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Save life! Optimization of dynamics for pharmaceutical distribution performance

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Abstract

Purpose – Optimization of dynamics determining distribution performance of pharmaceuticals is vital in realizing Sustainable Development Goal (SDG) number 3 which insists on provision of good health and well-being to the society. This study was designed at unfolding diverse factors that influence the distribution performance of pharmaceuticals in the Medical Stores Department (MSD) of Tanzania.

Design/methodology/approach – This study utilized cross-sectional survey strategy in gathering data from 67 staff members working in the MSD using census approach. A structured questionnaire facilitated the collection of quantitative data which were later analyzed using ordinal logistic regression.

Findings – The results disclosed that all variables of inventory management, information management system and facility location positively and significantly govern the distribution performance and henceforth rejection of the foreseen null hypothesis.

Research limitations/implications – This study realized dynamics inducing distribution performance of pharmaceuticals but did not cover the role of 3PLS and 4PLS in enhancing the same, and hence, an imminent study ought to seal this gap. Also, having grasped management information system is of strategic pillar, then it would sound imperative to analyze the application of artificial intelligence in distribution system performance.

Originality/value – This paper assimilates the concept of subsaspects of supply chain management in footings of distribution management and that of pharmaceuticals and hence multidisciplinary value addition. Also, this study illustrates the applicability of strategic choice theory in strategic management in developing countries through pertinent choice of inventory management, information management system and facility location in triumphing SDGs.

Keywords Supply chain management, Distribution management, Operations management, Logistics management

Paper type Research paper

1. Introduction

1.1 Background to the problem

The pharmaceutical sector has grown for many years worldwide, and this has impacted the ever-growing accelerating distributions and logistics challenges (Aytekin *et al.*, 2023; Wu and Dong, 2023; Yaroson *et al.*, 2021). The distribution system of pharmaceutical items is featured by dynamics (Diaz *et al.*, 2023). This intricacy is regarded one of the primary hurdles to the

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performance and efficiency of a pharmaceutical supply chain. Grujić *et al.* (2020) revealed that glitches of procurement and distribution significantly contribute to the overall inefficiencies of health systems in different nations by reducing complaints of limited access to necessary medications (Mackintosh *et al.*, 2018). Increased customers' needs force most of the business and non-business sector to optimize distribution process in order to mend customer service through product quality and availability while minimizing the logistics-related costs (Purvis *et al.*, 2021; Tukamuhabwa *et al.*, 2011). United Nations Sustainable Development Goal No 3 emphasized on the need to ensure good health and well-being to the public through accessibility of health supplies (Zimon *et al.*, 2020). Globally, a well-planned and executed distribution system keeps medicines in good condition throughout the distribution process, minimizes losses from spoiling and expiration, maintains accurate inventory records, keeps medicines in a steady supply, rationalizes medicine storage locations and guarantees that transportation facilities are used (Supply, 2012). On the other hand, effective and efficient flow of pharmaceuticals depends on the distribution management for ensuring the key objective of distribution management of maintaining a steady supply of pharmaceuticals (Hou *et al.*, 2017; Supply, 2012). The World Health Organization has primary functions that include increasing access to key pharmaceuticals and other medical developments as well as collecting, evaluating and using critical information (Githendu *et al.*, 2020).

In developed countries, effective distribution of pharmaceuticals depends on several dynamics, including logistics system in place, good inventory management, effective communication and coordination between the pharmaceutical manufacturers, distributors and health centers (Grujić *et al.*, 2020). The proper medications may be made available at the optimal time, in the optimal quantity and at the right place with the help of effective management information system (Wang *et al.*, 2024). This helps to prevent stock outs and overstocking, which can lead to wasted resources and decreased patient access to necessary medications. Good inventory management allows the pharmaceutical distribution system to run more successfully and efficiently (Volland *et al.*, 2017). Equally important, a reliable information management system is vital for coordinating the distribution network (Aytekin *et al.*, 2023). The information system tracks inventory levels, buy and sale prices and the distribution and reception of medications using forms and procedures. The system could be manual, automated or both (Supply, 2012). Effective information management systems can track the movement of drugs from different distribution centers, monitor their storage and handling and ensure that they are not expired or contaminated. Optimal information management practices can improve the safety, efficacy and efficiency of pharmaceutical distribution (Yousefi and Alibabaei, 2015).

Also, the location of the facility should be strategically chosen to minimize transportation costs and time while also ensuring that the facility is easily accessible to the target customer base (Savadkoohi *et al.*, 2018). Having multiple facilities in different locations can also help to ensure continuity of supply in the event of disruptions at a single facility. Finally, the efficiency and efficacy of pharmaceutical distribution can be greatly impacted by the placement of distribution centers (Jung *et al.*, 2021). Therefore, important distribution components are optimized to boost cross-regional commerce growth, establish material time-space matching, increase flowing material values and implement data collection and information management systems. A sustainable material flow system that accommodates competition enhances social and economic development in a community (Hou *et al.*, 2017). Adopting system inventory management best practices in the health sector can enhance donor collections, component manufacturing and the inventory that a hospital and blood supplier must maintain on hand in order to satisfy patient requirements through real-time inventory management, information management systems and demand forecasting. The majority of Canadian public sectors struggle with inventory control (Stanger *et al.*, 2012).

Despite major international finance efforts, emerging African countries, particularly those in sub-Saharan Africa, are concerned about their healthcare systems, notably the availability of pharmaceuticals (Yenet *et al.*, 2023; Mackintosh *et al.*, 2018). There are complaints that in Tanzania, the distribution of pharmaceuticals is not promising and hence leads to unsatisfactory customer satisfaction, contrary to the current global move of saving lives through proper medication (Masui, 2024; Ruhago *et al.*, 2022). The current distribution networks in Tanzania and Kenya have negative impact on general community access to high-quality medications and subsequent health outcomes (Mackintosh *et al.*, 2018). A study by Mahuwi and Israel (2024) conducted in Tanzania in other settings described the usage of electronic means in the management of pharmaceuticals as crucial. Tanzania established the Medical Stores Department (MSD) as an autonomous institution under Act of Parliament No. 13 of 1993 [CAP 70 R.E. 2002], which is in charge of, among other things, the distribution of health goods. The MSD aims at guaranteeing that medications and medical supplies of adequate quality are always available to all healthcare facilities in the entire nation (URT, 2023). The distribution process begins at MSD Headquarters Central Warehouse and extends to the last mile (individual health institutions) via MSD zonal stores and sales stations. It should be taken into note that the MSD in Tanzania is a giant organization which affects the global supply chain as the drugs are procured from different manufacturers and wholesalers located from different nations worldwide (URT, 2023).

Research has shown that most low- and middle-income countries' pharmaceutical and health commodity distribution systems face difficulties with inventory management, information management, projections and preservation (Githendu *et al.*, 2020). Specifically in Tanzania, the MSD distribution system is featured with unsatisfactory performance with frequent stockouts in health facilities (HSSP, 2015). Inventory management, information management system and facility location are very vital for the distribution performance in supply chain management system (Meredith and Shafer, 2023; Rushton *et al.*, 2022). Given that MSD is a life-saving organization that works to guarantee the timely distribution of medications throughout the nation, it is crucial to identify the precise cause of the subpar performance in the context of developing nations. This can be done by concentrating on the locations of facilities, information management systems and inventory management in Tanzania's pharmaceutical distribution system, as well as by setting a precedent for MSD users through this rigorous research. Therefore, based on the background of this study, the main objective was to establish the dynamics that need to be optimized for the distribution performance of pharmaceuticals in Tanzania. Moreover, in order to achieve the main objective, the following questions were addressed in this study;

- RQ1. What are the inventory management dynamics that optimize distribution performance of pharmaceuticals?
- RQ2. How do information management system dynamics optimize distribution performance of pharmaceuticals?
- RQ3. Do facility location dynamics optimize distribution performance of pharmaceuticals?

1.2 Research gap

Pharmaceuticals are needed to treat and prevent human diseases (Ghadge *et al.*, 2023). The challenge of drug stockout resulting from an unsatisfactory distribution management system has been persisting in Tanzania, leading to unnecessary deaths (Elias and Mushi, 2024; Mollle *et al.*, 2024). Shortage of pharmaceutical requirements in healthcare facilities due to unsatisfactory distribution contravenes the UN SDG Number 3 which encourages good health and well-being of citizens. The Government of Tanzania took initiatives to establish

MSD to ensure adequate distribution management of pharmaceuticals to health facilities (HSSP, 2015). Despite the adopted initiatives, the Controller Auditor General (CAG) report of 2020/2022 noted the continuity of unsatisfactory supply to the health facilities featured with stock outs and slow moving of short-life-span drugs, which in turn affect the health of the public. It was also reported that MSD managed to fulfill only 34% of total customers' orders for 43,180,884 products, leaving 66% unfilled resulting into inadequate customer service (CAG Report, 2020/2021). The CAG report has recommended for the need to establish effective distribution management of pharmaceuticals. Moreover, inventory management and information management system are documented elsewhere as key dynamic factors for the distribution performance (Meredith and Shafer, 2023; Rushton *et al.*, 2022). Furthermore, shortage of pharmaceuticals normally results in loss of life in Tanzania (Sequeira D'Mello *et al.*, 2020; Kazibwe *et al.*, 2022). Therefore, having unsatisfactory distribution performance of pharmaceuticals in Tanzania compelled for the need for scholarly studies on how to optimize dynamics for the distribution performance in the context of Tanzania.

2. Literature review

2.1 Theoretical review

In the present inquiry, the strategic choice (SC) theory was used to shed light on the factors that influence pharmaceutical distribution. SC theory initially was proposed by Child (1972). According to Child, SC theory proposes that individuals' decisions such as those from top management about how to respond to external conditions like change in technology, location of facilities and availability of physical resources are key performance determinants. SC theory distinguishes one organization from another by emphasizing the significance of identifying, explaining and forecasting the factors of organizational success as well as understanding why some organizations outperform others (Bowersox *et al.*, 2020). These strategic decisions were taken as part of a company-specific learning process. SC theory focuses on addressing strategic issues of the organizations (Luu, 2023). Furthermore, SC is documented as a tool for the success of the organization targets (Ali, 2024). Better planning is very important, but SC always demands re-examination (Born, 2024). Management of pharmaceuticals distribution involves strategic decisions in order to attain long-term plans of the firms especially in terms of customer satisfaction (Guru *et al.*, 2023). Strategic decisions of pharmaceuticals distribution involve inventory management, information management system and facility location, which fall under strategic decision in terms of choice making while centering on the strategic orientation of the firms (Meredith and Shafer, 2023).

SC theory which specializes in best choice making is capable of elucidating the most suitable supply chain models that result in organizational performance (Tiwari *et al.*, 2023). Furthermore, the theory holds that sustainability of the organizations relies on how decisions are strategically made while taking care of the surrounding business environmental dynamics (Malik and Bebenroth, 2022; Hitt *et al.*, 2021). The theory has further proved to be relevant in determination of personal values (Lichtenstein *et al.*, 2022) and hence had to be conducted and tested in the context of distribution performance of life-saving commodities with emphasis on inventory management, information management and distribution facility location using MSD.

2.2 Empirical literature review

In order to think of and come up with the proper direction of this academic investigation, diverse findings were empirically analyzed and the gaps gained were used as the basis of seeking answers to undressed concerns as follows:

2.2.1 Inventory management of pharmaceuticals. Gabriel (2020) conducted a study on the rationale of inventory control systems in Tanzania's public health sector using descriptive

research methodology and a purposive sample technique to identify representatives. Data were obtained via questionnaires. The findings suggest that there are weaknesses in the inventory management system utilized by the organization on the issues facing the system in MSD. In this study, issues concerning managing stock level and outbound operation in physical inventory management on performance of an organization were not covered, so this study intended to find more information on those indicators. The study of Gabriel (2020) was descriptive and hence failed to explain the root cause of the performance using cause–effect relationship for wide generalizability. Nkuba (2019) conducted a study on pharmaceutical inventory management practices on service delivery using qualitative research design aided by the interview method to collect data. The findings revealed that Nyamagana Hospital uses both manual and computerized inventory recording systems. Knowing that MSD supplies pharmaceuticals to the entire country prompted for survey design aided with the usage of a questionnaire for wide generalizability. Yornu and Ackah (2020) carried out a study on the affiliation of efficacy of Inventory and Stores Management on Turnover of Central Medical Stores and realized that inventory management strategies have a positive impact on inventory turnover. The study of Yornu and Ackah (2020) was conducted in Ghana while focusing on turnover. MSD as an institution specially designated to render service to the public of Tanzania, and it is more of service delivery rather than turnover concerns and hence prompted for the same aspects to be tested in the context of public service delivery in Tanzania while focusing on customer satisfaction of MSD distribution performance.

2.2.2 Information management system of pharmaceuticals. Layti *et al.* (2020) conducted a study on logistics information systems versus traceability of pharmaceutical products hospitals. A questionnaire was used to collect data on reverse logistics traceability of pharmaceutical products. The results of analyzed data reveal that more than 90% of health institutions utilize basic/office automation combined manual systems for controlling their drug stockpiles, resulting in low traceability. Moreover, while the study of Layti *et al.* (2020) focused on reverse logistics, the undertaken study focused on the forward logistics movement of the drugs centered on order management during physical distribution management. Similarly, Yornu and Ackah (2020) found that inventory information management has a large effect on demand forecasting and a direct effect on turnover, but their study was done in the context of another developing country in Africa. Also, Oraini (2024) conducted a study on the role of information systems on performance in the pharmaceutical sector and revealed that the current information system directly effects the performance of pharmaceutical enterprises in the Middle East, which has eventually affected how decisions are made within the firms. The scope of the study focused on general contribution of information management on firm performance and not specifically on the effectiveness of distribution of pharmaceuticals toward firms' performance, and hence, the study aimed at filling this scholarly gap. Firms' performance is a function of both logistic input and output. Based on the contextualized problem of this study, it was specifically focused on analyzing distribution of pharmaceuticals and hence systematically stuck on logistic output as prompted by the study problem.

Sehrish (2020) conducted research on the impact of integrating information systems on firm performance by referring the Platinum Pharmaceuticals Ltd. as a study area. The study examined the impact of procurement criteria in regards to information systems on the corporation's overall performance. A combination of research methods was employed to steer the study, and data were gathered utilizing a questionnaire. The integration of the information system in the procurement department has a beneficial impact on the annual return on investment of Platinum Pharmaceuticals Ltd., according to the data system results. The study was limited on contribution of the information system in inbound logistics toward firm performance. This study aimed to cover the relationship between information management and outbound operation toward firm performance in terms of customer care.

Furthermore, the primary goal of the selected firm was manufacturing while MSD is a non-manufacturing organization and thus this study called for wide generalization of the findings.

2.2.3 Facility location for distribution performance of pharmaceuticals. Onstein (2021) conducted a study on factors influencing physical distribution structure design. The study's findings revealed that the number of major facilities has increased over time, as has their contribution to the total developed surface area. As a result, large facilities play a significant role in developing spatial planning policies. Results also show factors that may contribute to the decision whether or not to relocate facility within the current region. The third question identifies three factors that determine companies' distribution structure design. The study explained factors influencing physical distribution structure design but did not state the contribution of location of distribution facility on the performance of a pharmaceutical industry. Furthermore, another scholar discovered an impractical warehouse site; the presence of redundant operations reduces distribution efficiency (Gabriel, 2020). Gabriel's (2020) study was observational, and thus, it failed to clarify the core cause of performance utilizing cause-and-effect relationship.

