017) describe HR analytics as the principal goal to improve institutional sustainability by making intelligent HR-related decisions based on analysis of obtained data utilizing analytical approaches to improve institutional performance.

Employee retention is a long-term plan, and it begins by creating an ongoing relationship with an employee from the time of hiring when the organization selects the best candidates. After this, the employees need to be cushioned with learning and development initiatives throughout their time with the organization until their pension. The HR team improving employee retention is unique planning in an organization that puts them at par with management (Ufoma *et al.* 2015).

1.1. Objective of the Study

- To assess the effect of human resource data management analytics on employee retention in the public health sector in Ghana.

1.2. Statement of the Problem

In Ghana, the Ministry of Health has documented the leading problem affecting Ghana's health sector, especially the public, as the external and internal brain drain. The sector continues to implement interventions to further human resources capacity development. The interventions are aimed at increasing retention levels. Despite the Ghana government's efforts to curb the situation, there is an escalation of employees leaving for greener pastures in other countries (Ministry of Health, 2020). A report from the Minister of Health in 2021 indicates that doctor to patient ratio is 1:6355, which does not meet the standard of the World Health Organization of doctor to patient ratio of 1:1000. From the report, more than 50% of doctors and more than 20% of other staff in the health sector have left for greener pastures. In Ghana, the expected Nurse-to-population ratio by 2026 is 600. As of now, it stands at 1:727. From the extant literature, scholars have studied employee retention in diverse ways. However, non-specifically research into all HR Data management and retention. Therefore, the study empirically tested HR Data management on employee retention in the teaching hospitals in Ghana.

1.3. Empirical Review

1.3.1. Organizational Information Processing Theory

Institutions must capitalize on statistical tools that enhance evidence-based decision-making. Using this will help the HR team use information to reduce uncertainty, take measures to improve human resources work-related issues at stake and also to be able to ask the right questions from the gathered data for analysis.

1.3.2. Data Management Analytics and Employee Retention

According to Kanzas and Knight (2020), proper data management enables any organization to plan well and share and access information on any project. L'Écuyer *et al.*'s (2019) study looked at the strategic alignment of information technology and human resource management in manufacturing small and medium-sized enterprises. They opined that there is a challenge to employee data management. Their study used a survey design with a sample size of 206. They found that the deployment of data analytics is associated with the improvement of the HR function in managing employee data. Therefore, the HR team should be enhanced in analytical tools to be able to work independently and motivate them for retention.

Matimbwa and Orest (2019) focused on the usage and challenges of human resources information systems of public organizations. A qualitative approach was employed in their study. The study was done on all public organizations. Their findings show that the usage of the HRIS has a significant impact on updating and maintaining employee bio-data and other HR-related issues. In addition, the usage made it possible to detect fraud in some public organizations where

ghost names were found on the payroll. Again, there was a challenge of underutilization in some organizations. The authors recommended that the private sector should embrace the idea of data management by using a tool.

Chinyere and Ikoromassoma (2021) explored the efficiency and cost of managing employee data. They stated that using a statistical tool suitable for an organization to analyze data for more insights helps in strategic planning and determining the cost and benefits of employee-related issues. They used a descriptive survey design with a quantitative approach. The sample size was more than 102. They found that data management enhances the work of the HR team for retention and reduction of costs in HR operations.

Obodai et al.'s (2021) study concentrated on data management in Ghana. They proposed that digital transformation has made it possible for data analysis to be done remotely. Online channels and processes that are set up in institutions help employees manage data issues and challenges, and this has added value to the robustness of the data generated. The authors recommended that recurrent staff training is necessary as it enhances staff's ability to apply tools to collect the appropriate data while the necessary tools in data management are made available. I may pick this as an intro or background.

