



The Moderating Role of Green Process Innovation and The Impact of Green Human Resource Management on Performance of SMEs

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Abstract

This study has been conducted purposively to examine the mediation of environmental performance between GHRM and firms' performance for SMEs. Data was collected from top-level administrative and HR employees of textile sector SMEs in Karachi through an online survey using five Likert scale-adapted questionnaires. The SEM technique was applied using SMART PLS for data analysis. The findings indicated that GHRM practices are positively associated with environmental performance. In fact, with the mediation of environmental performance GHRM practices are also creating a positive impact on the organizational performance of SMEs. Further, there is a need for policy development that urges SMEs to develop through and focus HRM practices for the betterment of the environment and society to make SMEs stable and flourish overall.

Key Words: GHRM, Environmental Performance of SMEs, Firm's Performance, SMEs, Food Sector, Green Process Innovation



Introduction

In terms of the environmental domain, the word “Green” refers to the practices that are conducted to protect and defend natural assets and the environment. Presently, GHRM is the preferred approach through which firms may optimize their environmental performance. In fact, GHRM provides a mechanism through which firms may manage the degree of influence that may be created on the environment through business processes and actions (Al Doghan *et al.*, 2022). Studies defined GHRM, as the use of human resource management policies for the betterment of the environment. The concern of the firm towards the environment (Firdaus & Mohammed Udin, 2014), through green processes like recruitment, selection & training, etc. & also motivate employees through green compensation & rewards (Ansari, Farrukh & Raza, 2021). In fact, GHRM is a mechanism that will aid management in resolving environmental related problems through optimal way. This may be done through training people, developing effective policies and procedures as well as through developing rules that are linked with environmental protection (Rani & Mishra, 2014). Hence, legitimate to declare GHRM will enhance employee engagement and the rate of retention motivates them to avoid activities that may increase carbon footprints. So, GHRM practices are recommended for the betterment of the firm, employees, and environment (Firdaus & Mohammed Udin, 2014).

This statement has been further elaborated by Faisal and Naushad (2020), in the way that organizational performance is based on the efficient utilization of resources. In fact, GHRM practices are inclined towards the betterment of employee skills, knowledge, and change behavior to attain sustainable organizational goals. Hence it is optimal to use online recruitment, selection, work distribution along with telecommuting, etc. to flourish employee skills and competencies. Therefore, it is required that firms must continue their struggle to implement GHRM practices effectively to increase the environmental sensitivity of their employees for making the work environment clean, conducive, and comfortable (Muafi & Kusumawati, 2021). However, in Pakistan SMEs were rarely inclined towards HRM strategies until the 2008 economic meltdown. Although, after the crises government of Pakistan has implemented several steps for the betterment of SME sector e.g., the organization of SMEDA, SME Bank & Business support fund, etc. (Khan *et al.*, 2013).

These initiatives are aligned with the indications of Arshad and Arshad (2019), that SMEs are the cornerstone for the economy of developing sides of the world. However, the scarcity of research



work associated with the performance of SMEs in developing countries like Pakistan is one of the prime areas of concern. In fact, researchers are still wondering to explore the way to optimize the performance of SMEs in Pakistan. On the other side research also indicated that effective organizational strategies must be formulated to foster the organizational performance of SMEs. In this regards strategy of human resource management are ranked above all the other form of strategies that may be fruitful for firms' performance (Naz, Aftab & Awais, 2020). However, SMEs are different in comparison to large private and public sector organizations & therefore regardless of the significance of GHRM all over the globe the research concern towards GHRM with respect to SMEs is lackluster. Hence there is a need of high concentration towards research work that may explore these practices with respect to SMEs. On the other side attainment of a competitive edge through adhering to the GHRM policies is still perceived as a major challenge for firms (Faisal & Naushad, 2020). However, there is no impact of GHRM practices on firms' performance of SMEs (Muafi & Kusumawati, 2021) & SMEs are also different from large-sized firms (Faisal & Naushad, 2020). In fact, SMEs have encountered several problems in the implementation of GHRM & the real gist of GHRM practices is the betterment of the environment (Firdaus & Mohammed Udin, 2014).