The study conducted by Kramer *et al.* (2019) on rich vehicle routing with due consideration to auxiliary depots and delivery speculations in pharmaceutical distribution attempted to show and clarify a routing challenge encountered by a 3PL provider in distribution of pharmaceutical supplies to health units. The study results reveal current routing decision resulted in unsatisfactory utilization of hospital medical warehouses, mismatch between demand quantity and supply quantity at the expense of distribution costs and unfair geographical proximity of the health centers and the distribution points. Routing is a subset of distribution management. Effective routing depends on the nature of facilities location and hence prompted for the need to look at the location of distribution facilities of MSD which serves as depots in Tanzania.

Sánchez-Sierra *et al.* (2018) conducted a study on facility location model with inventory transportation and management costs. The study's scope was to lay out an integrated inventory facility location model that minimized distance, transportation and inventory management expenses. Following analysis, the location of the suppliers and distribution facility was selected using only the basic model. By re-estimating (revising) the location of the distribution facility, it was found that the optimal location for distribution facility is minimized and also transportation cost in the revised location was minimized. The study covered effects of facility location on upstream transportation costs, but it did not explore downstream transportation costs.

2.3 Hypothesis formulation

Having reviewed theoretical and empirical literature reviews, it remained very important to postulate some hypotheses for scientific hypothetical deductive testing of the existing problem as follows while focusing on three key aspects.

Empirically, inventory management accounts for the firm's performance (Rashid and Rasheed, 2023). Equally important inventory management is closely linked with total quality management and hence better performance of the firms (Mahajan *et al.*, 2024). However, the study of Mahajan *et al.* (2024) focused on the overall performance of the firms in other countries apart from Tanzania, while this study is focused solely on the distribution performance. Focusing on the distribution performance might be of more advantage because in business management, there is a need for understanding the most beneficial area that contributes more to the performance. Furthermore, the limitations of the study area of Rashid and Rasheed (2023) called for the need of related studies to be conducted in other settings for wider generalizability. Equally important is the study of Mahajan *et al.* (2024) based on the systematic literature review and hence called for the need of quantitative study guided by

positivism paradigm. Therefore, based on those arguments, this study postulated Ho_1 to underscore what persists in other context persists in the context of inventory management versus distribution performance of pharmaceuticals in Tanzania?

HO1. Inventory management is not one of the dynamics for distribution performance of pharmaceuticals.

Also, studies conducted in developed countries counted management information system as a key driver for the supply chain performance of firms (Naceur *et al.*, 2024; Roldán Bravo *et al.*, 2023; Harju *et al.*, 2023; Kliestik *et al.*, 2023). However, the level of adoption of technology determines the viability of the use of systems and automation for real-time information use in the business. African countries are lagging behind because of the associated cost (Mwakyusa and Ngwebeya, 2022; Changalima and Ismail, 2022; Smidt and Jokonya, 2022). Interestingly, Ade-Ibijola and Okonkwo (2023) argued that the information system should be adopted in Africa quickly as it is regarded as a tool for alleviating poverty. Due to this debate, the inventory management remained as one of the dynamics worth hypothesis testing for wide generalizability as follows:

HO2. Management information system is not one of the dynamics for distribution performance of pharmaceuticals.

Similarly, facility location is described as one of the key issues for management of activities (Taouktsis and Zikopoulos, 2024; Yunusoglu *et al.*, 2024). However, with the invention of online services aided by Internet, facility location seems not to be a key issue (Rahman and Rahman, 2022). Arguably, facility location remains very vital in the distribution and marketing of physical goods from one point to another one for the accessibility to the user (Nazemi *et al.*, 2022). With the close proximity of the facility location to the customers, there is reduction of transportation cost and hence enriched customer care (Rajak *et al.*, 2018, 2021). Therefore, based on those mixed results, the following hypothesis was postulated:

HO3. Facility location is not one of the dynamics for distribution performance of pharmaceuticals.

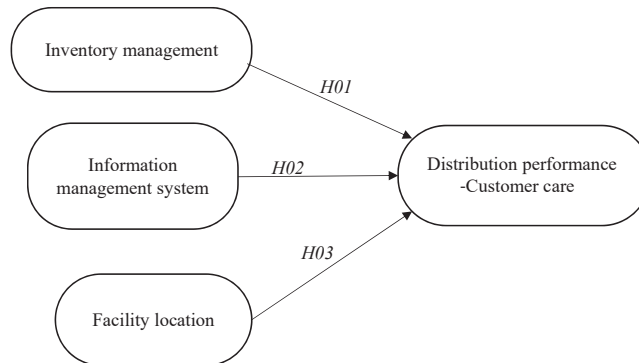
2.4 Conceptual framework

Diagrammatic presentation of the relationship of variables showing dynamics that optimize distribution performance of pharmaceuticals was presented. Hereunder, inventory management, information management system and facility location were described as predictor variables assumed for the distribution performance measured in terms of customer care. See Figure 1 to see the relationship and *HO1*, *HO2* and *HO3*.

3. Methodology

3.1 Study area

The study was undertaken in Tanzania's regions of Dar es Salam, Dodoma, Mwanza, Mbeya, Kilimanjaro, Mtwara, Tanga and Kagera. The logic behind the choice of these regions is that MSD Headquarters Central Warehouse is located in Dar es salaam and Zonal Warehouses are placed in Mwanza, Iringa, Kilimanjaro, Mbeya, Tabora, Dodoma, Tanga, Mtwara and Kagera (Pyuza *et al.*, 2023; Mbwasi *et al.*, 2023). The operations found in the head quarter and zonal warehouses are the ones associated with physical management of inventories, information management system and facility location decisions accompanying with pharmaceutical distribution of MSD in Tanzania.



Source(s): Adopted from the literature review (2023)

Figure 1.
Conceptual framework

3.2 Research strategy

This study opted for a cross-sectional survey research design. In terms of time, data were gathered once there was no requirement for monitoring any temporal changes and therefore the cross-sectional approach. Geographically, the study covered different regions in Tanzania of the country, and hence the survey approach was aided by a structured questionnaire. This study was based on deductive quantitative methodologies due to the utilization of a survey approach. The logical method centered on employing SC theory. Quantitative approach aims to generate and analyze numerical data (Tashakkori and Teddlie, 2021). Furthermore, the quantitative method primarily involves a survey via questionnaires to collect data which are ultimately given in numbers for the application of statistical analysis tools (Creswell, 2021). The need to study the cause-effect relationship of determination of contributing dynamics of pharmaceuticals distribution on the performance of MSD in Tanzania called for the explanatory-survey design by using those contributing dynamics as an explanatory variable to explain the distribution performance as an outcome variable. The strategy centered on collecting numerical data from the sampled personnel of the directorate of distribution management present in the MSD zonal offices across the country.

3.3 Sampling and data collection strategies

The researcher gathered information from the staff members who are working in the warehouses that facilitate distribution management of pharmaceuticals in MSD. Therefore, having a total population of 67, it is then realized that the target population of this study was 67 respondents. Having realized that, only 67 are available for inquiring information; the census method was espoused for complete enumeration as sample size. Census tends to be more representative and hence eliminates biasness (Walker, 2023). Other scholars in the discipline of supply chain management that utilized a small sample size and hence used a census methodology are Kimario and Mwangike (2024) with 55 enterprises, Kimario and Kira (2023) with 55 firms and Kamau (2013) with 56 firms. Moreover, three of the targeted respondents did not react. The reaction level obtained was adequate for this investigation as it has been highlighted as a reaction level of more than 70% is acceptable (Mugenda and Mugenda, 2003). Staff members from the warehouses falling in the physical distribution management were targeted because of being at the position to explain how inventory management, distribution information management system and facility location decision affect the performance of MSD outbound logistic operations in terms of customer's satisfaction as they are the ones receiving complaints from the customers and handling them.

The usage of customer's complaints to index customer's satisfaction serves an extra advantage identifying the very specific concerns while providing prompt feedback for upgrading (Rane *et al.*, 2023). Data for this study were primarily collected using the questionnaire. Furthermore, quantitative data were collected via a survey approach using standardized questionnaires. For reliability purposes, questionnaires were exposed to a pilot of 11 respondents, thereby meeting the minimum suggested sample size of 10 as proposed by Creswell (2021). This study focuses on collecting quantitative data from employees operating in warehouses of the physical distribution management of MSD.

3.4 Operationalization of variables and data analysis

The operationalization of variables has helped to understand the construct variables of the primary independent variables as well as assigning them numbers through coding so that they could be conveniently be processed by computer. The following builds were used to implement inventory management as the explanatory variable: inventory management in terms of issuing of stock (acceptance of customer requests, selecting what is under request and handing them to who has requested them), stock levels (indispensable inventory, which refers to the optimal quantity of items to be maintained for the smooth functioning of the firm) and safety stock (safety stock is a further quantity of items kept in the warehouse). The following components were used to operationalize the explanatory variable: inventory accessibility (access to each product's current location, available stock, relevant purchase and orders), order management (receiving, tracking, fulfilling and shipping an order to a customer), relationship (handling of different actors of distribution management of pharmaceuticals from headquarters down to the zonal warehouses and eventually the health facilities) and e-information sharing (sharing of inventory details via online system using electronic networked devices). Also, facility location was operationalized as proximity to the customers (nearness of the warehouse to the hospitals/health center), routing decisions (creation of the most cost effective path whilst minimizing travel time to stretch on loading and offloading plugs) and cost (refers to both standing and operational expenses associated with positioning of the warehouse at a certain point). Furthermore, the designated constructs were hypothesized using a five-point ordinal scale. This facilitated the understanding of the attitudinal expression in the form of an ordinal scale reflecting how inventory management systems are embraced in the context of pharmaceutical distribution management in MSD Tanzania. The five-point ordinal scale was coded under the following coding; 1-very low extent, 2-low extent, 3-ordinary extent, 4-great extent, and 5 very great extents.

This study's outcome variable is the distribution performance operationalized by customer satisfaction. The rationale behind the choice of customer satisfaction based on the usage of customer handling complaints arrangement which is an eye focus of all staff members of MSD involved in the distribution system of pharmaceuticals from the central warehouse down to the zonal warehouses. All complaints gathered through different means such as phone calls, emails, verbal communication and suggestion boxes are directly communicated to the staff involved in the distribution system. The usage of customer's complaints to index customer's satisfaction serves an extra advantage identifying the very specific concerns while providing prompt feedback for upgrading (Rane *et al.*, 2023). Information was captured using an ordinal scale. The choice of five points in the ordinal scale is an insight from past scholars who studied the connection between cause and effect in social sciences disciplines. Other scholars who analyzed social science traits using an ordinal scale of 5 points are Magoma (2021), Kimario and Mwangi (2021) and Mwiseje and Mwangi (2019).

The collected data were analyzed with the help of Statistical Package for Social Solution (SPSS) using ordinal logistic regression. Congruently, the cause-effect relationship that exists between distribution of pharmaceuticals and the performance of MSD was inexorable.

Traditionally the best way to capture data for quantitative analysis is through using continuous numbers. Cause–effect relationship studies call for regression analysis as a quantitative approach. Customer service as an outcome of the relationship seems qualitative in nature. Precisely, customer satisfaction is an attitudinal aspect apprehended expressively using an ordinal scale. The use of ordinal logistic regression in this investigation was extremely useful and included strategies for automatically reproducing the important ordinal variable (Fernandes *et al.*, 2021). Tillmanns and Krafft (2021) use qualitative responses as an alternative for factors that cannot be described numerically using continuous numbers in multiple regression analysis. Thus, the alternative qualitative technique for assessing performance was chosen analogous to the practices of Chebichii *et al.* (2021), Kimario and Mwangike (2024), and Matimbwa and Masue (2019) who performed the same. Also, in order to enhance visual presentation of the findings, scatterplot graphs were used to show the relationship of the variables (Goh *et al.*, 2024).

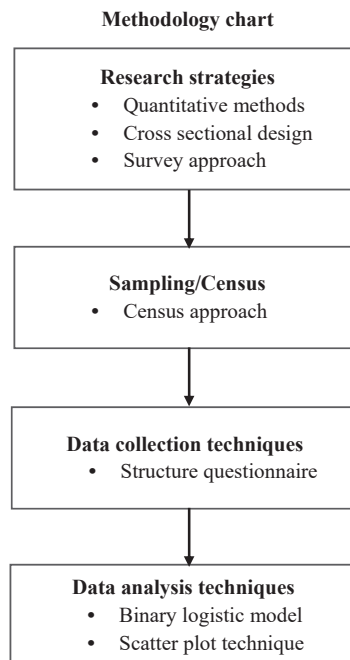
3.5 Flow chart of the methodology

In order to enhance audio visual presentation of the methodology, kindly see Figure 2 which shows the flow chart of the methodology.

4. Presentation and discussion of the findings

4.1 Reliability tests

Reliability of the variables that were independent shown by the findings of coefficient of reliability was evaluated by Cronbach alpha approach, and the results were as follows:



Source(s): Summary of methodology (2024)

Figure 2.
Methodology chart of the study

inventory management (0.77), information management system (0.85) and facility location (0.77). Therefore, the data for this study were generalized to be reliable as the coefficient of reliability was above 0.7, as supported by Purwanto *et al.* (2020).

4.2 Diagnostic test of the findings

Based on the fact that it is recommended when conducting a parametric study, it is important to conduct diagnostic tests before embarking on inferential statistical analysis. Diagnostic tests of the parameters of the ordinal logistic regression model had been verified before performing deductive statistical evaluation (Garren and Osborne, 2021). Therefore, model fitness and multicollinearity of the data were all tested before running logistic regression. Findings indicate proportionality of the predictor factors to the resultant variables validated using Pseudo R square of 62.4% for the appropriateness of the data. The Nagelkerke value, together with inventory management, information management and facility decisions, explains 62.4% of the variation in the result for the variable of customer service in MSD. Despite of the fact that SPSS produces two outputs, i.e. Cox and Snell and Nagelkerke, the latter was chosen in preference to the other one due to its ability to reach maximum theoretical coefficient value of 1 (Field, 2024).

The multicollinearity tests were checked. The relationship between each of the variables predicted was verified using both the inter-item matrix of correlation and the variance inflation factor (VIF). The inter-item correlation matrix revealed that the value of the coefficients of correlations varied between 0.1 and 0.6. According to the rule of thumb, a coefficient of correlations less than 0.8 shows the lack of multicollinearity. As a result, it is safe for ruling out the absence of multicollinearity in this data because the coefficients of correlation of the variables that predicted controlling the dynamics of pharmaceutical distribution were all less than 0.8, as disclosed in Table 1. Furthermore, VIF collinearity statistics were as follows: inventory management (1.051), management information system (1.181) and facility location (1.192), and hence, there is an extension of the argument that there is no multicollinearity because the values were all less than 10 as ruled by Senaviratna and Cooray (2019). However, it should be understood that VIF is the most confirming technique

		Inventory management	Information management	Facility location	Effective distribution
Inventory management	Pearson correlation	1	0.169	0.195	0.375**
	Sig. (2-tailed)		0.178	0.120	0.002
	N	65	65	65	65
Information management	Pearson correlation	0.169	1	0.379**	0.483**
	Sig. (2-tailed)	0.178		0.002	0.000
	N	65	65	65	65
Facility location	Pearson correlation	0.195	0.379**	1	0.630**
	Sig. (2-tailed)	0.120	0.002		0.000
	N	65	65	65	65
Effective distribution	Pearson correlation	0.375**	0.483**	0.630**	1
	Sig. (2-tailed)	0.002	0.000	0.000	
	N	65	65	65	65

Note(s): **Correlation is significant at the 0.01 level (2-tailed)

Source(s): Field data (2023)

Table 1.
Inter-item correlation matrix

for checking correlation of variables (Field, 2024). Other social science researchers employed VIF, including Magoma *et al.* (2024) and Shahanga and Kasambala (2023).

