The role of GHRM practices towards organizational commitment: A mediation analysis of green human capital

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Abstract: There are rare studies that have attempted to explore the association among green human resource management (GHRM) and organizational commitment in the existing literature. Besides, the mediating role of green human capital has also garnered little attention in the literature. Hence, the present study intends to address the research gap by extending the ability-motivation-opportunity theory (AMO) to determine the indirect and direct impact of GHRM in the dairy companies which has so far neglected in Pakistan. A convenience sampling technique was deployed to obtain data from 287 respondents through self-administered survey. SmartPLS (3.2.9) software was used to analyze the structural and measurement model. The results demonstrate the direct effect of green recruitment and selection and green training and development on organizational commitment. Also, green

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PUBLIC INTEREST STATEMENT
Currently, environmental issues have become a major concern for the industries in the Asian countries. Green human resource management (GHRM) is a new path to Sustainable HRM. GHRM is mainly focused on environmental sustainability in business organizations. However, in spite of the growing discussion of GHRM practices and environmental performance in the literature but an insufficient attempt has been made to examine the GHRM practices toward organization commitment and the role of green human capital in the Asian region especially in the context of Pakistan. The main aim of this study to examine the GHRM practices in manufacturing industry because this sector poses more environmental implications as compared to the services sector. The findings provide guidelines to policymakers and managers regarding GHRM to promote environmental culture and employee green behavior at the workplace.
human capital contributes an essential role in mediating the effects of green recruitment and selection, green training, and development on organization commitment. The present study suggests that GHRM practices play a crucial role in the deployment of an environmental policy aimed at promoting green practices in the workplace. The findings provide guidelines to policymakers and managers regarding GHRM to promote environmental culture and employee green behavior at the workplace.

**Subjects:** Personnel Selection, Assessment, and Human Resource Management; Human Resource Management; Employment Relations

**Keywords:** GHRM; organization commitment; green human capital; Pakistan; AMO theory

**JEL Classification:** M12; M53; M54; L66

1. Introduction
Green Human Resource Management (GHRM) recently has garnered much attention from scholars and researchers (Yong et al., 2019). Although many studies have attempted to examine GHRM in various contexts including multinational companies (Haddock-Millar et al., 2016), health-care sector (Pinzone et al., 2019), sports industry (Gholami et al., 2016), and manufacturing sector (Nejati et al., 2017; Yong et al., 2019; Yusliza et al., 2019; Yusliza et al., 2017). Thus, there still need to undertake a study on GHRM in a multitude of organizational contexts such as the dairy sector. GHRM has become an area of interest for many scholars, managers, and policymakers.

GHRM incorporates a plethora of advantages for the firms such as attracting new talent and employee retention (Muster & Schrader, 2011), cost reduction and creation of competitive edge (Carmona-Moreno et al., 2012), enhancing firm's overall productivity in environment (Kim et al., 2019), enhancing overall efficiency, and improve business sustainability, and enhancing overall employee well-being and productivity (Gholami et al., 2016). Organizational Commitment can be referred to as the willingness of the employees to remain committed to the organization and playing their role in the accomplishment of organizational goals. Cheema et al. (2017) found that many firms have incorporated HRM practices that are aimed at promoting environmental sustainability with a key focus on reducing environmental pollution and environmental degradation. Workforce greening can be labeled as an HRM practice that involves enhancing the overall employee competencies, motivation, and commitment (Eibreilh et al., 2019). Organizational Commitment incorporates the degree of employee identification, loyalty, and involvement (Singh & Onahring, 2019). HRM practices are usually aimed at modifying employee attitudes and enhancing overall workforce performance (Li et al., 2019). According to Jawaad et al. (2019), the organizations should undertake initiatives that are aimed at motivating their workforce so that it remains committed.