2. Methodology

- Target population — the population of the hospitals in Ghana — Cape Coast Teaching Hospital, Ho Teaching Hospital, Komfo Anokye-Teaching Hospital, Korle-Bu Teaching Hospital, and Tamale Teaching Hospital — was 605 employees in the HR unit.
- Design: Descriptive Survey design
- Approach: Quantitative approach
- Sample Size and Technique: 240 respondents were chosen through clustered sampling (Saunders et al, 2016)
- A pilot study was carried out on 10 percent of the sample size in the district hospitals in Ghana (Malmqvist et al., 2019).
- Data Collection: Structured questionnaires were delivered to respondents in the teaching hospitals in the HR unit.

2.1. Descriptive Statistics Results

Statement	5	4	3	2	1	Max	Min	Mean	Std. Dev.
Our institution's HR data quality enables decision making	56 (32)	75 (42)	34 (19.4)	10 (5.6)	0 (0)	5	2	4.01	0.864
Our institution's employees use digital transformation in customer service delivery	51 (29.1)	78 (44.6)	32 (18.3)	11 (6.3)	3 (1.7)	5	1	3.93	0.938
Our institution's information on employees is easily retrieved	73 (41.7)	70 (40)	18 (10.3)	12 (6.9)	2 (1.1)	5	1	4.14	0.939
Our institution maintains the confidentiality of employees' data, which can be used remotely for decision-making	68 (38.9)	79 (45.1)	18 (10.3)	8 (4.6)	2 (1.1)	5	1	4.16	0.869
Average mean								4.06	

Table 1: Descriptive Statistics on HR Data Management Analytics

Inferring from table 1, on HR data management analytics descriptive statistics 32% representing (56) respondents strongly agreed that the institutions HR data quality enables decision making. 42 percent representing (75) respondents asserted. On the other hand, 19.4 percent representing (34) respondents neither agreed nor disagreed, also 5.6 percent representing (10) disagreed while none strongly disagreed. This accounted for a mean of 4.01 and standard deviation of 0.864. This implies that HR data quality aids in decision-making regarding employee retention.

Further, 29.1 percent representing (51) respondents strongly agreed that the institution's employees use digital transformation in customer service delivery. 44.6 percent, representing (78) respondents, acquiesced. However, 18.3 percent, representing (32) respondents, neither agreed nor disagreed, while 6.3 percent, representing (11) respondents, disagreed, and 1.7 percent, representing (3) respondents, strongly disagreed. This accounted for a mean of 3.93 and a standard deviation of 0.938. This portrays that the majority concurred with the usage of digital transformation in service delivery, which reduces manual work.

Furthermore, 41.7 percent, representing (73) respondents, strongly agreed that the institution's information on employees is easily retrieved. 40% representing (70) agreed. Nevertheless, 10.3 percent, representing (18) respondents, neither agreed nor disagreed, while 6.9 percent, representing (12) respondents, disagreed. 1.1 percent, representing (2)

respondents, strongly disagreed. This accounted for a mean of 4.14 and a standard deviation of 0.939. This implies that easy retrieval of data for decision-making enhances the work of the HR team.

Additionally, 38.9 percent, representing (68) respondents, strongly agreed that the institution maintains the confidentiality of employees' data which can be used remotely for decision-making. 45.1 percent, representing 79 respondents, agreed. Then 10.3 percent, representing (18) respondents, neither agreed nor disagreed, while 4.6 percent, representing (8) respondents, disagreed. 1.1 percent, representing (2) respondents, strongly disagreed. This brought the mean to 4.16 and a standard deviation of 0.869. The overall average mean of this variable is 4.06, which implies that data management has an influence on employee retention and that employees feel secure in their data. The study of Thirathon et al. (2017) aligns with the current study that the HR department has voluminous data on employees, but it has to be analyzed for decision-making; thus, the data acquisition block should be transformed into meaningful information with an analytical perspective to predict employees with intentions to leave and prescribe plans for retention.

A Principal Component Factor analysis was performed on the collected data. The results in table 2 show a Cronbach's Alpha = 0.791 > 0.7 for the overall variable. Further, each construct of the predictor was run to check its validity and correlation where the values achieved met the threshold of more than 0.3 as an accepted data set.