4.3 Presentation and discussion of the inferential statistical upshots

During the course of data interpretation dynamics that contributes to changes in pharmaceuticals, distribution effectiveness was analyzed using ordinal logistics regression analysis, and the *P*-value is considered significant when it is less than 0.05, implying the confidence interval of the results of this scholarly work is 95% (Di Leo and Sardanelli, 2020). As a result, hypotheses with *p*-values below 0.05 were significantly rejected. After the ordinal regression assumptions had been verified, the researcher proceeded to perform the inferential statistical evaluation through actual testing of the given assumption (Fernandes *et al.*, 2021). The regressions were conducted for every independent variable versus the dependent variables, as hypothesized. The inferential statistical results derived from ordinal logistics regressions are shown in Table 2.

HO1. Inventory management has no effect on distribution of pharmaceuticals. The HO1 having < *p* value of 0.012 and β coefficient of 0.237 was significantly rejected at *p* < 0.05. The findings in their first impression concur with those of Alam *et al.* (2024) who argued that inventory management is very useful. The research investigation of Alam *et al.* (2024) took place in a developing country of Asia, and strangely, the findings accord with our study, which was conducted in Africa, signaling that developing countries globally should strive for improved ways of managing their inventories.

A step further of analysis as shown in Table 3 aimed to understand the parameters of inventory management issuing of stock (*p* = 0.041, β = 0.6), stock levels (*p* = 0.002, β = 0.7), safety stock (*p* = 0.027, β = 0.1) and steady stock supply (*p* = 0.005, β = 0.3) categorically and

Table 2.
Ordinal logistic regression results on overall dynamics influencing distribution performance of pharmaceuticals

Model	Standardized coefficients		Sig	95.0% confidence interval for B	
	Beta			Lower bound	Upper bound
1	Constant		0.560	-1.026	0.561
	Inventory management	0.237	0.012	0.053	0.402
	Information management	0.259	0.009	0.075	0.512
	Facility location	0.485	0.001	0.305	0.712

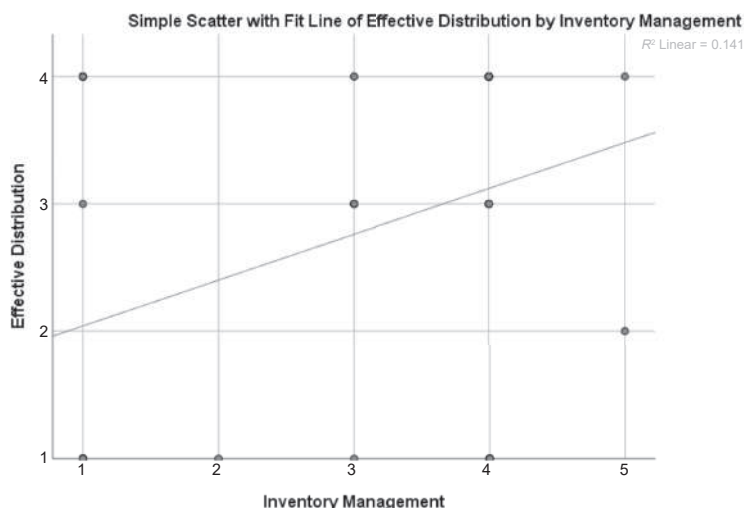
Source(s): Field data (2023)

Table 3.
Ordinal logistic regression results of inventory management vs distribution performance of pharmaceuticals

Parameter	Estimate	Std. error	Wald	df	Sig	95% confidence interval	
						Lower bound	Upper bound
<i>Threshold</i>							
Effective distribution = 1.00	2	0.5	6	1	0.014	1	3
Effective distribution = 2.00	1.5	0.7	5	1	0.025	0.1	2.9
<i>Location</i>							
Issues of stock	0.6	0.3	3.5	1	0.041	0.1	1.1
Stock level	0.7	0.12	10	1	0.002	0.46	0.94
Stock safety	0.1	0.08	0.4	1	0.027	0.05	0.25
Steady stock supply	0.3	0.06	8	1	0.005	0.18	0.42
Link function: logit							
Source(s): Field data (2023)							

significantly contributes to distribution management of pharmaceuticals that enhances customer care. Based on the findings, it has been noted that the distribution performance of pharmaceuticals is not promising because of failure to manage the safety stock properly in the distribution systems contrary to the expectations of the users. Interestingly, further analysis of the construct variables employed scatterplots to show the association of the independent variables to the dependent variables. In examining the influence of inventory management on the distribution of pharmaceuticals at the MSD, a scatterplot was employed (refer to Figure 3). The plot indicates a positive, although weak, connection between inventory management and effective distribution (R linear = 0.141). This indicates that while enhanced inventory management practices influence more efficient distribution, there may be additional factors impacting distribution effectiveness. However, the extent of R^2 does not necessarily matter and hence the described R^2 value of 9% and above is regarded as reasonable for inferential analysis (Itaoka, 2012). Therefore, findings of the specific parameters concur with those of Gonçalves *et al.* (2020), Motla *et al.* (2023) and Delshad *et al.* (2024) who argues proper inventory management in either safety stock, the manner of issuing and the levels to be kept is of high stake for the performance of the operations but should be well managed so as to realize its benefit.

HO2. Information management has no effect on distribution of pharmaceuticals. The HO2 having a p value of 0.009 and β coefficient of 0.259 was significantly rejected at $p < 0.05$. The findings generally concur with those of Yang *et al.* (2021) who argued that information management systems should be well optimized in the distribution of medical materials for effective public health service in developed countries. Therefore, same findings concurred in developing countries using Tanzania medical supply system as a lesson. Detailed analysis as shown in Table 4 aimed to understand the parameters of information management system revealed inventory accessibility through tracing ($p = 0.043$, $\beta = 0.8$), order management system ($p = 0.002$, $\beta = 0.95$) as supported by Guo *et al.* (2023) from developed country, e-information sharing ($p = 0.006$, $\beta = 0.4$) as supported by Esmailzadeh (2023) and relationship management through electronic systems such as ERP (Enterprise Resource Planning) ($p = 0.021$, $\beta = 0.15$) by Kumar *et al.* (2023) significantly contributes to distribution



Source(s): Field Data (2023)

Figure 3.
Scatter plot for
inventory management
vs distribution
performance

performance of pharmaceuticals that enhances customer care. Figure 4 is the scatterplot that displays the connection between information management and the efficient distribution of pharmaceuticals in a medical store department. On the horizontal axis are the scores for information management, where higher scores indicate better practices in managing information. The vertical axis represents the scores for effective distribution, with higher scores indicating a more efficient distribution process. The line of best fit shows a positive slope, suggesting a positive correlation between information management and effective distribution. The R^2 value, $R^2 = 0.234$, reveals that approximately 23.4% of the variation in effective distribution scores can be accounted for by the scores for information management and hence the model fitted the data as ruled by Itaoka (2012).

HO3. The location of distribution facilities has influence on distribution of pharmaceuticals. The HO3 having a p value of 0.001 and β coefficient of 0.485 was significantly rejected at $p < 0.05$. The findings concur with the argument of Hugos (2024) and Egri *et al.* (2023) that proper location of the distribution facilities ensures responsive distribution performance. A step further of analysis as shown in Table 5 aimed to understand the parameters of location

a. Indicator analysis

Parameter	Estimate	Std. Error	Wald	df	Sig.	95% confidence interval	
						Lower bound	Upper bound
<i>Threshold</i>							
Effective distribution = 1.00	1.2	0.35	4.5	1	0.034	0.55	1.85
Effective distribution = 2.00	2.3	0.6	6.8	1	0.009	1.1	3.5
<i>Location</i>							
Inventory accessibility	0.8	0.25	3.2	1	0.043	0.31	1.29
Order management	0.95	0.18	9.6	1	0.002	0.6	1.3
Relationship	0.15	0.07	2.4	1	0.021	0.01	0.29
E-information	0.4	0.08	7.5	1	0.006	0.25	0.55
Link function: logit							
Source(s): Field data (2023)							

Table 4.
Ordinal logistic regression results of management information system vs distribution performance of pharmaceuticals

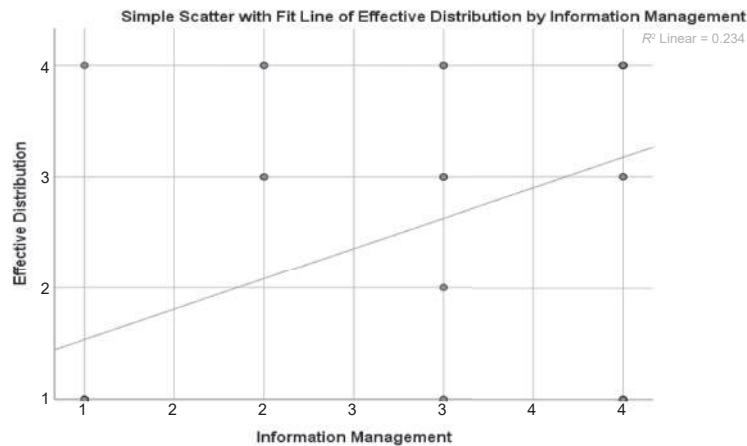


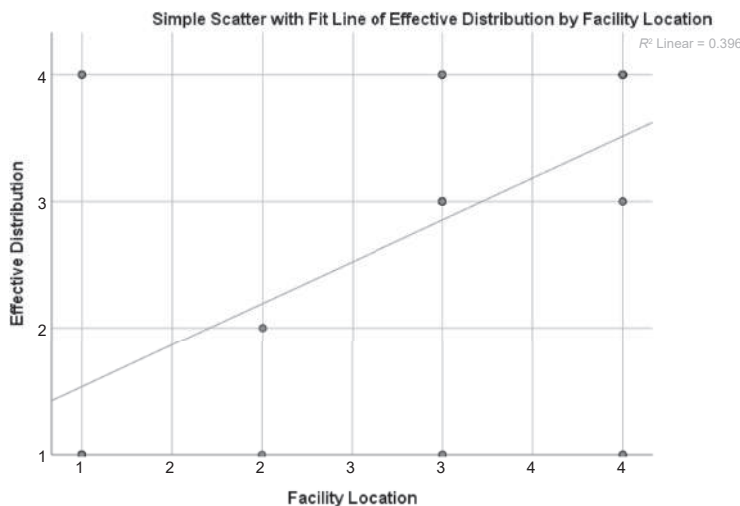
Figure 4.
Scatter plot for information management system vs distribution performance

Source(s): Field Data (2023)

of distribution facilities and revealed proximity to the customers ($p = 0.044$, $\beta = 0.5$) as supported by Loussaief *et al.* (2023) and Ouyang *et al.* (2024), routing decisions ($p = 0.002$, $\beta = 0.8$) as supported in related context by Ning and Du (2023), facility location costs ($p = 0.009$, $\beta = 0.15$) as supported Meneses *et al.* (2023) and accessibility of the location facilities ($p = 0.006$, $\beta = 0.4$) as supported by Koenig and Diarra (2023) categorically and significantly contribute to distribution performance of pharmaceuticals that enhances customer care. Figure 5 is the scatterplot that displays the connection between information management and the efficient distribution of pharmaceuticals in a medical store department. On the horizontal axis are the scores for information management, where higher scores indicate better practices in managing information. The vertical axis represents the scores for effective distribution, with higher scores indicating a more efficient distribution process. The line of best fit shows a positive slope, suggesting a positive correlation between information management and effective distribution. The R^2 value, $R = 0.234$, reveals that approximately 23.4% of the variation in effective distribution scores can be accounted for by the scores for information management.

Parameter	Estimate	Std. Error	Wald	df	Sig.	95% confidence interval	
						Lower bound	Upper bound
<i>Threshold</i>							
Effective distribution = 1.00	1.8	0.52	5.2	1	0.022	0.8	2.8
Effective distribution = 2.00	1.2	0.69	4.5	1	0.034	0.2	2.2
<i>Location</i>							
Proximity	0.5	0.28	3.2	1	0.044	0.1	0.9
Routing	0.8	0.11	9.6	1	0.002	0.59	1.01
Cost	0.15	0.07	1.8	1	0.009	0.01	0.29
Accessibility	0.4	0.05	7.5	1	0.006	0.3	0.5
Link function: logit							
Source(s): Field data (2023)							

Table 5.
Ordinal logistic
regression results of
facility location vs
distribution
performance of
pharmaceuticals



Source(s): Field Data (2023)

Figure 5.
Scatter plot for facility
location vs distribution
performance

5. Conclusion and recommendation

5.1 Conclusions

This study examines dynamics determining the distribution of pharmaceuticals in Tanzania. The study concludes that inventory management in terms of issuing of stock, stock levels, safety stock and steady stock supply categorically and significantly contributes to distribution performance of pharmaceuticals that ultimately enhances customer care. On another hand, distribution management system in terms of accessibility through tracing, order management system and e-information sharing and relationship management through electronic systems contributes to distribution performance of pharmaceuticals that ultimately enhances customer care. Equally important, location of distribution facilities revealed that proximity to the customers, routing decisions, facility location costs and accessibility of the location facilities is of fundamental importance.

5.2 Implications

Distribution system of pharmaceuticals is supposed to be well optimized because it is a lifesaving bustle. Therefore, Tanzania, as a developing country, is recommended to optimize on this finding to revamp its current performance. Interestingly, this paper assimilates the concept of sub-aspects of supply chain management in footings of distribution management and that of pharmaceuticals and hence multidisciplinary value addition. Inventory management, management information system and facility location are both considered as the strategic supply chain dynamics which configure the future success of the distribution of pharmaceuticals in Tanzania. Thus, the study contributes to the thrilling literature on the debate of understanding dynamics that optimize distribution performance of pharmaceuticals in Tanzania. Also, while Tanzania is challenged by unsatisfactory customer care in health in terms of access of medicinal drugs, this study has filled the gap by identifying key factors to focus on while achieving SDG Number 3 which insists on equal opportunity of access to health services. Equally important, the Ministry of Health and Social Welfare of Tanzania through MSD is encouraged to re-organize its distribution system of pharmaceuticals in the country. Theoretically, the study contributes to SC theory by describing how SC is applicable to the distribution system of pharmaceuticals of developing countries through thought-out choice of inventory management, management information system and location optimization.

5.3 Limitation and areas for future studies

Despite the fact that this study accomplished the principal purpose, it went through some limits that merit future research to be conducted to bridge the gap. Knowing dynamics that determine the distribution system of pharmaceuticals, future can contemporarily be directed on the use of third- and fourth-party logistics given its trending worldwide application. Also, knowing distribution management system is a challenge, and future study should extend to the usage of artificial intelligence on distribution system and even more largely on supply chain performance of medical items. Equally important, since the three major dynamics studied were found significant, future study should be sequential quali-quantitative so as to explore more dynamic factors that ultimately influence distribution performance of pharmaceuticals.

References

- Ade-Ibijola, A. and Okonkwo, C. (2023), "Artificial intelligence in Africa: emerging challenges", in *Responsible AI in Africa: Challenges and Opportunities*, Springer International, Cham, pp. 101-117, doi: 10.1007/978-3-031-08215-3.
- Alam, M.K., Thakur, O.A. and Islam, F.T. (2024), "Inventory management systems of small and medium enterprises in Bangladesh", *Rajagiri Management Journal*, Vol. 18 No. 1, pp. 8-19, doi: 10.1108/RAMJ-09-2022-0145.

