

## **THE INFLUENCE OF ELECTRONIC HUMAN RESOURCE MANAGEMENT PRACTICES ON EMPLOYEE PRODUCTIVITY IN HOSPITALS LOCATED IN PUNJAB, PAKISTAN**

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**ABSTRACT:** In the contemporary business environment, the utilization of technology has become indispensable for organizations seeking to create value and secure a competitive advantage. Faced with the challenges of a competitive landscape, companies are compelled to adopt more sophisticated strategies, resulting in advancements in HR practices. Currently, prominent organizations and institutions are enthusiastically embracing the e-HRM phenomenon, recognizing that cultivating value for internal customers proves to be a more efficacious approach in achieving strategic objectives. The focal point of the study was to succinctly explore this concept and scrutinize the relationship between e-HRM practices—specifically Operational, e-Recruitment, e-Compensation, and Transformation—and employee productivity within a sample of five hospitals in Punjab. Drawing insights from existing literature, the study crafted a framework and established linkages between these e-HRM constructs. Utilizing PLS software, the author executed a measurement model to assess the reliability and validity of the data, followed by the implementation of a structural model for regression testing. The findings illuminated a positive impact of e-HRM practices, notably Operational, Transformational, and e-Compensation, on employee productivity, aligning with prior research. However, it was observed that e-Recruitment did not exhibit a significant correlation with employee productivity. This observation was attributed to prevalent recruitment practices in countries like Pakistan, where reliance on references and non-electronic methods is more common. The paper concluded by delving into the implications, acknowledging limitations, and proposing future directions for research in this domain.

**Keywords:** Operational HRM, E-Recruitment, E Compensation & Benefits, Transformational EHRM , Operational Effectiveness

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### **INTRODUCTION**

The healthcare organizations in Pakistan are divided into 02 categories namely the public as well as the private sector. Local bodies are controlled by private and government bodies owned by public healthcare organizations (Ashraf, Ilyas, Imtiaz, & Ahmad, 2018). The image of public and private health organizations is very bleak and requires more attention (Javed & Ilyas, 2018). Almost 60% of the total health sector demand is met by the private sector, while not more than 40% of the demand is met by the public sector (Malik, Van de Poel, & Van Doorslaer, 2017). Providing good quality health services is primarily the accountability of the government under the Constitution of Pakistan (Javed & Ilyas, 2018; Javed & Liu, 2018). Similarly, Pakistan with its complex health system is struggling to meet national goals and international commitments in pursuit of quality health services like other states in developing economies (Akber & Hamid, 2020).

Hospitals face a vigorous market setting categorized by continuous change and unpredictable challenges (Sriharan *et al.*, 2022). To further clarify, the

healthcare sector needs continuous pressure conditions which require creative service delivery results, on the one hand, to outperform its competitors and gain a compelling place in the hearts of its customers (patients) (Sriharan *et al.*, 2022). Moreover, The most important asset in one of the many resources in a firm is its employees (Z. Liu, Shi, & Yang, 2022). Sectors that are based on services, particularly healthcare, are undergoing rapid changes in firm culture and structure (Elangovan *et al.*, 2022). The pressure to improve efficiency, and productivity and to sustain the competitive advantage in health care Public and private organizations, places heavy demands on capable employees (Dill & Duffy, 2022).

The focus of the present study is on the Private hospitals of Pakistan due to this sector is considered a major contributor to the economy of Pakistan (A. Ali *et al.*, 2022). However, it still faces some challenges in terms of resource availability and competition. This sector contributes to Pakistan's service sector but is still immature compared to other countries (Nawaz, 2021). Pakistan ranks 154th among 195 states in quality and accessibility of health care which is very low that needs to be improved (Hashmi & Kisa, 2022).

Employee productivity is a critical factor contributing to achieving exceptional performance (Delery & Shaw, 2001). As a result, only a handful of empirical investigations have directly assessed the effectiveness of e-HRM in enhancing workers' efficiency. Additionally, the present e-HRM models within this limited research primarily reflect Western-oriented beliefs and perspectives (Nawaz, 2021).