Similar was indicated by Rani and Mishra (2014), that there are still some organizations that are unable to implement GHRM practices and research that may explore the areas where implementation of green HRM practices may assist this form of laggards may be effective. Hence this, the study proposes to evaluate the indirect impact of GHRM practices on firm performance by using environmental performance of SMEs as a mediator. In fact, Raut et al (2020) postulated that most of the studies under the vein of Green HRM practices are directed towards environmental performance rather than organizational performance with the major focus of research is towards developed sides. Thus, it is legitimate to quote that this study is one of the rear one in this domain. Therefore, the study must be perceived as the guidelines for SMEs & implementation of GHRM practices at SMEs.

Thus, the study is pervasive and may be found fruitful not only for managers and entrepreneurs but also for researchers and academicians to analyze, observe and conceptualize the impact of GHRM practices over the environmental performance of SMEs.



Literature Review

Several studies like Acquah Agyabeng-Mensah and Afum (2020); Yong et al (2019) and Zaid et al (2018) reflected the existence of positive relationship of GHRM practices over firm's performance. In fact, it is the way which helps firm in reducing its cost without compromising on talent and therefore most of the firms are getting proactive in implementation of environmental management so to get competitive edge over their rivals (Rani & Mishra, 2014). In fact, other than organizational objectives incorporation of GHRM also ensures social objectives (Hosain & Rahman, 2016). Although there are also some exceptions as few studies e.g., Muafi and Kusumawati (2021) etc, do not have an impact on firms' performance of SMEs. Although one of the latest studies by Irani and Kilic (2022) indicated that there is a significant relationship of GHRM with environmental performance. Hence through considering above mentioned studies environmental performance has been used as a mediator between GHRM practices and the organizational performance of SMEs, as it has been not explored effectively. On the other side study of Irani and Kilic (2022) also incorporated green process innovation (GPI) as the moderating variable and therefore the variable has also been included as a moderator in this study. Moreover, the base of this study is aligned with Ability Motivation & Opportunity Theory (AMO) to reflect the impact of GHRM on the environmental performance of SMEs. The theory was used by Hameed et al (2020); Irani and Kilic (2022). In recent times companies are trying to attain sustainable competitive advantage by addressing environmental policies and norms. In fact, environmental management practices are considered a top priority especially by firms associated with the production sector. Therefore, the role of GHRM practices seems mandatory to produce positive impact over employee attitude as well as top attain sustainability (Raut *et al.*, 2020). Hence GHRM practices must be followed to be aligned with environmental and sustainability concerns (Faisal & Naushad, 2020).

Although the study of Muafi and Kusumawati (2021), indicated that GHRM practices have no impact on business performance and that is inconsistent with the prior studies e.g., Acquah et al (2020); Yong et al (2019) and Zaid et al (2018). In fact, there is a considerable increase in the number of manufacturing sector SMEs across the globe but the concern towards the implementation of GHRM practices is found to be absent (Huo et al., 2022). Therefore, rightly stated by Astuti and Wahyuni (2018) that owners of SMEs do not understand the benefits and