- Ali, A. (2024), *Strategic Sales Management: Optimizing Commercial Addresses for Market Success* (No. 12192), EasyChair.
- Aytekin, A., Görçün, Ö.F., Ecer, F., Pamucar, D. and Karamaşa, Ç. (2023), "Evaluation of the pharmaceutical distribution and warehousing companies through an integrated Fermatean fuzzy entropy-WASPAS approach", *Kybernetes*, Vol. 52 No. 11, pp. 5561-5592, doi: 10.1108/K-04-2022-0508.
- Born, B. (2024), "Theories and foundations: ethics, urban agriculture, and planning", in *Planning for Equitable Urban Agriculture in the United States*, Springer, Cham, pp. 19-30.
- Bowersox, D.J., Closs, D.J., Cooper, M.B. and Bowersox, J.C. (2020), *Supply Chain Logistics Management*, McGraw-Hill, New York.
- Changalima, I.A. and Ismail, I.J. (2022), "Agriculture supply chain challenges and smallholder maize farmers' market participation decisions in Tanzania", *Tanzania Journal of Agricultural Sciences*, Vol. 21 No. 1, pp. 104-120.
- Chebichii, B.D., Namusonge, G. and Nambuswa, E. (2021), "Influence of buyer-supplier collaboration on organizational performance in food and beverage manufacturing companies in Kenya", *Global Dynamics in Africa*, pp. 85-100, available at: https://www.researchgate.net/profile/Maurice-Amutabi-2/publication/366426814_Global_Dynamics_in_Africa/links/63a190c1095a6a777445a971/Global-Dynamics-Africa.pdf#page=92 (accessed 27 June 2021).
- Child, J. (1972), "Organizational structure, environment and performance: the role of strategic choice", *Sociology*, Vol. 6 No. 1, pp. 1-22, doi: 10.1177/003803857200600101.
- Creswell, J.W. (2021), *A Concise Introduction to Mixed Methods Research*, SAGE, London.
- Delshad, M.M., Chobar, A.P., Ghasemi, P. and Jafari, D. (2024), "Efficient humanitarian logistics: multi-commodity location-inventory model incorporating demand probability and consumption coefficients", *Logistics*, Vol. 8 No. 1, p. 9, doi: 10.3390/logistics8010009.
- Di Leo, G. and Sardanelli, F. (2020), "Statistical significance: p value, 0.05 threshold, and applications to radiomics—reasons for a conservative approach", *European Radiology Experimental*, Vol. 4 No. 1, pp. 1-8, doi: 10.1186/s41747-020-0145-y.
- Diaz, R., Kolachana, S. and Falcão Gomes, R. (2023), "A simulation-based logistics assessment framework in global pharmaceutical supply chain networks", *Journal of the Operational Research Society*, Vol. 74 No. 5, pp. 1242-1260, doi: 10.1080/01605682.2022.2077661.
- Egri, P., Dávid, B., Kis, T. and Krész, M. (2023), "Robust facility location in reverse logistics", *Annals of Operations Research*, Vol. 324 Nos 1-2, pp. 163-188, doi: 10.1007/s10479-021-04405-5.
- Elias, L. and Mushi, L. (2024), "Effectiveness of prime vendor system on availability of medicines and medical supplies in the selected public health facilities in Arusha district council", *BMC Health Services Research*, Vol. 24 No. 1, p. 161, doi: 10.1186/s12913-024-10581-4.
- Esmailzadeh, P. (2023), "The role of ChatGPT in disrupting concepts, changing values, and challenging ethical norms: a qualitative study", *AI and Ethics*, pp. 1-14.
- Fernandes, A.A.T., Figueiredo Filho, D.B., Rocha, E.C.D. and Nascimento, W.D.S. (2021), "Read this paper if you want to learn logistic regression", *Revisit de sociologia e política*, Vol. 28 No. 74, doi: 10.1590/1678-987320287406en.
- Field, A. (2024), *Discovering Statistics Using IBM SPSS Statistics*, SAGE, New York.
- Gabriel, J. (2020), "Effectiveness of inventory control system in the public health sector in Tanzania", Unpublished Dissertation, College of Business Education (CBE) Dar es Salaam, Tanzania.
- Garren, S.T. and Osborne, K.M. (2021), "Robustness of t-test based on skewness and kurtosis", *Journal of Advance Math Comp Sci*, Vol. 36, pp. 102-110, doi: 10.9734/jamcs/2021/v36i230342.
- Ghadge, A., Bourlakis, M., Kamble, S. and Seuring, S. (2023), "Blockchain implementation in pharmaceutical supply chains: a review and conceptual framework", *International Journal of Production Research*, Vol. 61 No. 19, pp. 6633-6651, doi: 10.1080/00207543.2022.2125595.

- Githendu, P., Morrison, L., Silaa, R., Pothapregada, S., Asimwe, S., Idris, R., Peterson, T., Davidson, E., Lesego, A., Mwale, N., Mwakalobo, S.M., Bwanakunu, L.R. and Achoki, T. (2020), "Transformation of the Tanzania medical stores department through global fund support: an impact assessment study", *BMJ Open*, Vol. 10 No. 11, e040276, doi: 10.1136/bmjopen-2020-040276.
- Goh, W.W.B., Foo, R.J.K. and Wong, L. (2024), "What can scatterplots teach us about doing data science better?", *International Journal of Data Science and Analytics*, Vol. 17 No. 1, pp. 111-125, doi: 10.1007/s41060-022-00362-9.
- Gonçalves, J.N., Carvalho, M.S. and Cortez, P. (2020), "Operations research models and methods for safety stock determination: a review", *Operations Research Perspectives*, Vol. 7, 100164, doi: 10.1016/j.orp.2020.100164.
- Grujić, J., Morača, S. and Fajsi, A. (2020), "Analysis of risk factors in the channels of drug distribution: Professional perspectives", *Sustainability*, Vol. 12 No. 11, p. 4787.
- Guo, Y., Zhang, W., Qin, Q., Chen, K. and Wei, Y. (2023), "Intelligent manufacturing management system based on data mining in artificial intelligence energy-saving resources", *Soft Computing*, Vol. 27 No. 7, pp. 4061-4076, doi: 10.1007/s00500-021-06593-5.
- Guru, S., Verma, S., Baheti, P. and Dagar, V. (2023), "Assessing the feasibility of hyperlocal delivery model as an effective distribution channel", *Management Decision*, Vol. 61 No. 6, pp. 1634-1655, doi: 10.1108/md-03-2022-0407.
- Harju, A., Hallikas, J., Immonen, M. and Lintukangas, K. (2023), "The impact of procurement digitalization on supply chain resilience: empirical evidence from Finland", *Supply Chain Management*, Vol. 28 No. 7, pp. 62-76, doi: 10.1108/SCM-08-2022-0312.
- Hitt, M.A., Sirmon, D.G., Li, Y., Ghobadian, A., Arregle, J.L. and Xu, K. (2021), "Institutions, industries and entrepreneurial versus advantage-based strategies: how complex, nested environments affect strategic choice", *Journal of Management and Governance*, Vol. 25 No. 1, pp. 147-188, doi: 10.1007/s10997-020-09504-2.
- Hou, H., Chaudhry, S., Chen, Y. and Hu, M. (2017), "Physical distribution, logistics, supply chain management, and the material flow theory: a historical perspective", *Information Technology Management*, Vol. 18 No. 2, pp. 107-117, doi: 10.1007/s10799-015-0229-1.
- HSSP (2015), "Health sector strategic plan July 2015 – June 2020 (HSSP IV) reaching all households with quality health care".
- Hugos, M.H. (2024), *Essentials of Supply Chain Management*, John Wiley and Sons, New York.
- Itaoka, K. (2012), "Regression and interpretation low R-squared", *Proceedings of the presentation at Social Research Network 3rd Meeting, Noosa. Mizuho Information and Research Institute*.
- Jung, H., Jeon, J. and Choi, H. (2021), "Important factors in the development of biopharmaceutical logistics centers", *The Asian Journal of Shipping and Logistics*, Vol. 37 No. 4, pp. 301-306, doi: 10.1016/j.ajsl.2021.07.003.
- Kamau, I. (2013), *Buyer-Supplier Relationships and Organizational Performance Among Large Manufacturing Firms in Nairobi*, University of Nairobi, Nairobi Kenya.
- Kazibwe, J., Shah, H.A., Kuwawenaruwa, A., Schell, C.O., Khalid, K., Tran, P.B., Ghosh, S., Baker, T. and Guinness, L. (2022), "Resource use, availability and cost in the provision of critical care in Tanzania: a systematic review", *BMJ Open*, Vol. 12 No. 11, e060422, doi: 10.1136/bmjopen-2021-060422.
- Kimario, H.F. and Kira, A.R. (2023), "Cause – effect relationship of trust of buyer – suppliers' integration on procurement performance in large manufacturing firms in Tanzania", *Journal of Global Operations and Strategic Sourcing*, Vol. ahead-of-print No. ahead-of-print, doi: 10.1108/JGOSS-12-2021-0101.
- Kimario, H.F. and Mwangi, L.R. (2021), "The Influence of communication in the buyer-supplier integration on procurement performance of large manufacturing firms in Tanzania", *International Journal of Supply Management*, Vol. 10 No. 5, p. 32.

- Kimario, H.F. and Mwagike, L.R. (2024), "Buyer-supplier collaboration's commitment. An antecedent for procurement performance of large manufacturing entities in Tanzania", *Benchmarking: An International Journal*, Vol. 31 No. 2, pp. 535-557, doi: 10.1108/BIJ-03-2022-0174.
- Kliestik, T., Nagy, M. and Valaskova, K. (2023), "Global value chains and industry 4.0 in the context of lean workplaces for enhancing company performance and its comprehension via the digital readiness and expertise of workforce in the V4 nations", *Mathematics*, Vol. 11 No. 3, p. 601, doi: 10.3390/math11030601.
- Koenig, D. and Diarra, T. (2023), "The fragility of legitimacy: access to health care in Manantali, Mali", in Pardo, I. and Prato, G. (Eds), *The Legitimacy of Healthcare and Public Health. Palgrave Studies in Urban Anthropology*, Palgrave Macmillan, Cham, doi: 10.1007/978-3-031-25592-2_4.
- Kramer, R., Cordeau, J.F. and Iori, M. (2019), "Rich vehicle routing with auxiliary depots and anticipated deliveries: an application to pharmaceutical distribution", *Transportation Research Part E: Logistics and Transportation Review*, Vol. 129, pp. 162-174, doi: 10.1016/j.tre.2019.07.012.
- Kumar, P., Sharma, S.K. and Dutot, V. (2023), "Artificial intelligence (AI)-enabled CRM capability in healthcare: the impact on service innovation", *International Journal of Information Management*, Vol. 69, 102598, doi: 10.1016/j.ijinfomgt.2022.102598.
- Layti, M.B.M., El Imrani, O., Medouri, A. and Rajaa, M. (2020), "Logistics information systems and traceability of pharmaceutical products in public hospitals in Morocco: what solutions to improve the supply chain?", in Ezziyyani, M. (Ed.), *Advanced Intelligent Systems for Sustainable Development (AI2SD'2019)*, Springer, Cham, Vol. 1104, pp. 429-438, doi: 10.1007/978-3-030-36671-1_38.
- Lichtenstein, S., Higgs, M., Lichtenstein, S. and Higgs, M. (2022), "Personal values and strategic choice", *Strategy Through Personal Values: A Behavioural Approach*, pp. 19-42, doi: 10.1007/978-3-030-88269-3_2.
- Loussaief, A., Cheng, E.Y.L., Lin, M.Y.C. and Cheng, J.M.S. (2023), "Location-based proximity marketing: an interactive marketing perspective", in Wang, C.L. (Ed.), *The Palgrave Handbook of Interactive Marketing*, Palgrave Macmillan, Cham, doi: 10.1007/978-3-031-14961-0_33.
- Luu, T.D. (2023), "Fostering strategic entrepreneurship of SMEs: the role of organizational change forces", *Management Decision*, Vol. 61 No. 3, pp. 695-719, doi: 10.1108/md-08-2021-1024.
- Mackintosh, M., Mugwagwa, J., Banda, G., Tibandebage, P., Tunguhole, J., Wangwe, S. and Karimi Njeru, M. (2018), "Health-industry linkages for local health: reframing policies for African health system strengthening", *Health Policy and Planning*, Vol. 33 No. 4, pp. 602-610, doi: 10.1093/heapol/czy022.
- Magoma, A. (2021), "The influence of students' perceptions on business mathematics performance: a case of the college of business education in Mwanza, Tanzania", *Rural Planning Journal*, Vol. 23 No. 2, available at: <http://dSPACE.tia.ac.tz:8080/xmlui/handle/123456789/86>
- Magoma, A., Kimario, H. and Kasheshi, E. (2024), "Unveiling corporate environmental disclosure: the effects of gender diversity in boardrooms and audit committees", *JASSS*, Vol. 5, pp. 131-149, doi: 10.4314/ajasss.v5ispecialissue.9.
- Mahajan, P.S., Raut, R.D., Kumar, P.R. and Singh, V. (2024), "Inventory management and TQM practices for better firm performance: a systematic and bibliometric review", *The TQM Journal*, Vol. 36 No. 2, pp. 405-430, doi: 10.1108/TQM-04-2022-0113.
- Mahuwi, L. and Israel, B. (2024), "Promoting transparency and accountability towards anti-corruption in pharmaceutical procurement system: does e-procurement play a significant role?", *Management Matters*, Vol. ahead-of-print No. ahead-of-print, doi: 10.1108/MANM-07-2023-0027.
- Malik, A. and Bebenroth, R. (2022), "Strategic choice and SHRM and ER", in *Strategic Human Resource Management and Employment Relations: an International Perspective*, Springer International, Cham, pp. 57-67.
- Masui, L.S. (2024), *Medical Stores Department, Tanzania: Struggling to Reconcile Demand and Supply of Medical Supplies in Tanzania*, SAGE: SAGE Business Cases Originals, Cham, doi: 10.4135/9781071931110.