As mentioned earlier, the concept of e-HRM is still a contemporary term within the technological landscape of Pakistan. Consequently, only a few sectors have embraced e-HRM practices. As highlighted by Pillai & Abraham (2016), the effective management of human resources holds paramount importance in the healthcare industry. This sector plays a vital role in providing essential health services to the public. Pillai & Abraham (2016) underscored the need for a transformation in the HR practices of Pakistani hospitals to amplify employee productivity and overall performance. Unfortunately, public hospitals continue to trail behind private hospitals in delivering superior healthcare services. This disparity stems from the reliance on outdated HRM approaches within public hospitals, leading to diminished employee productivity. A UNDP report from 2014 outlined numerous challenges facing Pakistan, with a particular focus on the alarming inadequacies within the healthcare system. According to statistics from the Health Care Resource Guide (2019), healthcare expenditure in Pakistan, including investments, accounts for only 0.97% of the GDP.

This lack of coherent policies has resulted in a range of issues, including the absence of tools to assess employee performance, inadequate strategies to retain staff and reduce turnover rates, and the absence of a proper compensation system (as highlighted in the WHO report, 2015). The statistical data underscores an imbalance, indicating that the healthcare staff is likely burdened with heavy workloads, raising concerns about the quality of services because of the absence of assets, such as the modern technology. This deficiency eventually leads to reduced employee productivity. In contrast, the private sector has attempted to address many of these gaps by adopting contemporary technologies like e-HRM to address human resource challenges, safety concerns, and quality issues (Sheikh, 2015). Considering all the provided information, it becomes imperative to examine e-HRM while concentrating on the provided figures. This approach will help in comprehending the effectiveness of e-HRM in enhancing employee productivity.

### **Theoretical Background**

**E-HRM:** (Ali, 2022) assert that any technological means that facilitates the provision of human resource services fall under the purview of E-HRM. In a study by Marler (2009), E-HRM is defined as a strategic approach

grounded in integrated technology, with the aim of harmonizing processes and skilled personnel with the overarching objectives of the organization.

On the other side, another review proposes a more extensive understanding, describing E-HRM as a term including potential combination components and content arrangement among HRM and data innovations. The objective of this strong instrument is to produce esteem inside and past associations, helping both designated administration and workers all in all (Bondarouk and Ruel, 2009). Nonetheless, with regards to the ongoing review, E-HRM is viewed as a component intrinsic in a coordinated framework that lays out associations among HRM and data advancements (IT). This component additionally stretches out its impact to include partners past the HR division, incorporating representatives across every progressive level (Bondarouk, 2015).

**E-HRM Dimensions:** Human resource management is underpinned by a collection of activities, as outlined by Lengnick & Moritz (2003). (Qasim, 2018) have identified 02 primary kinds of studies in the previous studies about electronic- HRM. The primary category of studies purposes determine the individual influence of every e-HRM practice on various value results. Conversely, the another category emphasizes on an joined perspective of these observes. Drawing from the studies conducted by Bissola & Imperatori (2013), the aim of this research is to meticulously examine the distinct influence of each selected variable within the research context.

Functional e-HRM capabilities act as the managerial foundation of the human asset job. Researcher depict "functional e-HRM" as practices at the central level, being fundamental for the actual presence of human asset capabilities Marler (2019). Further researcher partner "functional e-HRM" with basic HR exercises like finance or work force information organization. Snell, Pedigo and Krawiec (1995) characterize functional practices as those that outfit or settle on accessible data for choice help.

Lengnick & Mortiz (2003) categorize operational practices as connected to vital obligatory HR tasks, responsible for disseminating specific information pertinent to day-to-day operations. According to Sanayei & Mirzae (2008), core human resource operations, encompassing payroll and personnel record keeping, fall within the realm of operational e-HRM. Aligning with the framework proposed by researcher, this study designates "operational e-HRM" as encompassing the essential administrative roles within HRM. These practices are indispensable for sustaining HR functions and are strategically employed in workplaces to attain objectives such as enhancing productivity and reducing HR-related costs. Such practices include payroll

management, benefits administration, and record-keeping, among others.