More importantly, Hussain et al. (2020) suggested that further research to bring sustainability and competitiveness in the service and non-service-based organizations. There is sufficient evidence available to certify the benefits achieved from the adoption of GHRM practices. It includes the examples of Wal-Mart which reported a saving of 12,000 USD as a result of the reduction in paper usage. Moreover, E.ON Company reported a saving of £106,000 as a result of educating its workforce to turn off unnecessary electrical appliances when not in use. The ever-increasing importance of environmental awareness has prompted HR to adopt GHRM practices such as reduced paper usage and lessening the carbon footprint and other wastes (Ahmad, 2015). According to Alkhateeb (2018) that the increased financial and economic growth has significantly enhanced CO2 emission levels and GHRM can play a constructive role in reversing the effects of environmental degradation. This can be attributed to the fact that GHRM lays the utmost focus on environmental and resource conservation (Jain & D’lima, 2018).
The main aim of this study to examine the manufacturing industry is because this sector poses more environmental implications as compared to the services sector (Guerci et al., 2016). Because the manufacturing sector is closest to the consumers in the supply chain, it often has been a trendsetter with regards to the inculcation of GHRM practices and environmental sustainability initiatives. Moreover, the manufacturing sector has been the focus of environment-related concerns (Zailani et al., 2012). It has been widely accepted that human activities are adversely affecting the environment and the adoption of GHRM practices in the manufacturing sector can aid in mitigating environmental issues.

Pakistan is a rural and agrarian economy and is the fifth largest milk producer in the world (FAO, 2011). The government of Pakistan has taken initiatives to further develop the agri-food sector with utmost focus on the dairy industry (FAO, 2011; Younas, 2013). The dynamic business environment has driven organizations to stay productive. Hence, organizations are consistently focusing on optimizing their business processes. The organizations are of the view that the role of human resources is essential to maintain the competitiveness of the business. Therefore, the retention of competent employees is a major challenge for firms (Farrukh et al., 2016).

This study contributes an important addition to the existing body of knowledge by filling various research gaps. Research on GHRM is still at infancy stage. The present study also extends the literature by examining the mediating effect of green human capital on GHRM. Limited research has been conducted on GHRM and organizational commitment in the context of the dairy industry. This study intends to bridge this contextual gap as well. This study also intends to make a valuable contribution to GHRM under the lens of the AMO theory. Researchers have mainly focused on GHRM practices in developed economies (Renwick et al., 2013). The present study attempts to address the emerging economies such as Pakistan by measuring the impact of GHRM on organizational commitment in the dairy companies of a developing country perspective through a theoretical lens of ability motivation opportunity theory (AMO).

2. Literature review

2.1. Theoretical perspective

2.1.1. Ability-Motivation-Opportunity (AMO)

According to Appelbaum et al. (2000), AMO theory discussed about HRM practices that improve an organization’s human capital vis-à-vis enhanced human capabilities lead productivity, less waste, improved quality, and higher profits. GHRM and its associated environmental outcomes can be easily understood through the lens of the AMO theory which significantly aids the effect of HRM practices on overall organizational performance (Baselie et al., 2005).

According to Renwick et al. (2013) GHRM significantly contributes towards environmental sustainability through the development of green employee “ability” (A) that involves attracting, selecting, and training the workforce. Moreover, it also involves green employee motivation (M) that encompasses the encouragement of the workforce through the aid of green initiatives and creating opportunities (O) for the employees so that they make participation in the green initiatives undertaken by the company. Acquired green competencies are held more value than natural green competencies which is why green training is essential for enhancing the capabilities of the employees so that they may perform in a better way (Subramanian et al., 2016).

Previous studies have utilized the AMO theory to examine the impacts of CSR, GHRM practices, and environmental sustainability in the textile industry (Cheema et al., 2017). Pinzone et al. (2019) studied the health-care sector by examining GHRM practices, commitment towards environmental management. Although, Pham et al. (2019) examined the GHRM practices and OCBE in the hospitality sector. However, Yu et al. (2020) study on the automobile industry by examining the
role of GHRM, internal green supply chain management (GSCM), and environmental cooperation with consumers and suppliers.

2.1.2. The link between green human resource management and organization commitment

The practices of green human resources management enhance or create organizational commitment (Jyoti, 2019). The philosophy behind such a relationship is explained from the perspective of an individual’s general commitment towards environmental sustainability (Sharma et al., 2016). Therefore, employees who perceive that an organization whose entire operation is dedicated to sustaining the environment; those employees put their share by showing commitment towards the organization. Thus, it can be argued that green human resource management practices have an impact on enhancing and increasing organizational commitment (Yusliza et al., 2019).