- Matimbwa, H. and Masue, O.S. (2019), "Usage and challenges of human resources information system in the Tanzanian public organizations", *Journal of Human Resource Management*, Vol. 7 No. 4, pp. 131-137, doi: 10.11648/j.jhrm.20190704.17.
- Mwakyusa, W.P. and Ngwebeya, L.M. (2022), "The response of Tanzania higher learning institutions to e-learning during COVID-19 pandemic", Vol. 2 No. 1, pp. 19-28, doi: 10.46606/eajess2022v03i01.0142, or available at: <https://www.ajol.info/index.php/eajess/article/view/222428>
- Mbwasi, R., Reuben, W., Mfuko, W. and Madabida, Z.S. (2023), "Health commodities supply chain", in *Primary Health Care in Tanzania through a Health Systems Lens: A History of the Struggle for Universal Health Coverage*, GB: CABI, pp. 104-123.
- Meneses, M., Santos, D. and Barbosa-Póvoa, A. (2023), "Modelling the blood supply chain", *European Journal of Operational Research*, Vol. 307 No. 2, pp. 499-518.
- Meredith, J.R. and Shafer, S.M. (2023), *Operations and Supply Chain Management for MBAs*, John Wiley & Sons, New York.
- Mollel, D., Kagashe, G.A., Asingizwe, D., Banzimana, S., Maru, S.M. and Niragire, F. (2024), "Barriers to access of maternal health commodities among pregnant women in public health facilities in Ubungo Municipal Council, Tanzania", *Journal of Pharmaceutical Policy and Practice*, Vol. 17 No. 1, 2300457, doi: 10.1080/20523211.2023.2300457.
- Motla, R., Kumar, A., Saxena, N. and Sana, S.S. (2023), "Inventory optimization in a green environment with two warehouses", *Innovation and Green Development*, Vol. 2 No. 4, 100087, doi: 10.1016/j.igd.2023.100087.
- Mugenda, O.M. and Mugenda, A.G. (2003), *Research methods: Quantitative and Qualitative Approaches*, Acts press, Vol. 2 No. 2.
- Mwaiseje, S.S. and Mwangike, L.R. (2019), "Effects of agile supply chain practices on performance of health care sector in Tanzania: a case of selected public hospitals in Dodoma city", *African Journal of Applied Research (AJAR)*, Vol. 5 No. 2, pp. 90-102.
- Naceur, R., Cimon, Y. and Pellerin, R. (2024), "Information Systems adoption and performance: evidence from Canadian firms linking individual and organizational performance", *Information Systems Management*, Vol. 41 No. 1, pp. 44-57, doi: 10.1080/10580530.2023.2217475.
- Nazemi, N., Parragh, S.N. and Gutjahr, W.J. (2022), "Bi-objective facility location under uncertainty with an application in last-mile disaster relief", *Ann Oper Res*, Vol. 319 No. 2, pp. 1689-1716, doi: 10.1007/s10479-021-04422-4.
- Ning, Y. and Du, L. (2023), "Robust and resilient equilibrium routing mechanism for traffic congestion mitigation built upon correlated equilibrium and distributed optimization", *Transportation Research Part B: Methodological*, Vol. 168, pp. 170-205, doi: 10.1016/j.trb.2022.12.006.
- Nkuba, E.E. (2019), "Pharmaceutical inventory management practices on service delivery", available at: <http://hdl.handle.net/123456789/77608>
- Onstein, A.T.C. (2021), "Factors influencing physical distribution structure design", (Doctoral dissertation, Hogeschool van Amsterdam), available at: <https://research.hva.nl/en/publications/factors-influencing-physical-distribution-structure-design>
- Oraini, B. (2024), "The effect of artificial intelligence capability on patient satisfaction", *International Journal of Data and Network Science*, Vol. 8 No. 3, pp. 1429-1436.
- Ouyang, C., Xiong, J., Liu, L. and Yao, J. (2024), "Geographic proximity and trade credit: evidence from a quasi-natural experiment", *Journal of Corporate Finance*, Vol. 84, 102535, doi: 10.1016/j.jcorpfin.2023.102535.
- Purvis, L., Lahy, A., Mason, R. and Wilson, M. (2021), "Distributed manufacturing as an opportunity for service growth in logistics firms", *Supply Chain Management*, Vol. 26 No. 3, pp. 307-322, doi: 10.1108/SCM-03-2019-0096.

- Purwanto, A., Asbari, M., Santoso, T.I., Paramarta, V. and Sunarsi, D. (2020), "Social and management research quantitative analysis for medium sample: comparing of Lisrel, Tetrad, GSCA, Amos, SmartPLS, WarpPLS, and SPSS", *Jurnal Ilmiah Ilmu Administrasi Publik*, Vol. 10 No. 2, pp. 518-532.
- Pyuza, D., Mitiku, S., Swalehe, O., Kagisha, V. and Njunwa, K.J. (2023), "Performance of Jazia Prime Vendor System in ensuring availability of health commodities in Singida Region, Tanzania: a pre-and post-evaluation study", *Journal of Pharmaceutical Policy and Practice*, Vol. 16 No. 1, p. 150, doi: 10.1186/s40545-023-00660-y.
- Rahman, M.N. and Rahman, N. (2022), "Exploring digital trade provisions in Regional Trade Agreements (RTAs) in times of crisis: India and Asia-Pacific countries", *Asia and the Global Economy*, Vol. 2 No. 2, 100036, doi: 10.1016/j.aglobe.2022.100036.
- Rajak, S., Parthiban, P. and Dhanalakshmi, R. (2018), "Selection of transportation channels in closed-loop supply chain using meta-heuristic algorithm", *International Journal of Information Systems and Supply Chain Management (IJISSCM)*, Vol. 11 No. 3, pp. 64-86, doi: 10.4018/ijisscm.2018070104.
- Rajak, S., Parthiban, P. and Dhanalakshmi, R. (2021), "A DEA model for evaluation of efficiency and effectiveness of sustainable transportation systems: a supply chain perspective", *International Journal of Logistics Systems and Management*, Vol. 40 No. 2, pp. 220-241, doi: 10.1504/ijlsm.2021.118737.
- Rane, N.L., Achari, A. and Choudhary, S.P. (2023), "Enhancing customer loyalty through quality of service: effective strategies to improve customer satisfaction, experience, relationship, and engagement", *International Research Journal of Modernization in Engineering Technology and Science*, Vol. 5 No. 5, pp. 427-452, doi: 10.56726/IRJMETS38104.
- Rashid, A. and Rasheed, R. (2023), "Mediation of inventory management in the relationship between knowledge and firm performance", *Sage Open*, Vol. 13 No. 2, doi: 10.1177/21582440231164593.
- Roldán Bravo, M.I., Maqueira-Marin, J.M. and Moyano-Fuentes, J. (2023), "Supply chain 4.0 ambidexterity and lean supply chain management: interrelationships and effect on the focal firm's operational performance", *Supply Chain Management*, Vol. 28 No. 7, pp. 112-128, doi: 10.1108/SCM-05-2023-0274.
- Ruhago, G.M., Ngalesoni, F.N., Msasi, D., Kengia, J.T., Mganga, M., Kapologwe, N.A., Mtoroki, M. and Tukai, M.A. (2022), "The public health sector supply chain costs in Tanzania", *PLOS Global Public Health*, Vol. 2 No. 11, e0000960, doi: 10.1371/journal.pgph.0000960.
- Rushton, A., Croucher, P. and Baker, P. (2022), *The Handbook of Logistics and Distribution Management: Understanding the Supply Chain*, Kogan Page, New York.
- Sánchez-Sierra, S.T., Caballero-Morales, S.O., Sánchez-Partida, D. and Martínez-Flores, J.L. (2018), "Facility location model with inventory transportation and management costs", *Acta Logistica*, Vol. 5 No. 3, pp. 79-86, doi: 10.22306/al.v5i3.98.
- Savadkoobi, E., Mousazadeh, M. and Torabi, S.A. (2018), "A possibilistic location-inventory model for multi-period perishable pharmaceutical supply chain network design", *Chemical Engineering Research and Design*, Vol. 138, pp. 490-505, doi: 10.1016/j.cherd.2018.09.008.
- Sehrish (2020), *Impact of Integrating Information System on Firm Performance by Referring the Platinum Pharmaceutical Pvt, Ltd.*
- Senaviratna, N.A.M.R. and Cooray, T.M.J.A. (2019), "Diagnosing multicollinearity of logistic regression model", *Asian Journal of Probability and Statistics*, Vol. 5 No. 2, pp. 1-9, doi: 10.9734/AJPAS/2019/v5i230132.
- Sequeira D'Mello, B., Bwile, P., Carmone, A.E., Kalaris, K., Magembe, G., Masweko, M., Mtumbuka, E., Mushi, T., Sellah, Z. and Gichanga, B. (2020), "Averting maternal death and disability in an urban network of care in Dar ES Salaam, Tanzania: a descriptive case study", *Health Systems and Reform*, Vol. 6 No. 2, e1834303, doi: 10.1080/23288604.2020.1834303.
- Shahanga, G. and Kasambala, M. (2023), "Work-integrated learning for employability skills development: current practices and prospects", in *Tanzania Business Training Institutions*, TIA.

- Smidt, H.J. and Jokonya, O. (2022), "Factors affecting digital technology adoption by small-scale farmers in agriculture value chains (AVCs) in South Africa", *Information Technology for Development*, Vol. 28 No. 3, pp. 558-584, doi: 10.1080/02681102.2021.1975256.
- Stanger, S.H., Yates, N., Wilding, R. and Cotton, S. (2012), "Blood inventory management: hospital best practice", *Transfusion Medicine Reviews*, Vol. 26 No. 2, pp. 153-163, doi: 10.1016/j.tmr.2011.09.001.
- Supply, M.D. (2012), "Managing access to medicines and health technologies", *Management Sciences for Health*, available at: www.mds-online.org
- Taouktsis, X. and Zikopoulos, C. (2024), "A decision-making tool for the determination of the distribution center location in a humanitarian logistics network", *Expert Systems with Applications*, Vol. 238, 122010, doi: 10.1016/j.eswa.2023.122010.
- Tashakkori, A. and Teddlie, C. (2021), *Sage Handbook of Mixed Methods in Social and Behavioral Research*, SAGE, London.
- Tillmanns, S. and Krafft, M. (2022), "Logistic regression and discriminant analysis", in Homburg, C., Klarmann, M. and Vomberg, A. (Eds), *Handbook of Market Research*, Springer, Cham, doi: 10.1007/978-3-319-57413-4_20.
- Tiwari, S., Sharma, P., Choi, T.M. and Lim, A. (2023), "Blockchain and third-party logistics for global supply chain operations: stakeholders' perspectives and decision roadmap", *Transportation Research Part E: Logistics and Transportation Review*, Vol. 170, 103012, doi: 10.1016/j.tre.2022.103012.
- Tukamuhabwa, B.R., Eyaa, S. and Friday, D. (2011), "Mediating variables in the relationship between market orientation and supply chain performance: a theoretical approach", *International Journal of Business and Social Science*, Vol. 2 No. 22.
- URT (2023), "MSD, Storage and Distribution", available at: <https://www.msdd.go.tz/index.php/customer-care/storage><https://www.msdd.go.tz/index.php/customer-care/zonaloffice> (accessed 14 October 2023).
- Volland, J., Fügener, A., Schoenfelder, J. and Brunner, J.O. (2017), "Material logistics in hospitals: a literature review", *Omega*, Vol. 69, pp. 82-101, doi: 10.1016/j.omega.2016.08.004.
- Walker, K. (2023), *Analyzing Us Census Data: Methods, Maps, and Models in R*, CRC Press, London, doi: 10.1201/9780203711415.
- Wang, S., Ghadge, A. and Aktas, E. (2024), "Digital transformation in food supply chains: an implementation framework", *Supply Chain Management*, Vol. 29 No. 2, pp. 328-350, doi: 10.1108/SCM-09-2023-0463.
- Wu, J. and Dong, M. (2023), "Research on customer satisfaction of pharmaceutical e-commerce logistics service under service encounter theory", *Electronic Commerce Research and Applications*, Vol. 58, 101246, doi: 10.1016/j.eleap.2023.101246.
- Yang, Y., Dong, L., Rong, H. and Wu, J. (2021), "Optimization on medical material distribution management system based on artificial intelligence robot", *Journal of Healthcare Engineering*, Vol. 2021, pp. 1-12, doi: 10.1155/2021/5511299.
- Yarosan, E.V., Breen, L., Hou, J. and Sowter, J. (2021), "Advancing the understanding of pharmaceutical supply chain resilience using complex adaptive system (CAS) theory", *Supply Chain Management*, Vol. 26 No. 3, pp. 323-340, doi: 10.1108/SCM-05-2019-0184.
- Yenet, A., Nibret, G. and Tegegne, B.A. (2023), "Challenges to the availability and affordability of essential medicines in African countries: a scoping review", *ClinicoEconomics and Outcomes Research*, Vol. 15, pp. 443-458, doi: 10.2147/CEOR.S413546.
- Yornu and Ackah (2020), *The Effectiveness of Inventory and Stores Management on Turnover Performance of Central Medical Stores*, Vol. 2, A Case of Central Medical Store. AJPLSCM, pp. 01-20, March 2020, ISSN: 2676-2730, available at: <https://damaacademia.com/ajplscm/wp-content/uploads/2020/03/AJPLSCM-03-020-001.pdf> visited October 14.
- Yousefi, N. and Alibabaei, A. (2015), "Information flow in the pharmaceutical supply chain", *Iranian Journal of Pharmaceutical Research: IJPR*, Vol. 14 No. 4, pp. 1299-1303, available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4673962/>

- Yunosoglu, P., Ozsoydan, F.B. and Bilgen, B. (2024), "A machine learning-based two-stage approach for the location of undesirable facilities in the biomass-to-bioenergy supply chain", *Applied Energy*, Vol. 362, 122961, doi: 10.1016/j.apenergy.2024.122961.
- Zimon, D., Tyan, J. and Srour, R. (2020), "Drivers of sustainable supply chain management: practices to alignment with un sustainable development goals", *International Journal for Quality Research*, Vol. 14 No. 1, pp. 219-236, doi: 10.24874/IJQR14.01-14.

Further reading

- Becerra, P., Mula, J. and Sanchis, R. (2024), "Optimising location, inventory and transportation in a sustainable closed-loop supply chain", *International Journal of Production Research*, Vol. 62 No. 5, pp. 1609-1632, doi: 10.1080/00207543.2023.2197515.
- Bell, E., Bryman, A. and Harley, B. (2022), *Business Research Methods*, Oxford University Press, Oxford.
- Birhanu, Y., Gizaw, T., Teshome, D., Boche, B. and Gudeta, T. (2022), "The mediating effect of information sharing on pharmaceutical supply chain integration and operational performance in Ethiopia: an analytical cross-sectional study", *Journal of Pharmaceutical Policy and Practice*, Vol. 15 No. 1, p. 44, doi: 10.1186/s40545-022-00440-0.
- Clark, T., Foster, L., Sloan, L. and Bryman, A. (2021), *Bryman's Social Research Methods*, E. Vacchelli, 6th ed., Oxford University Press, Oxford.
- Ismail, I.J. and Changalima, I.A. (2022), "Thank you for sharing! Unravelling the perceived usefulness of word of mouth in public procurement for small and medium enterprises", *Management Matters*, Vol. 19 No. 2, pp. 187-208, doi: 10.1108/manm-01-2022-0005.
- Karim, N.A., Nawawi, A. and Salin, A.S.A.P. (2018), "Inventory control weaknesses – a case study of lubricant manufacturing company", *Journal of Financial Crime*, Vol. 25 No. 2, pp. 436-449, doi: 10.1108/JFC-11-2016-0077.
- Karmaker, C.L. and Ahmed, T. (2020), "Modeling performance indicators of resilient pharmaceutical supply chain", *Modern Supply Chain Research and Applications*, Vol. 2 No. 3, pp. 179-205, doi: 10.1108/MSRA-04-2020-0006.
- Ketchen, D.J. and Hult, G.T.M. (2007), "Bridging organization theory and supply chain management: the case of best value supply chains", *Journal of Operations Management*, Vol. 25 No. 2, pp. 573-580, doi: 10.1016/j.jom.2006.05.010.
- Li, S., Cui, X., Huo, B. and Zhao, X. (2019), "Information sharing, coordination and supply chain performance: the moderating effect of demand uncertainty", *Industrial Management and Data Systems*, Vol. 119 No. 5, pp. 1046-1071, doi: 10.1108/IMDS-10-2018-0453.
- Malik, A. (Ed), (2022), *Strategic Human Resource Management and Employment Relations: An International Perspective*, Springer Nature, New York.
- Merkuryeva, G., Valberga, A. and Smirnov, A. (2019), "Demand forecasting in pharmaceutical supply chains: a case study", *Procedia Computer Science*, Vol. 149, pp. 3-10, doi: 10.1016/j.procs.2019.01.100.
- Msemwa, S., Ruoja, C. and Kazungu, I. (2017), "Influence of communication in buyer-supplier relationship and the performance of maize markets in Hai district Tanzania", *International Journal of Economics, Business and Management Research*, Vol. 1 No. 1, available at: <http://repository.mocu.ac.tz/xmlui/handle/123456789/451>
- Pajić, V., Andrejić, M., Jolović, M. and Kilibarda, M. (2024), "Strategic warehouse location selection in business logistics: a novel approach using IMF SWARA–MARCOS—a case study of a Serbian logistics service provider", *Mathematics*, Vol. 12 No. 5, p. 776, doi: 10.3390/math12050776.