Originally, the construct of e-recruitment was defined as "the process of hiring candidates through the Internet" (Heery & Noon, 2019). As technology has evolved, the updated definition of e-hiring expands to encompass "the electronic hiring procedure, including applicant management systems". Moreover, the comprehensive e-hiring procedure involves a sequence of steps such as tracking, selection, and extending offers or rejections (Armstrong, 2022). Wozniak (2015) characterizes e-recruitment as the utilization of web-based channels to execute recruitment policies, practices, and strategies within a firm. This interpretation centers on the fundamental recruitment activities that can be conducted through Internet platforms.

The concept of e-compensation, the third construct, is rooted in a "web-enabled approach whereby a company can collect, organize, analyze, disseminate, and employ compensation-related data" (Suchitra, 2014). Kulkarni (2014) defines "electronic compensation" as the utilization of the internet or intranet for compensation planning. Wright (2009) perceives e-compensation as "a system designed to attract, retain, and motivate employees within an organization, thus conferring a competitive edge to the organization." Atallah (2016) posits that systems like electronic compensation aid HR professionals in their decision-making processes.

In the context of this study, electronic compensation is understood as "compensation systems that organizations either develop or acquire to enhance the precision of decision-making and facilitate the equitable allocation of benefits among employees" (Ali et.al, 2021). The 4th facet of digital-HRM is change digital-HRM. (Zafar, 2021) delve into this area, associating "change digital-HRM" with activities of a strategic nature. These activities encompass strategic reorientation, strategic knowledge management, and strategic competence management. Ruel, Bondarouk & Velde (2007) characterize transformational e-HRM as a comprehensive toolkit grounded in web-based technologies that align the workforce with the organization's strategies to achieve its objectives.

**Employee Productivity:** Representative efficiency is evaluated by the productive age of result by an organization's labor force to achieve the association's goals (Iqbal, Ahmed and Borini, 2019). This develop is inherently entwined with hierarchical progression, highlighting its irreplaceable importance. Huang, Yang, Jin and Chiu (2004) highlight that a famous data framework hypothesis could be successfully utilized to survey and figure worker efficiency.

By carrying out the Innovation Acknowledgment Model (Cap) proposed by Davis and Bagozzi (1989), it very well may be found that

mechanical arrangements like e-HRM offer representatives the chance to upgrade their range of abilities and refine their work processes in a more easy to use and proficient way. With regards to this examination, innovation explicitly alludes to e-HRM, which is additionally arranged into functional e-HRM, e-enlistment, e-pay, and groundbreaking e-HRM. In the mean time, Saw Helpfulness (PU) and Saw Convenience (PEOU) address the conviction that embracing such practices holds the possibility to support worker efficiency by smoothing out endeavors and giving a more easy to understand insight (Huang *et al.*, 2004).

**Hypothesis Development:** The research findings presented by Iqbal *et al.* (2019) provide support for the assertion that "operational digital-HRM practices" exert a noteworthy influence on "workers efficiency." (Renwick, 2019) contends that e-HRM practices, specifically operational ones, contribute to enhancing organizational performance by expediting processes and reducing the need for extensive staffing. This heightened organizational performance translates to improved workforce productivity. Further empirical evidence from prior research indicates that operational e-HRM practices are poised to improve employee efficiency, as they introduce period and price productivities. The optimization of transactional actions be able to save employees time as well as curtail costs, consequently fostering increased productivity (Hendrickson, 2003, p. 383).

Based on the collective body of evidence, the researcher posits that the application of operational digital-HRM practices indeed augments workers efficiency, driven by a positive correlation among these practices.

**H1:** "Operational e-human resource management has a significant relationship with employee productivity"

(Rhee *et al.*, 2014) reported that e-hiring demonstrates no important influence on employee efficiency. In contrast, findings from another study indicated that firms that embrace electronic recruitment processes witness an augmentation in employee productivity (Iqbal, 2020). Literature elucidates that the adoption of relational e-HRM practices extends beyond the mere substitution of traditional HR methods. It extends to novel management approaches that significantly impact employee productivity by enhancing HR quality and empowering the workforce (Bissola & Imperatori, 2013).

Drawing from the collective findings of these prior studies, it can be deduced that there exists an unpredictable relationship between e-hiring and workers efficiency.