Variable	Components of Variables	Cronbach's Alpha	Number of Items	Decision
HR Data Management Analytics		.791	4	Accepted
		Correlation		
	Data quality	.810		
	Digital transformation	.741		
	Data accessibility	.842		
Data Confidentiality	.742			

Table 2: Reliability Results

Demographic results based on the highest and the lowest results are as followed in table 3.

Characteristic	Highest	Lowest
Gender	Male: 52%	Female: 48%
Age:	31-40: 30.3%	51-60: 13.1%
Marital Status	Married: 56%	Divorced: 2.9%
Highest Education	Bachelor's: 47.4%	Other: 1.7%
Years of Service:	Below 5: 41.1%	Above 16: 4%
Years since the last promotion	Below 5- 85.1%	11-15 yrs; 2.3%

Table 3: Demographic Results Based on the Highest and the Lowest Results

The results from the demographic reveal that out of the 175 respondents, 48% were females and 52% were males. The highest age group of the respondents was between 31 and 40, indicating 30.3%. The lowest age group was between 51 and 60, indicating 13.1%. Those found to be married represented 56%, representing the highest in marital status, and divorced 2.9%, representing the lowest. 47.4% have a bachelor's degree, which is the highest among the levels of education, and 1.7% have other certificates, which is the lowest. Years of service below five years is 41.1%, which is the highest and 4% indicates the lowest for the above years of service. 85.1%, representing the highest number of respondents, had their last promotion less than five years ago and 2.3% respondents, representing the lowest number of respondents, had their promotion between 11 and 15 years ago.

3. Inferential Results

3.1. Correlation Matrix

HRDMA: HR Data Management Analytics	Pearson Correlation	.556**		1
	P-value	.000		

Table 4: Predictor: HR Data Management Analytics
Dependent Variable: Employee Retention

3.2. Regression Analysis of the Effect of HR Data Management Analytics on Employee Retention

The objective of the study was to identify the effect of HR data management analytics on employee retention in the public health sector in Ghana. The literature reviewed in this study, as well as theoretical reasoning associated with HR data management analytics with employee retention, were indicated by intention to leave or stay, job satisfaction, teamwork and work efficiency, while HR data management analytics was indicated by data quality, digital transformation,

data accessibility and data confidentiality. Following the theoretical argument, the following hypothesis was formulated and tested.

- H₀₄: HR data management analytics has no significant effect on employee retention in the public health sector in Ghana.
- H_{a4}: HR data management analytics has a significant effect on employee retention in the public health sector in Ghana.

Model	R	R Square	Adjusted R Square	Std. Error of the Sig F Estimate Change
1	.556 ^a	.309	.305	2.89258 .000
a. Predictors: (Constant), HR data management analytics				
b. Dependent Variable: Employee retention				

Table 5: HR Data Management Analytics and Employee Retention Model Summary

The model, HR data management analytics, was able to explain 30.9% of the variation in employee retention in the public health sector in Ghana as indicated by the R, which tells the strength of linear association between X and Y. 55.6% linear association between the predictor variables and dependent variable. The adjusted R square also explains the sample adequacy of the model at 30.5 %, and therefore, the model is significant at .000. The results are shown in table 6.

Model	Sum of Squares	Df	Mean Square	F	Sig.	
1	Regression	648.296	1	648.296	77.482	.000 ^b
	Residual	1447.498	173	8.367		
	Total	2095.794	174			
a. Dependent Variable: Employee retention						
b. Predictors: (Constant), HR data management analytics						

Table 6: HR Data Management Analytics and Employee Retention Model ANOVA

The ANOVA test results illustrated in table 6 were F = 77.482, P = 0.000 < 0.05, an indication that the multiple Linear Regression model was a good fit for the dataset. The results indicate that the significance of the F is 0.000, which is less than 0.05; this, therefore, implies that the regression model statistically significantly predicts the outcome variable and is, therefore, a good fit for the data. This is an indication that there exists a significant relationship between HR data management analytics and employee retention.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig	VIF
		β	Std. Error	Beta			
1	(Constant)	2.897	1.276		2.269	.024	.
	HR data management analytics	.681	.077	.556	8.802	.000	2.340
a. Dependent Variable: Employee retention							