MANM
21,2

Yang, Z., Chen, X., Pan, R. and Yuan, Q. (2022), "Exploring location factors of logistics facilities from a spatiotemporal perspective: a case study from Shanghai", *Journal of Transport Geography*, Vol. 100, 103318, doi: 10.1016/j.jtrangeo.2022.103318.

Zhao, H., Xiong, C., Gavirneni, S. and Fein, A. (2012), "Fee-for-service contracts in pharmaceutical distribution supply chains: design, analysis, and management", *Manufacturing and Service Operations Management*, Vol. 14 No. 4, pp. 685-699, doi: 10.1287/msom.1120.0403.

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Understanding digital social responsibility's impact on purchase intention: insights from consumer engagement, brand loyalty and Generation Y consumers

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Abstract

Purpose – The study specifically seeks to comprehend the impact of online corporate social responsibility (CSR) initiatives on consumer behaviour, with a focus on Generation Y consumers. It also aims to examine how, particularly within Ghanaian manufacturing firms, the views of Generation Y consumers regarding digital social responsibility (DSR), and how it moderates the relationship between brand loyalty and purchase intention.

Design/methodology/approach – This study takes a quantitative approach, using information gathered via a survey questionnaire from 611 Generation Y consumers in Ghana. Examining the connections between DSR, customer engagement, brand loyalty and purchase intention is the main goal of the investigation. Structural equation modelling (SEM) methods are used in the study to examine the data gathered and verify the proposed linkages.

Findings – The study reveals a strong positive relationship between corporate social responsibility (DSR) and purchase intention, mediated by consumer engagement and brand loyalty. However, it does not suggest Generation Y's attitudes towards DSR moderating this relationship. The study underscores the importance of DSR for Ghanaian manufacturing businesses.

Originality/value – By studying the relatively unexplored idea of DSR and its effects on consumer behaviour in developing nations – especially in the context of Ghanaian manufacturing enterprises – this study adds to the body of current work. This study sheds light on the ways in which DSR affects Generation Y customers' intentions to buy by examining the mediating roles of brand loyalty and consumer engagement.

Keywords DSR, Consumer engagement, Brand loyalty, Purchase intention, Generation Y consumers

Paper type Research paper

Introduction

Over the years, corporate social responsibility (CSR) has been regarded as one of the most important strategic initiatives to improve brand perception, consequently improving customer purchasing intentions (Lee and Lee, 2018). Advances in information technology and



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digital transformation enable corporations to carry out their social duties more affordably and successfully. People can interact by utilizing fully digital technologies in the contemporary digital world, such as social media platforms and other applications (Khattak and Yousaf, 2022). This enables socially responsible actors to swiftly assist individuals in need using digital platforms (Puriwat and Tripopsakul, 2021). They further argued that CSR has evolved into digital social responsibility (DSR), which is the social duty expressed through digital platforms. Due to social exclusion and lockdown measures during the COVID-19 epidemic, several businesses have converted their usual offline CSR into DSR. In this study, DSR is characterized as moral corporate conduct that aims to establish peaceful relationships with its stakeholders using online platforms. Few research studies specifically address how DSR affects consumer perceptions and behaviour. As a result, this study looks at how DSR affects consumer engagement, brand loyalty and purchase intentions, with Generation Y consumer attitude as a moderating variable. According to studies (Luger *et al.*, 2022), Generation Y consumers are more aware of socially and ethically responsible consumption. For this reason, consumers' purchasing decisions are expected to be impacted by an increased predilection for and understanding of sustainable consumption (Yadav *et al.*, 2019). Additionally, according to (Kumar *et al.*, 2018), due to pressure from stakeholders and environmental laws, businesses are emphasizing sustainability initiatives. In this vein, Paul *et al.* (2016) suggested encouraging customers to adopt green products to move towards sustainability. The positive benefits of CSR policies on consumer behaviour outcomes, including product appraisal, are demonstrated by several studies (Abbas *et al.*, 2018; Huo *et al.*, 2022). Customers appreciate companies that exercise social responsibility over some of the least socially responsible ones (Toor *et al.*, 2017).

With the advancement of information and technology, social media has exploded in popularity, fundamentally altering how people engage with one another. Due to its ease of accessibility, people are becoming more involved in this environment, which contributes to social media's enormous popularity (Du and Vieira, 2012; Hancu-Budui *et al.*, 2020). In the contemporary business environment, the digitalization of CSR has gained importance. Direct communication between stakeholders and businesses is made possible by the integration of CSR with digital platforms, promoting the exchange of knowledge and useful feedback (Ahmad *et al.*, 2023). Particularly, the abrupt COVID-19 pandemic breakout has accelerated the digitalization of human connection, with a corresponding rise in social media usage (Lep *et al.*, 2020; Vanko *et al.*, 2021). In addition to strengthening stakeholder ties, it makes businesses more mindful of their online reputations (Martínez-Caro *et al.*, 2020). It enables businesses to react to stakeholder requirements and concerns quicker and more successfully than their rivals. Even with the increased attention that DSR is receiving, there are still few empirical studies that look at how it affects purchase intention directly. Research always concentrates on CSR rather than DSR. As a result, there is a dearth of research on the complex effects of DSR across various generational cohorts, despite the fact that previous studies have shown a positive correlation between DSR and purchase intentions (Puriwat and Tripopsakul, 2021). In particular, the literature is deficient in its comprehension of the ways in which Generation Y consumers – who are recognised for their distinct beliefs and buying habits – interact with DSR programmes (Arachchi and Samarasinghe, 2023). Given Generation Y customers' unique traits and consumption behaviours, an empirical study of how DSR impacts their purchasing intentions is warranted. Determining how DSR resonates differently with different customer categories and investigating potential moderating effects might yield insightful information.

The study focuses on Ghana's manufacturing industry. Manufacturing companies have a substantial negative impact on the environment. According to (Zailani *et al.*, 2012), manufacturing companies create pollution and waste that endanger lives. The environment of competition has accelerated the global evolution of business trends. Along with generating

revenue and creating a competitive advantage, companies must also be responsible for their environmental impact (Kraus *et al.*, 2020). This has made it necessary for us to explore how ethical business practices through digital engagement with stakeholders are impacting consumer behavioural outcomes. Although there is evidence that traditional CSR has a beneficial impact on consumer behaviour outcomes, there has not been much study done in the growing field of digital social responsibility, making it difficult to conclude its influence on consumer behaviour. This study, to the best of our knowledge, will be the first of its kind to explore DSR in Africa. Once more, this study will be the first to look into how attitudes among Generation Y consumers perceive ethical practices and how they influence the link between brand loyalty and purchase intention.

The following are our contributions to the DSR field: Theoretically, by investigating the relationship between DSR, consumer engagement, brand loyalty and purchase intention, the study contributes theoretically by expanding understanding in the field of CSR within the digital realm. It adds to existing literature by elucidating the mechanisms through which DSR influences consumer behaviour. From an empirical perspective, the study provides empirical evidence of the positive correlations between DSR, consumer engagement, brand loyalty and purchase intention. These findings contribute to the body of knowledge by validating theoretical propositions with real-world data, enhancing the credibility and applicability of CSR theories in the digital context. Finally, the research offers actionable insights for businesses, highlighting the importance of integrating DSR into digital strategies to enhance consumer engagement, foster brand loyalty and drive purchase intentions. It underscores the potential competitive advantage for firms that prioritize responsible business practices in the digital age, guiding managerial decision-making and strategic planning.

Literature review

Digital social responsibility (DSR)

DSR lacks a defined definition because it is a growing field. Based on (Irawan *et al.*, 2022) DSR can be defined as the process of bringing CSR implementation online via digital technologies. By this means, organizations can carry out CSR operations and tell stakeholders about their digital CSR initiatives by employing digital tools such as company websites and social media accounts (Parente, 2020). Nowadays, companies see social responsibility as a crucial business endeavour, and this even extends beyond consumers to potential employees. Alhouti and D'Souza (2018) found that job seekers' impressions of a company are improved by social responsibility. The adoption of social responsibility programmes by businesses has been significantly altered by digital transformation. Social networking and digital technology advancements enable firms to create virtual brand communities for customer assistance and knowledge exchange (Elia *et al.*, 2020). Social media platforms like Facebook have proven essential for businesses to involve clients and stakeholders in CSR initiatives like online contributions and the provision of free services. According to a study, it was recommended that traditional CSR activities move digitally (Puriwat and Tripopsakul, 2021). It is important to understand that brick-and-mortar businesses are making way for brick-and-click ones.

Purchase intention

Purchase intention, according to (Beneke *et al.*, 2016), is the possibility that a person would purchase a certain product based on their desires, attitudes and opinions concerning the product. According to Hsu *et al.* (2017), a consumer's conduct is frequently anticipated by their intention; hence, it is crucial to understand their purchase intention. In the digital era, online reviews have an impact on consumers' perceptions of brand equity, which ultimately influences their propensity to buy (Hayes and Carr, 2015). A study by (Boccia and

Sarnacchiaro, 2020) demonstrates a positive association between customers' environmental, social and ethical beliefs and their purchasing behaviour for useful or green goods. Consumers today may be more sophisticated than we have previously observed, and as a result, they may have a different understanding and awareness of CSR. As a result, they may be more receptive to a different style and approach to corporate initiative and communication (Pipatprapa *et al.*, 2017). According to Boccia *et al.* (2018), if this is true, the altered characteristics of consumers may be more obvious and evident when taking into account the variations between older and younger generations or between genders. For this reason, the focus of this study is on how DSR affects Generation Y consumers' purchase intentions.

Consumer engagement in DSR

Through direct or indirect contributions, consumer engagement is a strategy for increasing customer value for a business (Pansari and Kumar, 2017). About this, discussions of consumer participation have started to take centre stage in numerous research. On the other side, consumer engagement is a behaviour that goes beyond the need to purchase something and also involves an emotional or motivational state linked with participation with the firm (Verma, 2021). According to Dwivedi (2015), customer interactions provide a positive consumer perspective with features of vitality, absorption and dedication. De Villiers (2015) further distinguished between passive engagement and active engagement when it comes to consumer product interaction. When a consumer is uninformed or uninterested in a brand, their involvement is considered passive. On the other hand, it may be claimed that customers are actively engaged when they show a high level of behaviour, affect, and cognition towards an offer. A strong emotional connection can also be a sign of high consumer involvement, which encourages customers to build and maintain relationships with the product or service (Zainol *et al.*, 2015). In addition to economic goals, corporations today place a lot of emphasis on consumer engagement, which is seen as a strategic step for the growth of their businesses (Puriwat and Tripopsakul, 2021). Businesses have been including consumers in their socially responsible actions, which go beyond only reaping financial rewards, according to Fatma *et al.* (2020). Researchers have shown that engaging in responsible business practices enables organizations to benefit from a variety of factors, including improved impression management and customer behaviour that is with a greater propensity for favourable word-of-mouth (WOM) (Sharma *et al.*, 2018; Puriwat and Tripopsakul, 2021).

Brand loyalty

According to Aaker (1991), brand loyalty is the essential component that best represents the brand's value. More than 90 years ago, the concept of brand loyalty was first introduced as "brand insistence" (Copeland, 1923). Researchers may focus on elements including customer pleasure, customer trust, brand love, customer commitment, service quality, and brand association that affect brand loyalty (Fatma *et al.*, 2018). Customer involvement (Lim *et al.*, 2015; Aluri *et al.*, 2019), customer interaction (Boateng, 2019), social presence (Fang *et al.*, 2018; Tseng *et al.*, 2019), and social media are new factors that influence brand loyalty. Online technology has transformed the nature of relationships between companies and their clients, transforming one-way communication into two-way communication (Boateng, 2019), this promotes consumers' attachment towards a brand. Along with other consequences, brand loyalty has also been studied in terms of its impact on a company's financial success (Kim *et al.*, 2003), consumers and nonfinancial performance (Choi and Choi, 2014). This idea of brand loyalty has undergone substantial development and has been the subject of much discussion in the literature (Aljarah and Ibrahim, 2020). The influence of ethical business practices and brand loyalty on consumer behaviour is examined in this study.

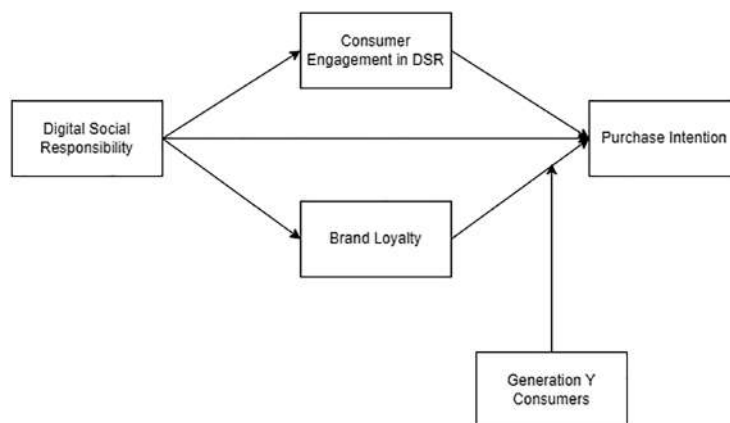
Brand loyalty can be further divided into two categories: cognitive and altitudinal and behavioural. While cognitive and altitudinal brand loyalty increase the propensity to make trustworthy recommendations to others in their surroundings and are essential for attracting new clients, behavioural brand loyalty brings in direct revenue for the company (Bilgin, 2018). According to Jiang and Zhang (2016), brand loyalty is a valuable non-material asset for companies. Due to its beneficial effects on business, brand loyalty has been regarded by many companies as one of the major desired outcomes in marketing (Lacap *et al.*, 2021). Digital technology has changed the way that consumers connect with companies, allowing them to do so through a variety of online platforms (Dwivedi *et al.*, 2021). According to Reinartz *et al.* (2019), companies have new chances to engage with customers, collect feedback and personalise experiences through social media, e-commerce platforms and mobile applications. These efforts eventually improve brand loyalty.

Theoretical and hypothesis development

The social exchange theory has an impact on the research theoretical framework model in Figure 1. This theory encourages social interactions between businesses and their stakeholders, in this example, their customers. According to Blau (1986), when one party (a corporation) voluntarily offers benefits to the other, it inspires the other party (a consumer) to do the same. Again, in the context of CSR, (Glaveli, 2020) suggested that it is feasible to inspire customers to directly reciprocate these volunteer behaviours through responsible business efforts that enhance their welfare, such as recognizing customers’ requirements. Glaveli further stresses that customers are also members of families, communities and nations in addition to being economic entities. As a result, it should be understood that people are aware of acts intended to promote their well-being as well as the well-being of stakeholder groups they are currently or potentially a member of and that they are expected to reciprocate (generalized reciprocity norm). Therefore, DSR initiatives for employees and society/ environment are likely to encourage social interaction between a business and its clients.