**H2:** "E-Recruitment affects Employee Productivity".

The findings derived from previous research underscore the substantial impact of e-compensation on

e-compensation (Ali *et al.*, 2019). Current study further supports this by revealing a positive correlation between e-compensation practices and employee productivity (Renwick *et al.*, 2019). (Qasim, 2020) propose that the implementation of "e-HRM," specifically e-compensation, positively influences employee productivity through the mediation of impersonal trust. (Yusliza, 2017) contends that e-compensation stands as a discernible facet of digital-HRM due to the explicit evidence from the study demonstrating that e-compensation significantly enhances individual productivity. Consequently, our third hypothesis can be formulated as follows:

**H3:** "E-Compensation positively influenced on the productivity of employees".

Transformational e-HRM practices are intricately connected to an organization's strategic orientation. The integration of these practices into the organizational strategy contributes to the enhancement of employees efficiency (Tyson, 2013). For instance emphasized by (Bissola, 2012), the adoption of "transformational e-HRM practices" holds the potential to create essential conditions conducive to improving employee productivity. This is attributed to the fact that change in digital HRM practices aim to arrange in a line employee conduct with the firm objectives while likewise fortifying employee competencies and capabilities.

However, recent research contradicts this notion, revealing a substantial as well as destructive impact of transformational e-HRM practices on workers efficiency (Wright., 2019). These unpredictable findings suggest that while transformational e-HRM practices do indeed influence workers efficiency, the nature of this relationship—positive or negative—varies based on demographic and geographical factors.

**H4:** "Transformational e-HRM affects Employee Productivity".

## METHODOLOGY

**Sampling and Population:** Researcher have posited that the essence of human resource management extends away from the confines of the human resource division. (Frankie, 2019) additional underscored the implementation of digital-HRM activities transcends the involvement of HR professionals alone, encompassing supervisors, managers, and IT personnel. Given these insights, the selected population for current research comprises workers in executive or manager roles within hospitals of Punjab that have embraced e-HRM practices. This employee pool includes individuals from both clinical and management backgrounds, resulting in an estimated target population of 560 individuals. In terms of sampling methodology, the current study employed a non-probability sampling approach using convenience sampling. This approach was chosen due to the lack of

precise knowledge about potential respondents. The sample size of 226 was determined using the Krejcie and Morgan sampling method, where a confidence level of 95% and a margin of error of 5% were assumed.

**Measurement and Data Collection:** The variables were evaluated using a Likert scale, which was adapted from a previously published paper. The scale of Operational e-hrm, Transformational e-hrm, and Employee productivity adapted from Iqbal *et al.*, 2019. Further the scale of e-Recruitment and e-Compensation adapted from Adli *et al.*, 2014. Furthermore, to engage participants, an "electronic version" of the questionnaire was dispatched via email, requesting their involvement in the study. While the targeted number of responses was 226, to mitigate potential obstacles, the author extended the distribution to 235 questionnaires across five different hospitals. Ultimately, a total of 225 responses were received, of which 212 were deemed valid after excluding incomplete submissions. Therefore, 212 usable responses were utilized for the subsequent data analysis. The comprehensive statistics are presented in the following table.

## Findings

**Demographics and Data Analysis Approach:** The goal of this study is to survey the effect of e-HRM on worker efficiency inside the setting of clinics. Appropriately, the segment profile envelops factors like orientation, age, pay, administrative level, and experience. The resulting table gives an outline of the respondent appropriation as far as age, pay, insight, pay level, and orientation, introducing rates and frequencies. To examine and survey the reasonable model, Savvy PLS was utilized, a normally used device in administration related examinations and exploration featured in the writing that specialists settle on PLS while managing little estimated information tests, as it is especially appropriate for producing exact and centered results Estimation Model.