The process through which Green human resources management creates the employee’s commitment starts from almost every employee-organizational touchpoint and interface (Singh & Pandey, 2020). The commitment generates from the perceived green practices of the organization so that; employees can also promote green and sustainable practices through the organization’s operation and offerings (Likhitrkar & Verma, 2017). The commitment of employees generates by employees actively engaging in the eco-friendly practices that can help them to satisfy the social and psychological needs of sustaining the environment (Das & Kumar-Singh, 2016).

Further, the commitment of employees generated from green human resource management involves the duty of undertaking eco-friendly HR ingenuities subsequent in higher competences, lowering operational costs and improved employee engagement (Singh and Pandey, 2020) that in return, supports every single organization to reduce employee carbon footprints through the telecommuting and online training (Dumont et al., 2017).

Employee commitment can be deemed as a bond or association with the organization (Rahman et al., 2013). Organizations should come up with incentive plans and motivation initiatives to enhance employee commitment (Jawaad et al., 2019). Employee commitment can be depicted through their attitudes and behaviors and other organizational outcomes such as job satisfaction, affective commitment, and retention levels (Rubel et al., 2018). Moreover, organizational commitment also involves the overall degree of employee identification, involvement, and loyalty towards the company (Devananda & Onahring, 2019).

H1: Green HRM will be positively associated with green human capital

H2: Green HRM will be positively associated with Organization Commitment

2.1.3. The mediation role of green human capital

The green human capital can be described as “the summation of employees’ knowledge, ability, experience, wisdom, creativities, and commitments, etc. about environmental protection or green innovation, and was embedded in employees, not in organizations” (Chen, 2008). The green human capital has been the one of significant constructs in organizational science (Yang et al., 2019) as it has been dubbed significant variable in the adaptation of green human resources management practices (Chen & Chang, 2013).

It has been argued that skills and knowledge of the employees regarding sustainability contribute significantly in the adaptation of green human resources management (Campbell et al. 2012) and on other hand, it is also seen that employee’s knowledge and skills also polishes when employees perceive organizational commitment towards the environmental sustainability (Chahal & Bakshi, 2014) which directly contributes to enhancing the employee’s commitment
towards the organization. Therefore, it is argued here that, green human capital mediates association among green human resource management and employee commitment (Delgado-Verde et al., 2014).

H3: Green human capital has positive effect on organization commitment

H4: Green human capital mediates the relationship between Green HRM and Organization Commitment

3. Methodology

3.1. Sampling design and data collection

The present study has adopted a positivist approach. Under this approach, a survey method has been deployed. An explanatory research framework was proposed that was aimed at investigating how one variable affects the other (Creswell & Creswell, 2017). Moreover, researchers have also adopted a deductive reasoning approach to develop a research model and hypotheses which is also harmonious with the positivist approach.

The present study employed a quantitative technique to propose a framework that involved 287 employees associated with dairy companies working in Pakistan. Through this approach, this study intended to investigate how GHRM affects organization commitment. A non-random, non-probability convenience sampling technique was deployed for this purpose. A partial least squares (PLS) technique was used to test the proposed model. The SmartPLS (3.2.9) was used to determine the structural and measurement model. To test the theoretical model, a sample was collected from dairy companies in Pakistan.

A survey-based questionnaire was administered to the employees of Engro Foods, Nestle Foods, and Haleeb Foods which are core companies of dairy. A convenience sampling technique was adopted for this purpose. The data were obtained between September 2019 and March 2020. The power analysis technique has been labeled as the most suitable approach in the Partial Least Square-Structural Equation Modelling literature to determine effective sample size (Hair et al., 2017). Hair et al. (2019) posited that a power analysis should be used to determine a sample size based on the constructs in the model having the highest number of predictors.