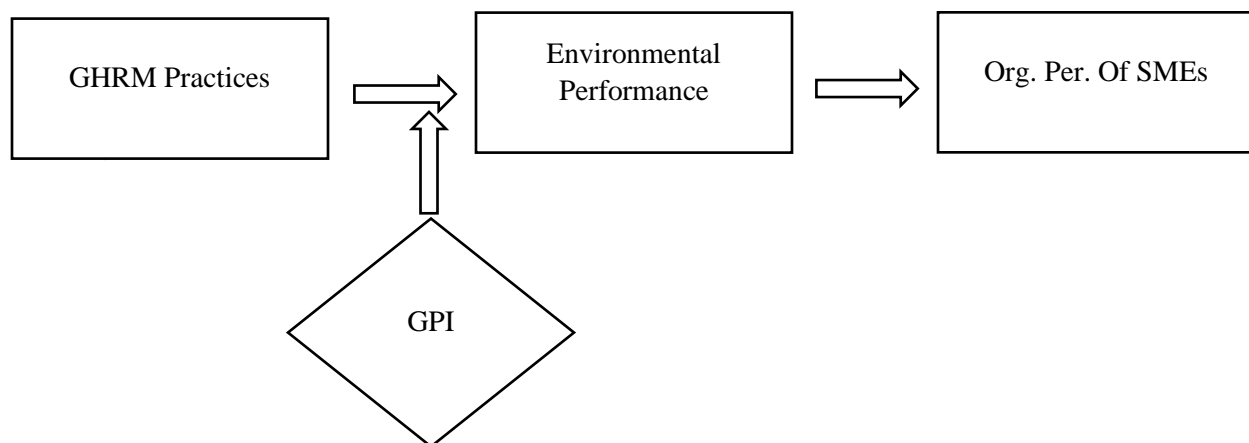


needs of GHRM and their commitment towards environmental sustainability is also on the lower side. So, the prevailing need to implement GHRM in SMEs is remarkably high. Although for the large-scale sector, it has been assessed that GHRM is beneficial for the enhancement firm's environmental performance as well as the firm's overall performance (Al Daghan *et al.*, 2022). On the other side studies like Firdaus and Mohammed Udin (2014), indicated that all the HR functions from recruitment, & selection till employee empowerment & management green training have an impact on environmental concerns.

Moreover, by focusing on environmental performance firms are not only able to optimize their performance but also enhance the extent of competitive advantage over their rivals. This is also valid for the SME sector of Pakistan Where competitive advantage is found to be positively associated with the firm's performance. On the other side, there are very few studies that have explored the role of green process innovation in the optimization of a firm's performance. However, green performance innovation has a high capacity to reduce environmental hazards that are generated through the firm's activities and operations. In fact, some of the studies also believe that environmental performance cannot be optimized without adopting green process innovation. However, green process innovation needs the upgradation of the entire work process, i.e., from the operational to the managerial level. Hence it may be perceived as cost centered and time-consuming activity by entrepreneurs and therefore has been less preferred (Zameer *et al.*, 2021).

Figure 1

Research Model





Research Hypotheses

H_{A1}: There is an association between GHRM Practices and the environmental performance of SMEs.

H_{A2}: There is a linkage between the environmental performance of SMEs and the organizational performance of SMEs.

H_{A3}: Environmental performance of SMEs does mediate between GHRM Practices and organizational performance of SMEs.

H_{A4}: Green Process Innovation does moderate the relationship between GHRM Practices and the organizational performance of SMEs.

H_{A5}: Environmental Performance of the firm does mediate between Green Process Innovation and the Organizational Performance of SMEs

Research Methodology

The purpose of the study is to indicate the indirect relationship of GHRM practices over SME's organizational performance through the mediation of environmental performance. The relationship has been developed as SMEs are different from large scale firms (Faisal & Naushad, 2020), and some of the studies also indicated lack of direct relationship between GHRM practices on the organizational performance of SMEs (Muafi & Kusumawati, 2021).

In fact, implementation of GHRM practices is also a challenge (Faisal & Naushad, 2020), hence the real purpose of the study is to foster knowledge. Therefore, in line with Saunders Lewis and Thornhill (2007), the research philosophy used in this study is epistemology. On the other side, Saunders et al (2015) indicated the use of a philosophical stance to connect research philosophy with research approach and data collection techniques. Therefore, in this study Pot-Positivism is the philosophical stance for the study that is suitable to be used with qualitative as well as quantitative designs (Henderson, 2011 & Saunders *et al.*, 2015). Moreover, post-positivism is the most effective philosophical stance for studies associated with education and social sciences (Panhwar *et al.*, 2017). Hence, by applying a deductive approach and cross-sectional time horizon research has been conducted with moderate interference of researchers (Sekaran & Bougie, 2016)



Study of Huo et al (2022), uses probability sampling to collect data from manufacturing SMEs but the data collection has been based on manufacturing firms from different sectors like textile, surgical instruments, and auto parts etc. Although among the bifurcation used by Huo et al (2022), textile sector SMEs are found higher in number as compared to the other firms of SMEs (Arshad & Arshad, 2019). Hence in accordance with Muafi and Kusumawati (2021), non-probability sampling has been used to collect data from textile SMEs with sample size of 379 respondents effectively represents the population (Krejcie & Morgan, 1970).

This is more effective than the previous studies as the concentration is specifically towards the SMEs from textile sector & data has also been collected from top-level administrative and HR employees of textile sector SMEs. The research instrument for this study was a closed-ended questionnaire as used by Huo et al (2022); Irani and Kilic (2022) and Muafi and Kusumawati (2021) by applying a five-point Likert scale. In fact, it is a hybrid form of a questionnaire that has been adapted from Zhao et al (2021) and Ghouri et al (2020), for elements of GHRM practices, and SMEs' organizational performance. Although for measuring environmental performance study uses Ghouri et al (2020) and Cherrafi et al (2018); Huo et al (2022) and Zameer et al (2021), for green process innovation. Data analysis has been made through applying Structural Equation Modeling (SEM), via SMART-PLS that was also been done by Huo et al (2022).