**Reliability and Validity:** The survey's internal consistency, a key factor in its reliability, is ensured through evaluation. This process, which validates the model's reliability, involves several methods for testing the IC of a survey. Given the use of the PLS SEM method in this study, both composite reliability and Cronbach's alpha tests were employed to assess the model's robustness. The findings of the CR, as shown in bellow table, reveal values for all construct items exceed 0.7, indicating a satisfactory level of reliability. Similarly, Cronbach's alpha values also meet acceptable standards, being greater than 0.6. In terms of questionnaire validity, the study employed the AVE constraint. As presented in bellow table, all constructs exhibit an AVE > 0.5, Bootstrapping, a factual method, utilized to learn the measurable meaning of develop way coefficients, involving t-insights and p-values as measures. The

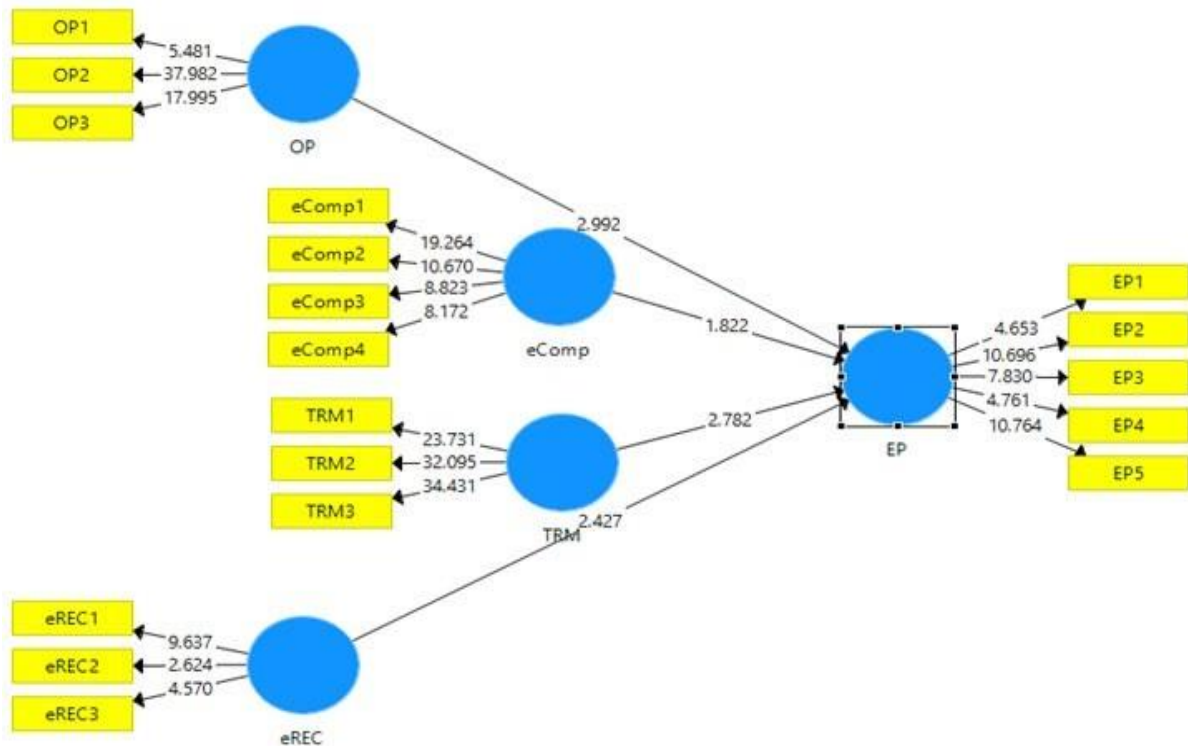
assessment results produced through the Savvy PLS programming are introduced in Table 4. In view of the outcomes, the measurements connected with functional practices (Over powered) and worker efficiency (OPM) show a huge and positive relationship, with a p-worth of 0.426 and a t-measurement of 0.949. Further investigation in Table 4 uncovers that the connection

between electronic pay (EMPC) and groundbreaking e-HRM (TRM) with representative efficiency (EPR) is genuinely critical, given the p-values and t-measurements being < 0.05 and > 1.64, separately. Notwithstanding, on account of electronic enlistment (eCERE), the p-esteem is 0.051 (p > 0.05), and the t-measurement is 1.946 (t < 1.96), recommending a non-critical relationship.