Six hundred questionnaires were disbursed to the employees working in the dairy companies through physically visited the companies. Out of this, 287 useable responses were obtained. A rationale has been established regarding the use of this technique based on its strengths, weaknesses, convenience, and cost implications. The response rate of the present study was 47.83% (i.e. 287 useable responses). No specific benchmark exists regarding a minimum acceptable response rate (Mellahi & Harris, 2016). Malhotra & Grover (1998) describe that a response rate of less than 20% was not desirable for research purposes. Cohen (1992) suggested that the minimum sample size requirement for a PLS-SEM analysis should be 103. The sample size of the present study (i.e. 287 responses) fulfills this requirement satisfactorily.

3.2. Demographic profile of the sample

The sample size constituted 78% males and 22%, females. It is pertinent to mention that 37.6% of the study participants were aged between 30 and 40 years, 10.8% were below the age of 30 years. Moreover, 34.1% of the participants were aged between 40 and 50 years. As far as the departments are concerned, 25.8% of respondents belonged to the HRM people working on environmental sustainability. This speaks volumes regarding the focus on GHRM. Furthermore, 32.8% of the respondents possessed experience of more than 10 years (see Table 1).
Table 1. Demographic profile of the sample

| Demographic Variable | Characteristic | Frequency | Percentage (%) |
|----------------------|---------------|-----------|----------------|
| Gender               | Male          | 224       | 78             |
|                      | Female        | 63        | 22             |
|                      | Total         | 287       | 100            |
| Age                  | Under 30      | 31        | 10.8           |
|                      | 30–40         | 108       | 37.6           |
|                      | 40–50         | 98        | 34.1           |
|                      | Above 50      | 50        | 17.5           |
|                      | Total         | 287       | 100            |
| Department           | Finance       | 49        | 17.1           |
|                      | Health safety & Environment | 30  | 10.5       |
|                      | HRM           | 74        | 25.8           |
|                      | Marketing     | 38        | 13.2           |
|                      | QEC           | 32        | 11.1           |
|                      | Other         | 64        | 22.3           |
|                      | Total         | 287       | 100            |
| Work Experience      | Less than 1   | 27        | 9.40           |
|                      | 1–3           | 36        | 12.5           |
|                      | 4–6           | 76        | 26.5           |
|                      | 7–10          | 54        | 18.8           |
|                      | Above 10      | 94        | 32.8           |
|                      | Total         | 287       | 100            |

n = 287 Source: Authors’ field survey September 2019-March 2020.

3.3. Construct measurement

This study adopted measuring scale from existing literature. For clarity, all items were measured on a five-point Likert scale (1 = completely disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = completely agree). Also, all of the measurement items were in a positive statement. Green Recruitment & Selection scale was adopted from Jabbour et al. (2010, 2016). The three items of green training and development were adapted from (Jabbour et al., 2010). Green Human Capital, Chen (2008), Organization Commitment scale was taken from Mowday et al. (1979).

The current analysis has been performed through “Smart-PLS 3.2.9” in which PLS-SEM was performed because it has many corresponding constructs in this current study. The factor loadings are described concerning Table 2 with regards to the indicator loadings of the latent constructs, all items were loaded meaningfully to their corresponding construct. The measured indicators have minimum loadings (coefficients) approximately 0.43 and maximum loadings of approximately 0.83. The variance inflation factor (VIF) for all factors was lower than the threshold value of +5 (Diamantopoulos & Siguaw, 2006), showing that multicollinearity was not a problem in the research model. Hence, the summary of all the research constructs as well as their measurement items are shown in Table 2 with their corresponding loadings (coefficients).