Table 7: HR Data Management Analytics and Employee Retention Model Coefficients

The findings of this study are also corroborated with the results of the study as shown in table 7. From the results of the study, the following equation can be derived:

$$Y = B_0 + B_4 X_4$$

$$\text{Employee Retention} = 2.897 + 0.681 X_4$$

The regression equation in the table shows that when HR Data management analytics is held constant at 0, employee retention would be 2.897 units. There is a positive and significant relationship between HR data management and employee retention in Ghana's public health sector. A unit increase in HR Data management analytics increases employee retention by 0.681 units. Since the P-value was less than 0.05, there is enough evidence to warrant the rejection of the null hypothesis, and it is concluded that HR data management has a significant effect on employee retention.

The findings of the current study align with the study of Chinyere and Ikoromassoma (2021), which implies that using analytical tools to analyze data enhances managers' ability to probe deeper into the data collected for clarity in decision-making. Further studies that align with the study are those of Obodai et al. (2021), which implies that digital transformation has made it possible for data analysis to be done remotely. Online channels and processes that are instituted in facilities help employees manage data issues and challenges, and this has added value to the robustness of data.

4. Discussion

The employee retention issues need to be addressed by the government, the board of directors, and Ghana Health Services, and some kind of rules can be put in place to enhance conditions that help curb the intention to leave (Efendi, Oda, Kurniati, Hadjo, Nadatien & Ritonga, 2021). Though the study aims at employee retention, keeping incompetent

workers may incur a loss to the facility in the area of hospital liability insurance. In such cases, terminating an employee can raise legal issues, so it should be evidence-based as to why an employee should be laid off. Technological advancement in the healthcare sector has made it a compulsion for employees to be digitally inclined. The HR team is not exceptional in terms of digital savvy. There is a need for analytical skills to decipher employee data by deploying statistical tools to analyze employee data in all spheres. Data is the foundation of all activities that go on in employee-related issues. Quality data management is needed to provide an efficient way to manage data across all departments for easy accessibility and confidentiality.

5. Conclusion

The study concludes that HR data management has a positive and significant effect on Employee retention in the public health sector in Ghana. The findings suggest that the Human resources team should not have to make decisions based on assumptions; employee data can be used not only to dichotomize the past but also to make future plans and predict future endeavours.

6. Recommendation

Data is the foundation of HR analytics; poor data can hurt decision-making. Therefore, the study recommends that management should pick the battles that are related to retention, such as the biodata of the workforce since more insights can be drawn from this to curb the issues of listing names for early retirement. Quality data should be maintained for analysis and for decision-making. The study recommends that the sector recruit a group or team that handles data and its processes in an organization for easy accessibility.

An HR analyst should explore data to predict new hires who will leave the sector within two years or new hires who will become high performers in less than three years. Of all the variables, without quality data supporting them, no decision can be made; it will just be an assumption. The study also recommends that management invest in technological advancement, which helps the employees be at par globally.

7. Policy Implications

7.1. Contribution of Research to the Policy-makers

The findings of this study are of great benefit to the management of the teaching hospitals in their effort to improve employee retention. Since it has been identified that recruitment, training, appraisal and data management analytics affect employee retention, there should be a policy to guide these to enhance retention.

7.2. Contribution of Research to the Academicians and Practitioners in HRD

The study contributes a substantial thoughtful of the theoretical framework relating to HR data management analytics and employee retention, which enables academicians and researchers in the field of human resource management to explore more. The findings clearly illustrate the relationship between the variables. The present empirical results have significant implications in the field of human resource management and employee retention. Various studies on employee retention have primarily concentrated on transactional aspects; this research emphasizes the transformative perspective of HR data management analytics. Consequently, this research contributes to a deeper understanding of the relationship between HR data management analytics and employee retention and the extant literature on retention in the health sector in Ghana.

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