**Table: Reliability and Validity.**

Variables	Alpha	Composite Realibility	Average Variance Extract
EPR	0.714	0.750	0.529
OPM	0.860	0.832	0.735
TEHRM	0.742	0.845	0.722
EMPC	0.798	0.776	0.759
ECERE	0.787	0.724	0.550

**Figure 1. Structural Model**



**Table Coefficient**

Modeling	Samples	t-value	Significance Value
OPM>EPR	0.324	2.926	0.001
ECERE>EPR	0.126	2.824	0.051
EMPC>EPR	0.157	3.327	0.002
TRM>EP	0.275	2.29	0.004

The values of R-squared (R sq.) and adjusted R-squared (adjusted R sq.) in Table 6 indicate that the proposed model is well-suited, falling within the range of 0.3 to 0.7.

**Hypotheses Testing**

**Table 7: Results Discussion**

<b>Relationships</b>	<b>Status</b>
<b>Hypothesis 1</b> OPM>EPR	Accepted
<b>Hypothesis 2</b> ECERE>EPR	Rejected
<b>Hypothesis 3</b> EMPC>EPR	Accepted
<b>Hypothesis 4</b> TRM>EP	Accepted

Data presented in above mentioned table indicates a positive and significant connection among operational e-human resource management as well as workers efficiency, with a p-value of 0.002 ( $p < 0.05$ ) and a coefficient ( $\beta$ ) of 0.359. This result substantiates the affirmation of the first hypothesis. Furthermore, the positive association between e-compensation practices and employee productivity is evident from the results, with a coefficient ( $\beta$ ) of 0.024 and a significance value of 0.0003, which falls within the designated range ( $p < 0.05$ ). However, the analysis from table suggests that e-recruitment practices do not have a noteworthy influence on employee productivity., leading to the non-support of Hypothesis 2 (H2). On the other hand, Hypothesis 4 (H4) finds support and validation, as the outcomes illustrate transformational e-HRM has a substantial and beneficial effect on employee productivity.

**DISCUSSION**

The essential target of this research was to look at digital HRM frameworks affect worker efficiency inside the setting of medical clinics in Punjab. The review model zeroed in on four unmistakable e-HRM rehearses and their relationship with worker efficiency. The exploration discoveries lay out the general meaning of the model, accordingly lining up with past examination.

The utilization of the Hat model to innovation frameworks and its transformation to the domain of e-HRM offers hypothetical establishing to survey its worth and impact on hierarchical results. The general meaning of the model highlights e-HRM as a trustworthy asset for improving hierarchical results, possibly empowering firms to acquire a hearty upper hand. This proposes that associations can expand efficiency across different spaces through the execution of innovation driven administration frameworks.

Tending to one of the review's targets, which meant to lay out the connection between "functional e-HRM and worker efficiency," was validated by speculation testing (H1). The outcomes certify a positive and critical relationship between's these two builds,

adjusting reliably with earlier investigations. The compatible results connote that e-HRM rehearses, especially functional ones, add to increased authoritative execution by smoothing out cycles and diminishing work force prerequisites. Therefore, this better hierarchical exhibition converts into upgraded labor force efficiency.

Bissola and Imperatori (2013) fight that the effect of e-HRM rehearses shows varieties in their impact on hierarchical results. The second review objective meant to decide the connection between "e-enlistment and representative efficiency," however the speculation (H2) testing didn't validate this connection. The discoveries uncover a unimportant connection between's these factors, consequently wandering from earlier writing that as of now presents blended results. Strohmeier (2007) and Thompson and Braddy (2008) feature the meaning of socioeconomics in conversations about innovation, as acknowledgment and use designs vary in view of generational holes. Factors like age, orientation, and nationality assume a crucial part in forming responses toward online framework reception. Strohmeier (2007) further underlines that the reception of internet enrolling frameworks is impacted by nation and area setting. For example, in nations like Pakistan, enrollment frequently depends on references and conventional sources, liked by scouts. This proposes that directors and managers may not track down e-enlistment frameworks as gainful, prompting an absence of linkage with their efficiency.

The relationship analyzed in the third review objective is affirmed through speculation testing (H3). The outcomes lay out a huge and positive relationship between's "e-remuneration and representative efficiency," adjusting reliably with past discoveries.