4. Empirical results

Partial Least Square and Structural Equation Modelling (PLS-SEM) tests were carried with the aid of the SmartPLS 3.2.9 statistical package. PLS-SEM technique was adopted instead of co-variance-based structural modeling (CB-SEM) because the latter requires the data to be distributed normally. On the other hand, the PLS-SEM technique does not hold any assumption regarding data...
| Constructs                      | Indicator | Indicator reliability | Cross loadings | VIF | Alpha | rho-A | Composite Reliability | Ave  |
|--------------------------------|-----------|-----------------------|----------------|-----|-------|-------|------------------------|------|
| Green Human Capital            | GHC1      | 0.769                 | 0.769          | 4.267 | 0.76  | 0.797 | 0.84                   | 0.521|
|                                | GHC2      | 0.796                 | 0.796          | 4.520 |       |       |                        |      |
|                                | GHC3      | 0.750                 | 0.750          | 1.706 |       |       |                        |      |
|                                | GHC4      | 0.794                 | 0.794          | 1.600 |       |       |                        |      |
|                                | GHC5      | 0.433                 | 0.433          | 1.079 |       |       |                        |      |
| Green Human Resource Management| GRS1      | 0.614                 | 0.614          | 3.953 | 0.855 | 0.876 | 0.888                  | 0.535|
|                                | GRS2      | 0.815                 | 0.815          | 5.301 |       |       |                        |      |
|                                | GRS3      | 0.719                 | 0.719          | 1.782 |       |       |                        |      |
|                                | GRS4      | 0.837                 | 0.837          | 3.198 |       |       |                        |      |
|                                | GRS5      | 0.640                 | 0.640          | 4.247 |       |       |                        |      |
|                                | GTD2      | 0.768                 | 0.768          | 4.480 |       |       |                        |      |
|                                | GTD3      | 0.697                 | 0.697          | 2.336 |       |       |                        |      |
| Organizational Commitment      | OC1       | 0.619                 | 0.619          | 1.968 | 0.745 | 0.795 | 0.817                  | 0.428|
|                                | OC3       | 0.591                 | 0.591          | 1.960 |       |       |                        |      |
|                                | OC5       | 0.758                 | 0.758          | 1.363 |       |       |                        |      |
|                                | OC6       | 0.662                 | 0.662          | 2.201 |       |       |                        |      |
|                                | OC7       | 0.641                 | 0.641          | 2.165 |       |       |                        |      |
|                                | OC8       | 0.645                 | 0.645          | 1.824 |       |       |                        |      |
distribution. Therefore, the overall results are not confounded by abnormal data (Goodhue et al., 2012), which is why the PLS-SEM approach has been adopted.

Moreover, to gauge discriminant validity, the Fornell and Larcker (1981) approach was utilized. The findings suggested that the under-study constructs meet both the basic as well as the stringent assumption thus establishing the presence of discriminant validity. It is pertinent to mention that the values lying at the diagonal (mentioned in bold) of the Fornell Lacker’s table (see Table 3) depict the AVE’s of the constructs and they must be greater than 0.50. The AVE’s of each construct should be of greater value than other constructs at both the row and column position to certify the presence of discriminant validity (Fornell & Larcker, 1981).

4.1. Structural equation modeling—Hypotheses testing

The coefficients, standard errors, t-qualities, and significance values (p) of the proposed model were calculated through the aid of a 5000-re-test bootstrapping system (Ramayah et al., 2018). Path analysis is essential following a thorough analysis of the model fitness. At this phase of the analysis, the causal relationships amongst the under-study constructs are examined and identified. The results indicate the direct and indirect effects of GHRM practices on organizational commitment in the dairy industry of Pakistan.

4.1.1. Direct effect

The results show that GHRM practices have a significant degree of association with green human capital (GHC) (β = 0.374, t = 7.32). GHRM also has a positive link with organizational commitment (β = 0.333, t = 5.82). GHC has positive impact on organization commitment (β = 0.416, t = 6.65) (see Table 4).

4.1.2. Indirect effect (Mediating effect)

Mediating effect was tested by calculating the variance account for (VAF) approach, here VAF was calculated by dividing indirect effect through total effect. Calculated value was 32% which indicated partial mediation Figure 1.

5. Discussion

This study found that green human resource management (GHRM) has a significant and positive impact on the organization commitment (β = 0.333 and P = 0.000). The findings are consistent with the theory and it can be argued that green human resource management can significantly enhance the organizational commitment. The findings demonstrate that GHRM has a significant and positive impact on the Green Human Capital (GHC) (β = 0.374 and P = 0.000). The findings are consistent with theory and it is argued here that, Green human resource management is a strong predictor of green human capital in the model (Chahal and Bakshi, 2014). Lastly, current research developed a hypothesis to examine the relationship between green human capital and organizational commitment (Norhasnina et al., 2018). This study demonstrates that green human capital has a significant and positive impact on organizational commitment (β = 0.416 and P = 0.000). The findings are also consistent with theory and it is argued here that, Green human capital is a strong predictor of organizational commitment in the model (Chen and Chang, 2013).