In fact, SEM is based upon multi-variate method for data analysis through applying covariance-based approach is PLS-SEM approach, or web-based approach, i.e., Generalized Structured Component Approach (Wong, 2013). Although preferring PLS-SEM approach relying upon several key points i.e., It is applicable with litter theoretical implication, lower sample size, no assumption about data distribution and with no assurance for correct model specification (Wong, 2013). However, the real use of SMART-PLS is to indicate significant relationships (paths) in the structural model in addition to the understanding of other important relationships (Vijayabanu & Arunkumar, 2018).

Results and Discussion

Figure 1 shows the measure of outer loading that is like the factor loading. Although outer loading was done for all the elements on individual bases. The minimum criteria for the inclusion of any element in the research model is 0.5 (Afthanorhan, 2013), though the latest criteria for the

inclusion of research elements is 0.70 or above. (Trianasari *et al.*, 2022). However, it may also be optimal to include elements that have the outer loading range from 0.6 to 0.7 inclusion may not create negative impact upon convergent validity (Sander & the, 2014).

Figure 2:

Confirmatory Factor Analysis (CFA) & Outer Loading

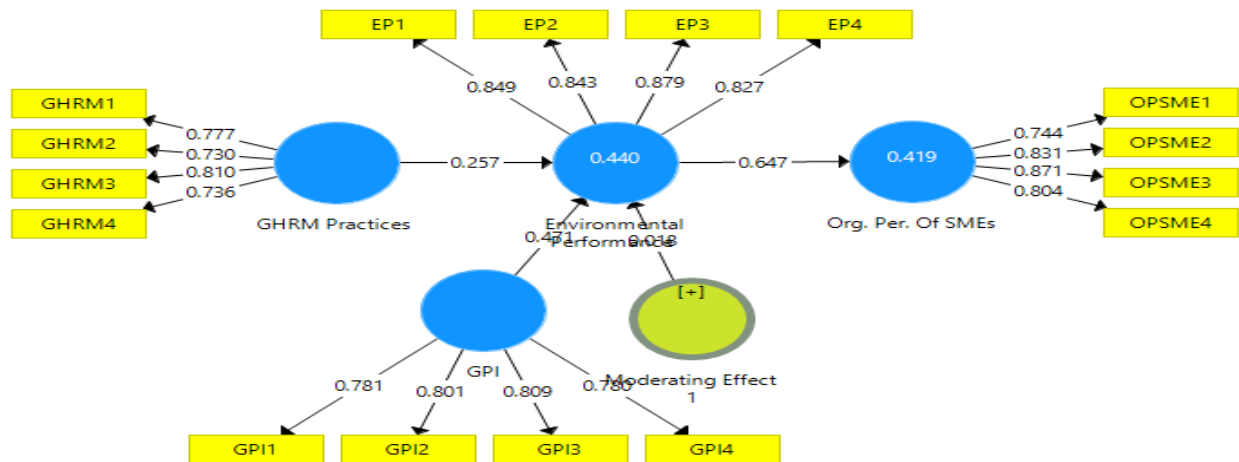


Table 1
 Predictive Accuracy (Quality Criteria)

R Square		
	R Square	R Square Adjusted
Environmental Performance	0.540	0.520
Org. Per. Of SMEs	0.419	0.415

Table 1 indicates predictive accuracy through R^2 , and the analysis is similar as used for (OLS), ordinary least square (Willet & Singer, 1988). The minimum acceptable range is 0.25 while 0.50 & 0.75 or above are treated as moderate and substantial values (Hair *et al.*, 2019 & Jahan *et al.*, 2020), but 0.25 is termed as minute impact (Hair *et al.*, 2011). Therefore, in the light of the above-given criteria, the variance caused by GHRM in environmental performance is moderate and in organizational performance of SMEs is near to moderate.