The discoveries concerning groundbreaking e-HRM rehearses show a positive and huge effect on representative efficiency. These outcomes add to the current assemblage of writing, which has yielded problematic results credited to segment and geographic varieties. The conflicting discoveries feature that groundbreaking e-HRM practices can to be sure give vital circumstances to improving representative efficiency. By the by, these practices are frequently intently attached to the essential idea of associations.

**Limitations and Future Research:** The current study has brought forth several valuable contributions concerning e-HRM practices within the hospital industry. Nonetheless, akin to other research endeavors, this study does encompass certain limitations. Firstly, the research design adopted was cross-sectional, as the available data was confined to a select number of hospitals in Punjab. Secondly, the research employed a quantitative instrument for data collection. Another limitation stems from the sampling technique employed, which was based on convenience sampling due to the ease of access to

participants. It's worth noting that this study exclusively centers on hospitals located in Punjab, thus excluding other regions within Pakistan.

In addition, the respondent profile was customized to envelop explicit socioeconomics like age, orientation, and administrative level, focusing on directors and managers solely. Also, the review's degree is delimited to four factors as possible determinants of worker efficiency — Functional e-HRM, e-enlistment, e-pay, and groundbreaking e-HRM — while other possible determinants like e-execution, e-preparing, and e-correspondence were excluded. Finally, the proposed model comes up short on consolidation of a go between or mediator as a supporting variable.

The study also provides several recommendations aimed at guiding future researchers in further investigations related to e-HRM practices and employee efficiency. To enhance the quality and focus of results, it is suggested to employ probability testing methods. Given that the electronic HRM construct is a contemporary subject and relatively unexplored by economists in Pakistan, there is an opportunity to extend research by exploring additional aspects, tools, and contexts that may influence employee efficiency. Future studies could benefit from using a five-point scale for more precise and improved outcomes. Furthermore, the research highlights the need for further exploration into the impact of e-recruitment on employee efficiency, an aspect with mixed perspectives compared to the literature discussed. Subsequent investigations might employ advanced tools based on mixed-method approaches for a more comprehensive understanding.

Additionally, the study proposes the inclusion of mediator or moderator roles to expand the model and contribute additional insights to the existing literature. In conclusion, there is a call for examining the effectiveness of e-HRM on employee productivity in different regions and sectors of Pakistan. Given potential variations in demographics, it is essential to explore whether results may differ across diverse socio-economic contexts, providing a more nuanced understanding of the relationship between e-HRM practices and employee efficiency.

**Conclusion:** The primary objective of this study is to assess the effectiveness of e-HRM in enhancing employee productivity. Consequently, the author established four specific objectives to explore the impact of functional e-HRM, e-recruitment, e-pay, and transformative e-HRM practices on employee efficiency. The process commenced with an analysis of existing gaps, a comprehensive review of prior literature, and the adoption of suitable methodologies to measure findings. The study successfully reached its overarching goal and accomplished each of its specified objectives.

The principal objective which was set for the current exploration was to research the "effect of functional e-HRM on worker efficiency". The said objective was framed by exploring accessible writing. Besides, a speculation was created in the illumination of going before articles. The speculation was additionally tried by utilizing the PLS procedure. As such, the review accomplished its most memorable goal. Furthermore, the review can give observational proof of a connection between "functional e-HRM and representative efficiency", which was positive and huge. The second true which was developed to research the effect of "e-enrollment on worker efficiency", was accomplished by testing the speculations through a comparable philosophy. The observational proof of this goal shows that "e-enrollment is decidedly connected with worker efficiency". The third goal and fourth targets, both were accomplished by following a comparable methodology and demonstrating a positive and huge relationship among builds. The first objective, examining the correlation between "functional e-HRM and representative efficiency," yielded positive and substantial results. The second objective, focused on investigating the impact of "e-enrollment on worker efficiency," was pursued using a similar approach, testing hypotheses to gather empirical evidence. The observational data for this objective indicates a positive and significant association between "e-enrollment" and "worker efficiency." Both the third and fourth objectives were addressed through a parallel methodology, revealing a positive and significant relationship between the constructs under consideration.

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