DSR and purchase intention

Numerous studies have been conducted to support the direct or indirect effects of responsible business practices on consumer behaviour (Amoroso, 2015; Abdeen *et al.*, 2016). According to



Source(s): By authors (2024)

Figure 1.
The theoretical
framework

these researchers, consumer behaviour can be action-oriented, emotional or cognitive, such as the intention to make a purchase (Ramesh *et al.*, 2019). The consumer is a crucial stakeholder who benefits from these DSR actions and evaluates them when making purchasing decisions (Aksak *et al.*, 2016). Relationships with a range of stakeholders may be forged by businesses implementing socially responsible activities (Lai *et al.*, 2010). Consumers tend to identify more with companies that adopt ethical business practices since doing so boosts self-esteem and improves enjoyment (Chung *et al.*, 2015). According to (Bianchi *et al.*, 2019), they demonstrated that the volume and type of disseminated responsible business information affect how consumers rate items, businesses and their intentions to make purchases. Again, a study by Abdeen *et al.* (2016) explains that consumers are more likely to make a purchase when they participate in and are aware of responsible business efforts. Again, consumer decision-making is aided by socially responsible initiatives by firms (Zhang and Ahmad, 2021). Consumers are now more conscious of businesses' impact on the environment. Such effects are caused by global warming, which is a result of environmental problems that the globe is currently experiencing (Javeed *et al.*, 2022). As a result, buyers' intentions to make sustainable purchases also become part of them (Huo *et al.*, 2022). In this situation, ethical business activities assist consumers in planning to make sustainable purchases (Gong *et al.*, 2023). The practice of traditional CSR is evolving, though, as a result of technological innovation and social media's seamless integration. People have started to utilize online reviews to express their thoughts on things as a result of the growing usage of the internet and online social media (Chakraborty, 2019). Even many people consider Internet reviews to be more trustworthy than other, more traditional sources of information (Fang *et al.*, 2016). The digital form of CSR, known as DSR, is used by businesses today to fulfil customer requests and promote consumer purchase intent. On the grounds of the justification previously outlined, we suggested that:

H1. DSR will positively affect consumers' purchase intention.

DSR and brand loyalty

According to Oberseder *et al.* (2013), CSR is crucial for assessing corporate goods and cultivating favourable opinions of companies among consumers. Much research has specifically looked at how brand loyalty is impacted by ethical business practices, attempting to understand the mechanisms underlying this relationship (Moon *et al.*, 2015). The social exchange theory, according to (Blau, 1986), is one theory that might be used to describe why a firm interacts with its stakeholders. According to (Cropanzano and Mitchell, 2005), the foundation of the social exchange theory is that a customer's connection with a business is a social exchange that generates a sense of duty and might ultimately end in a high-quality relationship. The benefits of such responsibility are maximized while the costs are reduced (Blau, 1986). According to the social exchange theory's reciprocity standards, clients (as community members) who get such advantages may react favourably (by exhibiting loyalty behaviour) towards businesses that adopt sustainable business methods. This assertion appears to be supported by empirical data. According to research, consumers' purchasing decisions are thought to be strongly and directly influenced by the information that is readily available about DSR projects. More precisely, a study by (Lin and Chung, 2019) that focused on the hotel sector found that socially responsible business practices have a favourable impact on the growth of consumer loyalty. The study by (Lee, 2019), which collected data from 311 consumers who bought life insurance, found that CSR initiatives directly increase customer loyalty. Considering the current discussion, we proposed that:

H2. DSR activities will positively associate with consumer brand loyalty.

DSR and consumer engagement

Participating in responsible business practices is regarded as being of tremendous importance during this process, among particular programmes to discover potential consumers (Fatma *et al.*, 2020). Companies generally demonstrate their commitment to societal welfare through DSR participation, which increases the likelihood that consumers will feel satisfied with their own needs. In contrast to the traditional interaction environment, the digitization of social life enables people to participate more actively in the operations of organizations rather than just being passive recipients (Chu and Chen, 2019; Fatma *et al.*, 2020). Therefore, theoretically speaking, companies may use expanding social media (such as Twitter, Weibo and WeChat Official Accounts) to successfully increase customer awareness of their DSR activity. According to the general theory behind CSR, business organizations should be able to influence customer behaviour successfully, which can lead to enhanced economic benefits (Sharma *et al.*, 2018; Puriwat and Tripopsakul, 2021).

In the service industry, customers are viewed as the most significant stakeholder group and are essential to a company's success (Gong *et al.*, 2019). Without the customer, the company would be unable to expand, compete or thrive over the long run. Similarly to this, a lot of service-oriented firms use the catchphrase "the customer is always right" to reassure clients that they will receive top-notch care as well as to inspire employees to do the same (Kiffin-Petersen and Soutar, 2020). In the contemporary corporate context, socially responsible practices have been seen as a critical link to forging long-term engagement between stakeholders (Crane *et al.*, 2019). Consequently, we predicted that:

H3. DSR and consumer engagement are positively related.

Consumer engagement in DSR and purchase intention

According to earlier studies (Müller-Stewens *et al.*, 2016), people can be motivated to engage in a wide range of behaviours by their psychological states. The social elements' impact on consumers' behavioural intentions differs depending on how a particular customer views the elements of ethical business practices (Ahn, 2021). Clients who have a strong feeling of autonomy and connectedness, for instance, are more inclined to use the service again and recommend it to others. According to (Eisingerich *et al.*, 2019), such qualities might affect a consumer's engagement by promoting social interaction. Again, according to Glavee-Geo *et al.* (2020), the term "consumer engagement" broadly refers to the existence of a close relationship between a company and its clients. The secret to decision-making is for customers to develop strong emotional relationships with the brand (Abbas *et al.*, 2018). With this in mind, it is reasonable to see consumer participation as a complex concept that consists of cognitive, emotional and/or behavioural components. According to (Hollebeek *et al.*, 2014), these elements are crucial for creating durable connections that benefit both businesses and their clientele. Furthermore, according to (Park and Jiang, 2020), there is a favourable correlation between brand engagement and customers' inclinations to use a company's products. Purchase intention is positively influenced by increased consumer interaction, both directly and indirectly (Huerta-Álvarez *et al.*, 2020). Recently, businesses have started including their consumers in their social responsibility programmes. Customers, who are among the different stakeholder groups for a company's most important stakeholders (Park, 2019), reward firms by being more likely to use and purchase their products and services (Karaosmanoglu *et al.*, 2016). Numerous studies have examined the connection between customer engagement and purchase intention; however, few studies have examined customer engagement and purchase intention in the context of DSR. The preceding argument leads us to the following hypotheses:

H4. the association between consumer engagement and purchase intention is positive in the presence of DSR initiatives.

Brand loyalty and purchase intention

According to de Villiers (2015), brand loyalty is the degree of affection a consumer has for a particular brand and is regarded as an important behavioural outcome variable in the literature. Akturan (2018) found a significant correlation between consumer purchase intent and the equity of the green brand. Attitude-based loyalty has been investigated (Kressmann *et al.*, 2006) as well as behavioural loyalty, which is determined by the regularity of purchases (Romaniuk and Nenycz-Thiel, 2013). Our study took into account consumers' attitudes towards a brand. The focus of attitude loyalty is on customers' dedication to the brand. The degree and kind of a customer's purchasing intention determine the loyalty factor (Panda *et al.*, 2020). Positive purchase intentions are more likely to result in brand loyalty from the consumer. We, therefore, anticipate that brand loyalty and purchasing intent are positively correlated with eco-friendly goods. Brand loyalty strengthens brand attributes, offers the chance to inspire repurchase intent and makes the brand less vulnerable to rivals. Therefore, we proposed that:

H5. Brand loyalty and purchasing intent have a positive association.

Mediating role of consumer engagement in DSR

Consumer engagement serves as a mediator, defining the link between the relevant factors. The responsible business practices of a firm and consumer attitudes about the firm and its products were found to be positively correlated, as in some research (Sidek *et al.*, 2017). According to one study on consumer engagement with CSR, CSR directly influences customers' intentions to purchase a company's goods (Addo *et al.*, 2020). However, during the past 20 years, the use of the internet has fundamentally altered how advertisers and marketers employ CSR and engage with their target markets. Social media's quick uptake has given users the chance to engage with brands directly and start discussions with them. Similar to this, CSR practices are shifting from traditional CSR to DSR as businesses invite customer participation through digital platforms (de Maya *et al.*, 2016). Customers are routinely encouraged by businesses to join DSR programmes online via social media, email and/or websites, which are commonly used to interact with customers directly regarding ethical business practices (Saxton *et al.*, 2019). Customers can give feedback and respond to company initiatives when they communicate with the company using online platforms. Companies can also track and monitor customers' actions, which prompts them to take further action in response to customer involvement, allowing two-way dialogue (Lee *et al.*, 2021). DSR practices, including open communication and charitable contributions, enhance the company's reputation online. These behaviours create consumer trust, credibility and social responsibility. Customers' perception of a "socially responsible" brand, which is essential for driving their purchase intentions and choices, is aided by the firms' CSR interaction with them (Lecuyer *et al.*, 2017; Chu and Chen, 2019). As a result, we hypothesized that:

H6. the link between DSR and purchase intention will be mediated by customer engagement.

Mediating role of brand loyalty

According to Uhlig *et al.* (2020), one of the CSR dimensions – philanthropy – has an impact on consumers' intentions to do business with socially conscious corporations. Iglesias *et al.*

(2020) demonstrated how co-creation and customer trust both directly and indirectly affect customer loyalty to the brand. Recent research has shown that an organization's socially responsible efforts help it develop a strong brand image (Ramesh *et al.*, 2019), forge relationships with customers (Overall, 2017) and improve brand repute (Tetrault Sirsly and Lvina, 2019). Additionally (Huo *et al.*, 2022) argued that it is reasonable to predict that brand loyalty will buffer the relationship between DSR and buy intention since responsible business practices promote consumer brand loyalty, which in turn has a favourable effect on purchase intention. Therefore, a business's DSR initiatives would favourably affect brand loyalty, which would favourably affect consumers' intentions to buy its goods or services. For instance, if a company actively supports digital inclusion by providing underrepresented populations with access to its goods and services, customers who value such efforts may become more devoted to that company. As a result of this heightened brand loyalty, customers would be more likely to buy products from that specific business. We hypothesize that:

H7. the association between DSR and purchase intention is mediated by brand loyalty.

The moderation role of Generation Y consumer attitude towards DSR

In the literature, the connection between ethical company practices and customer behaviour outcomes is well established (Vera-Martínez *et al.*, 2022). According to O'Cass and Choy (2008), this relationship works as a chain of cognition (beliefs) and affect (feelings), eventually resulting in Generation Y's purchase intention. The target market for a brand should, according to research, consist of engaged customers who are aware of and support socially conscious efforts in their everyday lives (Luger *et al.*, 2022). Generation Y participates more in product appraisal during the decision-making process than previous generations did (Parment, 2012). According to Ahmad (2019), Generation Y is different from past generations in that they are more accepting of and critical of businesses' CSR. Again (Luger *et al.*, 2022) claim that the significant knowledge of and favourable opinions held by Generation Y customers about ethical business practices are likely to result in more positive brand assessments and positive purchase intentions. In this study, our moderation rationale is based on the knowledge that Millennials' loyalty improves and their purchase intention is positively impacted when they consider a business to be socially and ecologically responsible (Kotler *et al.*, 2016). More specifically, because of online CSR, companies may increase customer loyalty by successfully interacting with Millennials on social media. Constant exposure to brand updates and information can have a beneficial effect on consumers' propensity to buy (Dessart *et al.*, 2015). Consequently, we arrived at the following presumption:

H8. The association between brand loyalty and purchase intention is positively moderated by the DSR attitude of Gen Y consumers

Research design

This study adopted the quantitative research method because the collection of numerical data are made possible and it offers an impartial means of measuring variables. This facilitates the statistical analysis of data and the examination of correlations among variables by academics, as per Creswell (2009). In order to provide a momentary view of a population's attitudes, behaviours and preferences, cross-sectional studies are frequently employed in business and social science research (Creswell, 2009). They provide a productive and economical way to collect information from various demographic groups and investigate relationships between relevant factors (Sekaran and Bougie, 2016).

Instruments and questionnaire designing

There are five variables in the suggested model: (1) digital social responsibility (2) consumer engagement, (3) brand loyalty, (4) purchase intent and (5) Generation Y consumer attitude. Based on the aforementioned variables, a questionnaire was developed to investigate the effect of the adapted variables on purchase intention. A five-point Likert scale was used to collect responses to each item in the survey, with 1 indicating “strongly disagree” and 5 indicating “strongly agree” (Hair, 2010).

Sampling and data collection procedures

A brief poll of 25 professionals from businesses and academics who had some experience utilizing digital platforms to promote ethical business and consumer intent was done. The major goals of this survey were to establish the baseline standards for data collection for the model, obtain conceptual inputs and eliminate any typing or language problems. Some minor adjustments were made following pre-testing. The participant who met the below-mentioned requirements was eligible to complete the questionnaire, which was used to gather data. The target population must have been born between 1980 and 1999. Lissitsa and Kol (2016) defined Generation Y (Gen Y) as the demographic cohort born between 1980 and 1999. They must have had a regular and active digital and social media presence and they must frequently comment on business pages about their operations and their effects on societies. The final questionnaire was created and utilized for data collection once the selection criteria were established. Our study team gathered 615 replies utilizing internet networks like Facebook, LinkedIn, WhatsApp, etc. From the datasheet, four answer data points were removed. For analysis, the finished data from 611 individuals was used. The same size is suitable for the analysis, in line with earlier investigations (Yong *et al.*, 2020).

Scale and construct

The measurement items used in the study were taken from existing research and then modified for our context. Measurement for DSR was taken from Puriwat and Tripopsakul (2021), consumer engagement was from Carvalho and Fernandes (2018), purchase intention was from Bianchi *et al.* (2019), brand loyalty was from Martínez and Rodríguez del Bosque (2013) and finally, Generation Y consumer attitudes towards DSR were from (Casidy *et al.*, 2015). The measurement constructs can be found in the Appendix.

Results

The statistics of the respondents' demographics are as follows: the male respondents were 320, representing 52.4% and the females respondents were 291, representing 47.6%. The ages representing the respondents were: 1980–1985 were 140; 22.9%, 1986–1990 were 195; 31.9%, 1991–1995 were 154; 25.2% and 1996–1999 were 122; 20.0%. The education demographics were: Ph.D. 49; 8%, master's degree 239; 39.1%, bachelor degree 213; 34.9%, associate degree 80; 13.1% and high school 30; 4.9%. The above information can be found in Table 1.