Table 2
 Construct Reliability & Convergent Validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Environmental Performance	0.872	0.874	0.912	0.722
GHRM Practices	0.763	0.766	0.848	0.583
GPI	0.804	0.807	0.871	0.629
Moderating Effect 1	1.000	1.000	1.000	1.000
Org. Per. Of SMEs	0.829	0.835	0.887	0.662

Table 2 is placed to reflect construct reliability and convergent validity. Previously Cronbach's alpha was used to evaluate internal consistency and reliability though in recent times researchers ranked composite reliability as the major indicator of reliability. The minimum acceptable range of Cronbach's alpha is 0.4 while the minimum acceptable range of convergent validity is 0.6 (Vijayabanu & Arunkumar, 2018). The table also includes the Goldstein reliability indicator i.e., while the combination of composite reliability and AVE is used to reflect convergent validity (Hair *et al.*, 2017). Though AVE must have a numeric value of 0.5 or above to assure convergent validity (Yaacob et al., 2021). Thus, legitimate to believe that table 2 is indicates that the research model has construct reliability as well as convergent validity.

Figure 3
 Path Coefficient

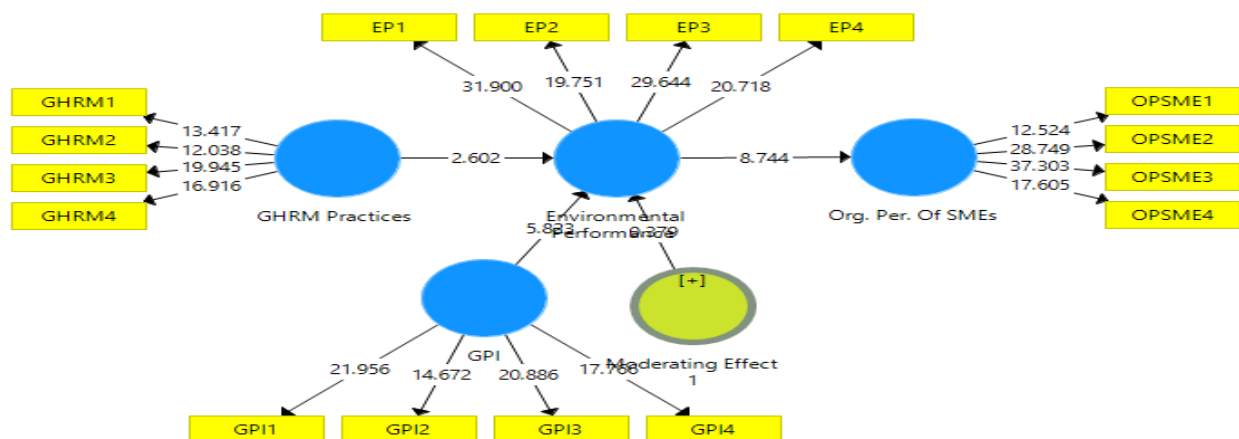




Table 3
Discriminant Validity

Heterotrait-Monotrait Ratio (HTMT)					
	Environmental Performance	GHRM Practices	GPI	Moderating Effect 1	Org. Per. Of SMEs
Environmental Performance					
GHRM Practices	0.686				
GPI	0.753	0.864			
Moderating Effect 1	0.265	0.484	0.406		
Org. Per. Of SMEs	0.760	0.846	0.879	0.451	

Table 3 is used to highlight discriminant validity via Heterotrait-Monotrait ratio which is perceived as the better measure to reflect discriminant validity (Iqbal et al., 2021). Hence in consideration with Hair et al (2019) this study uses HTMT as the measure of discriminant validity that is sufficient to reflect discriminant validity though according to most of the studies the maximum values of HTMT are 0.85. However, we may consider values in the range of 0.85 to 0.90 to assure discriminant validity (Ab Hamid *et al.*, 2017 & Fussell & Truong, 2021). Therefore, in line with the criteria of Ab Hamid et al (2017); Fussell and Truong (2021) and Hair et al (2019) and it is legitimate to declare that model also assures discriminant validity. Although there is one value that is out of the range of the criterion given by Hair et al (2019), all the others lie within the value range given by Ab Hamid et al (2017) and Fussell and Truong (2021).