The researchers have also been calling for the analyze the mediation effect of green human capital in between green human resource management and organizational commitment (Verde et al., 2014). This study applied a mediation analysis and results concluded that there exists a mediation effect of the green human capital in between green human resources management and organizational commitment. Therefore, it is argued here that, employee’s skills and green knowledge is can be developed from organization’s adopting the green human resource management practices and once a particular employee has developed such kind of skills and knowledge from the fact that, organizations have adopted the green human resource practices, it develops strong organizational commitment within the employees.
| Construct                  | GHRM  | Green Human Capital | Organizational Commitment | R-Square | R-Square Adjusted | Q-Square |
|----------------------------|-------|---------------------|---------------------------|----------|-------------------|----------|
| GHRM                       | 0.731 | 0.439               | 0.533                     | -        | -                 | -        |
| Green Human Capital        | 0.375 | 0.722               | 0.628                     | 0.140    | 0.137             | 0.066    |
| Organizational Commitment  | 0.489 | 0.542               | 0.655                     | 0.389    | 0.385             | 0.139    |

Square roots of average variance extracted (AVE's) shown on diagonal. Source: Authors’ estimations from SmartPLS 3.2.9.
Table 4. Path coefficient hypothesis relationship

| Hypotheses                                      | Beta  | t     | p      | Status    |
|------------------------------------------------|-------|-------|--------|-----------|
| H1 GHRM → Green Human Capital                  | 0.374 | 7.32  | 0.00   | Supported |
| H2 GHRM → Organizational Commitment            | 0.333 | 5.82  | 0.00   | Supported |
| H3 Green Human Capital → Organizational Commitment | 0.416 | 6.65  | 0.00   | Supported |

| Hypotheses                                      | Indirect effect | Total effect | VAF | Status    |
|------------------------------------------------|-----------------|--------------|-----|-----------|
| H4 GHRM → Green Human Capital → Organizational Commitment | 0.156           | 0.489        | 32% | Supported |

5.1. Theoretical implications
This study has several theoretical implications; first, this study addresses the contextual gap by conducting a study in the context of Pakistan in dairy companies. Second, this study extends the AMO theory in the body of knowledge. Third, this study examined the mediating role of green human capital, which is neglected by the previous studies.

The results of our study provide guidelines to policymakers with HRM practices in dairy companies that support green behavior. Training programs for increasing environmental awareness and knowledge is crucial because employees with environmental abilities are more likely to engage in pro-environmental behavior. However, another finding suggests that green human capital plays a crucial role in the implementation of strategies to promote Green practices. GHRM practices can facilitate policymakers to take advantage of the skills and expertise of employees in providing solutions for environmental issues at the workplace.

5.2. Conclusion
The main aim of this study was to examine the GHRM practices on organization commitment in dairy companies. This study tested a mediating analysis of green human capital. Our study...
extends the literature by underpinning the lens of the ability-motivation-opportunity (AMO) theory towards employee green behavior. A survey-based method was adopted and SmartPLS software for statistical analysis was used to achieve research objectives. The findings show that the direct impact of green recruitment and selection, green training, and development with organizational commitment. Also, green human capital has a mediating impact on green recruitment and selection, green training, and development on organization commitment. Moreover, our results supported the ability-motivation-opportunity (AMO) theory about greening the dairy companies. This study provides guidelines to policy-makers, managers, and top management to develop human resource policies to bring the green culture at the workplace.

5.3. Limitation and future research

Despite several strengths, this study has two limitations, first, our study collected data from the manufacturing sector only. Future researchers may conduct a study in the service sector. Thus, we expect future researchers to constructively re-examine the model tested in this study by applying multilevel modeling and potential moderators. Second, this study explored the impact of only one mediator green human capital. However, other variables such as green intellectual capital, green social capital, green work–life balance, and green health and safety also can explain the relationship between GHRM and organization commitment.

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