Table 4
Path Coefficient

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Environmental Performance -> Org. Per. Of SMEs	0.647	0.657	0.074	8.744	0.000
GHRM Practices -> Environmental Performance	0.257	0.262	0.099	2.602	0.010
GPI -> Environmental Performance	0.471	0.479	0.081	5.823	0.000
Moderating Effect 1 -> Environmental Performance	0.018	0.025	0.048	0.379	0.705

Tables 4 & 5 presented the t-statistics and p-values to indicate the relationship as these are part of structural measurement model from SMART-PLS and used as part of inferential statistics



(Silaparasetti, Rao & Khan, 2017). Both are almost similar in terms of indicators although table 4 is used for indicating path coefficient while the use of table 5 is to reflect specific indirect effects. Both tables are based on the indication of Wong (2013), that the minimum acceptable value for t-statistics is 1.97 and the maximum acceptable p-value is 0.05. Therefore, considering the above-mentioned criteria it is legitimate to declare that there is a significant impact of GHRM on the environmental performance of SMEs & environmental performance of SMEs also has a positive and significant impact on the performance of SMEs.

Moreover, green process innovation also has a positive and significant impact on performance. Similarly, the environmental performance of a firm also mediates between the GHRM & Organizational Performance of SMEs. Finally it has also been verified that environmental performance positively mediates the relationship between green process innovation and the organizational performance of SMEs. Finally, based on analysis was deduced that all the hypotheses i.e., H_{a1}, H_{a2}, H_{a3} & H_{a5} are accepted, however, H_{4A} is rejected.

Table 5
Specific Indirect Effect

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
GHRM Practices -> Environmental Performance -> Org. Per. Of SMEs	0.166	0.174	0.073	2.277	0.023
GPI -> Environmental Performance -> Org. Per. Of SMEs	0.304	0.316	0.069	4.421	0.000
Moderating Effect 1 -> Environmental Performance -> Org. Per. Of SMEs	0.012	0.015	0.031	0.378	0.705

Conclusion & Discussion

The findings of the study indicated that GHRM practices are positively associated with environmental performance. In fact, with the mediation of environmental performance GHRM practices are also creating a positive impact on the organizational performance of SMEs. Thus, the initial study is consistent with the indications of Firdaus and Mohammed Udin (2014) as well as with Muafi and Kusumawati (2021), as the study is indicating a positive impact of GHRM practices on the environmental performance of the firm, which cannot be attained without inclination of workforce towards environmental concerns and sustainability.



In fact, with these initial findings, it is imperative to reflect on further recommendations and policy implications to support initiatives of the government of Pakistan and SMEDA as highlighted by Khan et al (2013). Thus, highlighting the essence of HRM towards the environmental and organizational performance of SMEs is also aligned with the indication of Naz *et al* (2020). Moreover, the use of GHRM practices will also provide practical implications of these practices with reference to SMEs in Pakistan as indicated by Faisal and Naushad (2020). However, in association with the literature, the findings of this study are different from Muafi and Kusumawati, (2021), as GHRM practices do have an impact on the organizational performance of SMEs. Although the reflection of GHRM practices on environmental performance is positive & SMEs are also different from large-sized firms. Hence the findings are aligned with Faisal and Naushad (2020). Finally the findings of the study legitimize the use of GPI which has not been explored by prior studies associated with GHRM practices.

Although the use of this study proves that GPI is not only positively correlated with organizational performance but also produces a significant impact on the environmental performance of the firm. In fact, environmental performance proves to be a potent mediator between GPI & organizational performance of SMEs, as indicated by Zameer et al. (2021).

Policy Implications & Area for Further Research

The study is beneficial to understand the importance of green process innovation and the impact of the green performance of SMEs. Therefore, entrepreneurs and SMEDA might use the findings of the study to emphasize green process innovation to earn benefits eventually. Although the lack of emphasis of entrepreneurs toward GHRM practices as indicated by Astuti and Wahyuni (2018) may hinder the implementation of green HRM practices in the short run. Thus, beliefs of Astuti and Wahyuni (2018) is in line with Faisal and Naushad (2020), that SMEs are different in comparison to large-scale firms. Although Khalique Isa and Nassir Shaari (2011) indicated that the role of SMEs in the development of the economy is phenomenal although failure rate of SMEs is also a major area of concern. Especially for developing economies like Pakistan where SMEs are believed as the backbone of the economy (Khan & Khalique, 2014). Hence there is a need for policy development that urges SMEs to develop through and focus HRM practices for



the betterment of the environment and society to make SMEs stable and flourish eventually. In line with these implications, there is a need to conduct further research work with reference to the food sector and others like tobacco, furniture, and machinery, etc., are severely affected from COVID-19 (Kumar et al., 2020). Moreover, further studies may also be conducted through leveraging the work with parameters of Huo et al (2022) to relate study with specific practices of GHRM and relate research with green work engagement and green employee behaviors etc.

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