Assessing the measurement model

We analyzed our data using SmartPLS version 4. The outer model test consists of individual reliability, internal consistency reliability, convergent validity and discriminant validity. Our factor loadings range from 0.727 to 0.938, which is >0.50 , as proposed by (Hair *et al.*, 2014), as shown in Table 2 and Figure 2, indicating no issues with the study item reliability. We also measure the composite reliability (CR), and from Table 2, the values are higher than 0.60, as suggested by (Hair *et al.*, 2014) which demonstrates the consistency, reliability and homogeneity of all the variables (Bagozzi *et al.*, 1991). We also continue to examine

Variables	Frequency	Per cent
Male	320	52.4
Female	291	47.6
Total	611	100
1980–1985	140	22.9
1986–1990	195	31.9
1991–1995	154	25.2
1996–1999	122	20.0
Total	611	100
Ph.D.	49	8.0
Masters	239	39.1
Bachelor	213	34.9
Associate degree	80	13.1
High school	30	4.9
Total	611	100

Source(s): By authors (2024)

Table 1.
Demographic characteristics

Variables	Constructs	Loadings	Cronbach's α	CR	AVE	VIF
Digital social responsibility	DSR1	0.831	0.808	0.887	0.723	1.576
	DSR2	0.874				2.057
	DSR3	0.846				1.861
Purchase intention	PI1	0.800	0.780	0.872	0.695	1.420
	PI2	0.853				1.858
	PI3	0.846				1.791
Consumer engagement	CE1	0.855	0.785	0.875	0.700	1.815
	CE2	0.827				2.595
	CE3	0.827				1.924
Brand loyalty	BLOY1	0.849	0.831	0.899	0.748	1.736
	BLOY2	0.910				1.656
	BLOY3	0.832				1.559
Generation Y consumers	GENY2	0.685	0.841	0.89	0.734	1.643
	GENY3	0.924				2.134
	GENY4	0.938				2.355

Note(s): BLOY = brand loyalty, CE = consumer behaviour, DSR = digital social responsibility, GENY = Generation Y consumers and PI = purchase intention

Source(s): By authors (2024)

Table 2.
Construct reliability and validity

convergent validity, which, according to Ur Rehman *et al.* (2019), measures the extent to which items of variables are related. In Table 2, the lowest and highest values of AVE are 0.695 and 0.748, respectively, and as a result, the ≥ 0.50 threshold suggested by (Hair *et al.*, 2014) for convergent validity to be present was met. Finally, discriminant validity was measured, and according to Ur Rehman *et al.* (2019), discriminant validity states that two indicators must not be statistically identical. The most commonly used discriminant validity tests in various studies are the Fornell–Larcker criterion and the heterotrait-monotrait (HTMT) ratio of correlations. We further tested for the HTMT ratio of correlations, and from Table 3, the test fulfilled the 0.85 criteria that was accepted in Tackie *et al.* (2022).

Collinearity statistics test

According to Johnston *et al.* (2018), the collinearity test examines the nexus between the endogenous and exogenous variables. The issue of collinearity exists when the value of VIF is

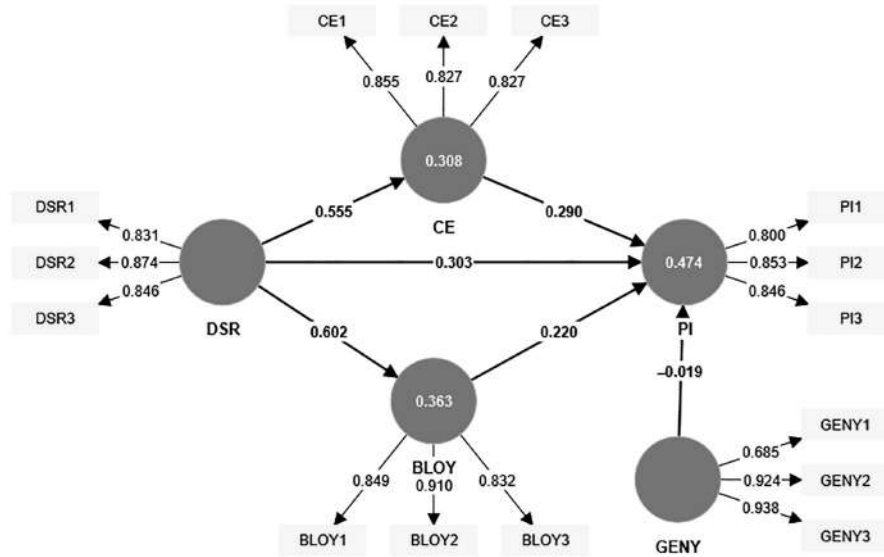


Figure 2.
Measurement model

Source(s): By authors (2024)

	BLOY	CE	DSR	GENY	PI
BLOY					
CE	0.709				
DSR	0.731	0.695			
GENY	0.098	0.113	0.121		
PI	0.703	0.743	0.747	0.07	

Table 3.
Heterotrait-monotrait
ratio of
correlations (HTMT)

Note(s): BLOY = brand loyalty, CE = consumer behaviour, DSR = digital social responsibility, GENY = Generation Y consumers and PI = purchase intention
Source(s): By authors (2024)

>5, as indicated by (Kim, 2019). In this case, if a model has VIF values less than five, it is an indication that the model has no collinearity issues. The results of the VIF for this study show that the values are less than five, indicating no VIF issues, which can be found in Table 2.

Assessing the predictive relevance and power

The coefficient determination (R^2 value) is the method by which structural models are evaluated most frequently. According to (Ameyaw *et al.*, 2022), the R^2 measures the amount of variance in the dependent variables that is explained by all the independent variables. R^2 values range from 0 to 1, with higher numbers indicating better prognostication. R^2 values for endogenous latent variables of 0.75, 0.50 and 0.25 can be regarded as significant, moderate and weak, respectively (Hair *et al.*, 2017). Researchers could consider Stone- Q^2 Geisser's value in addition to the size of the R^2 values as a measure of prediction accuracy (Hair *et al.*, 2017). This metric demonstrates the model's predictive capability or relevance. The values shown (0.363, 0.308 and 0.474) represent the percentage of variance in the outcome variable that the linear model (R^2) accounts for. It has a moderate level of predictive accuracy. The prediction

value (Q^2 value) of the path model was found using the PLSpredict methodology to be (0.358, 0.305 and 0.347). As long as Q^2 values are larger than 0, the dependent construct's path model is considered predictive validity (Hair *et al.*, 2017). Table 4 contains the relevant data.

Assessing the structural model

We created a hypothesis to determine a link between our variables. The findings corroborate Hypothesis 1 and show that DSR has a positive and substantial influence on purchase intention ($\beta = 0.308, t = 6.194, p < 0.005$), suggesting that, a unit increase in DSR will lead to a 30% increase in purchase intention. Hypothesis 2 is validated since it was shown that DSR has a positive and substantial impact on brand loyalty ($\beta = 0.602, t = 19.055, p < 0.005$), indicating that a unit increase in DSR will correspond to a 60% increase in brand loyalty. The third hypothesis is supported by the fact that DSR has a positive and significant effect on consumer engagement ($\beta = 0.555, t = 15.814, p < 0.005$), implying that an increase in DSR will cause a 55% increase in consumer engagement. Additionally, the result supporting hypothesis 4 revealed that consumer engagement had a favourable impact on purchase intention ($\beta = 0.290, t = 6.022, p < 0.005$), suggesting a 29% increase in purchase intention corresponds with a unit change in consumer engagement. Finally, the findings supported hypothesis 5 by showing a positive association between brand loyalty and purchase intention ($\beta = 0.219, t = 4.204, p < 0.005$), also indicating that an increase in brand loyalty will lead to a 21% increase in purchase intention. The above information can be found in Table 5 and Figure 3.

The study examined how consumer engagement and brand loyalty mediate the link between DSR and purchase intention. The finding supports Hypothesis 6 because consumer engagement had a positive and significant mediation impact on the association between DSR and purchase intention ($\beta = 0.161, t = 5.106, p < 0.005$). On the other hand, brand loyalty significantly and favourably mediates the association between DSR and purchase intention

	R^2	Q^2
Brand loyalty	0.363	0.358
Consumer engagement	0.308	0.305
Purchase intention	0.474	0.347

Source(s): By authors (2024)

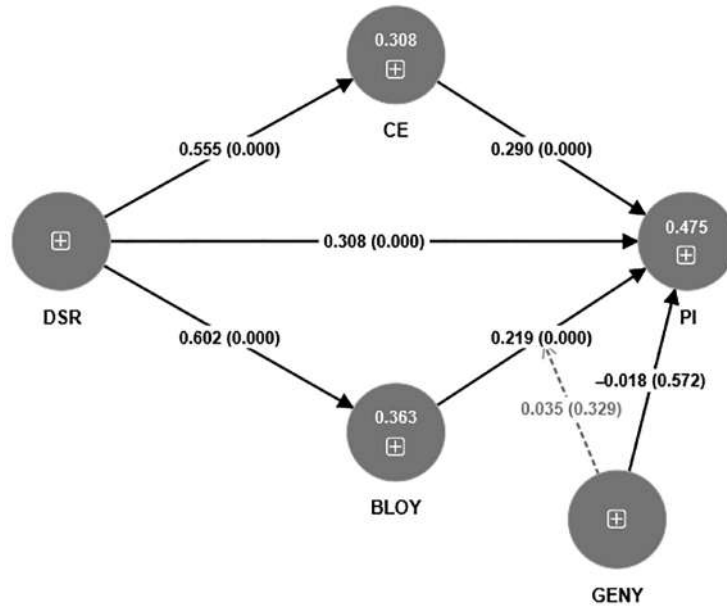
Table 4. Predictive relevance and power

Relationships	Original sample (O)	Sample mean (M)	STDEV	T Statistics ((O/STDEV))	P Values
DSR → PI	0.308	0.305	0.050	6.194	0.000
DSR → BLOY	0.602	0.604	0.032	19.055	0.000
DSR → CE	0.555	0.555	0.035	15.814	0.000
CE → PI	0.290	0.290	0.048	6.022	0.000
BLOY → PI	0.219	0.220	0.052	4.204	0.000
DSR → CE → PI	0.161	0.162	0.032	5.106	0.000
DSR → BLOY → PI	0.132	0.133	0.032	4.074	0.000
GENY × BLOY → PI	0.035	0.032	0.036	0.977	0.329

Note(s): BLOY = brand loyalty, CE = consumer behaviour, DSR = digital social responsibility, PI = purchase intention and GENY = Generation Y consumers

Source(s): By authors (2024)

Table 5. Testing the direct relationship



Note(s): BLOY = brand loyalty, CE = consumer behavior, DSR = digital social responsibility, GENY = Generation Y consumers, PI = purchase intention

Source(s): By authors (2024)

Figure 3.
Structural model

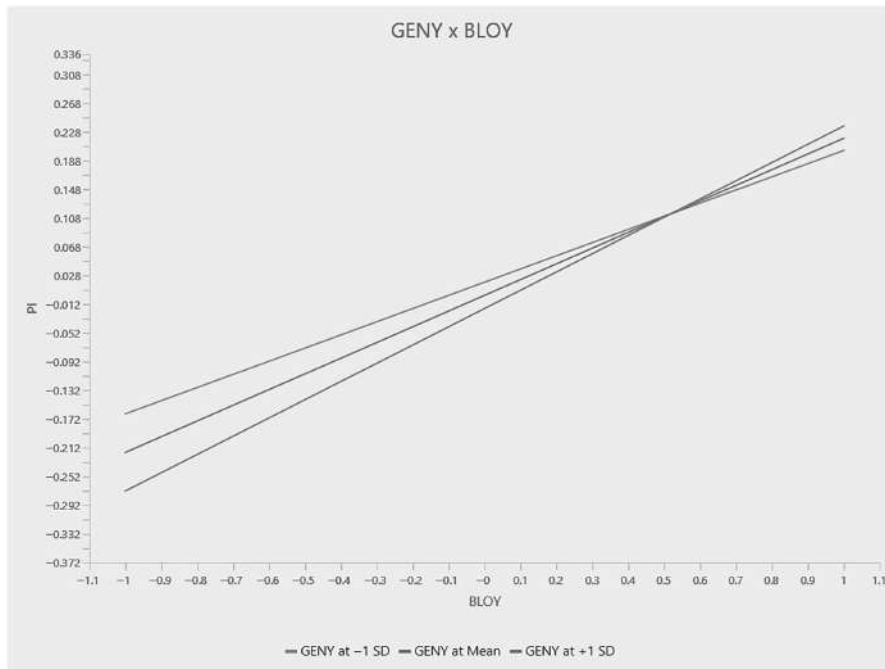
($\beta = 0.132, t = 4.074, p < 0.005$), supporting hypothesis 7. We conclude that the two mediations were partially mediated since there was a positive and significant direct association between DSR and purchase intention ($\beta = 0.308, t = 6.194, p < 0.005$). The above information can be found in Table 5 and the path diagram in Figure 3.

From the analysis, the association between brand loyalty and purchase intention was positively but insignificantly moderated by Generation Y consumer attitude towards DSR ($\beta = 0.035, t = 0.977, p > 0.005$), showing that this relationship is not moderated by Generation Y consumer attitude towards DSR. This information can be found in Table 5 and Figure 3. From the simple slope, which can be found in Figure 4, the interaction effect of Generation Y consumer attitude towards DSR negatively weakens the positive association between brand loyalty and purchase intention.

Discussion

The objective of the study is to find out how corporate responsibility initiated and performed digitally impacted consumer decisions. In this study, consumer engagement and brand loyalty served as mediators between the effects of DSR on purchase intention. The results of this study have ramifications for business and research in this period of fast technological growth on both a theoretical and practical level. Additionally, because there haven't been many studies in the field of DSR, this research lays the foundation for more.

To identify the links between the various research variables, the study explored numerous hypotheses. According to hypothesis 2, there is a substantial correlation between DSR and



Note(s): BLOY = brand loyalty, GENY = Generation Y consumers, PI = purchase intention
Source(s): By authors (2024)

Figure 4.
The moderation effect
of GEN Y consumers
on BLOY and PI

consumer engagement; this conclusion is consistent with that of (Al-Haddad *et al.*, 2022). This is an indication that DSR activities of firms stimulate consumers' engagement interest, and consumers who are actively engaged in the designing of DSR and giving feedback on online/digital responsible business practice programmes will support and legitimate such businesses and will continue to patronize them. Additionally, according to hypothesis 2, DSR and brand loyalty are positively related. This result aligns with the study by (Aljarah and Ibrahim, 2020), which revealed that consumers are more loyal to firms that invest substantially in responsible practices. It also aligns with the study of (Rivera *et al.*, 2019). This revelation means that, nowadays, consumers have become very conscious of business and sustainability concerns, are very concerned about the impact of business on society, are willing to buy from responsible businesses and continue to be loyal to the brand. Moreover, in hypothesis 3, it was found that DSR has a positive impact on purchasing intention, which is consistent with a recent study by (Puriwat and Tripopsakul, 2021; Al-Haddad *et al.*, 2022). In the era of technological advances, responsible business practices and initiatives through digital platforms can reach large and targeted customers. If a business is deemed to be very responsible to its stakeholders, it will stimulate consumer intention to purchase and repurchase. This result also aligns with a recent study conducted by (Gupta *et al.*, 2021; Gupta and Wadera, 2021). Furthermore, hypothesis 4 revealed a significant relationship between consumer engagement and purchase intention. This means that consumers that are engaged in various responsible business practices virtually will favour such businesses and will develop the intention to buy from such businesses. This result is consistent with the work of (Wu and Zhu, 2021), who state that consumers who are engaged in responsible business

initiatives always have the intention to purchase from such firms. Again, hypothesis 5 revealed that there is a positive association between brand loyalty and purchase intention. This result aligns with the work of (Panda *et al.*, 2020; Catic and Poturak, 2022). Consumers who are loyal to brands that have a positive impact on their stakeholders will always have the intention to purchase and repurchase from such businesses.

The result of the mediation analysis establishing the impact of consumer engagement in the relationship between DSR and purchase intention, which was for hypothesis 6, was found to be positive and significant. This result was consistent with (Kristia, 2021) that consumer engagement mediates the relationship between environmental concerns, which are business responsibilities and purchase intention. By actively engaging with consumers and showcasing DSR, companies can enhance the likelihood of positive purchase intentions among their target audience. The result was also aligned with the study of (Al-Haddad *et al.*, 2022). Hypothesis 7 tested the mediation role of brand loyalty on the relationship between DSR and purchase intention, and the results revealed a positive effect. Some previous studies also confirmed our results (Tunjungsari *et al.*, 2020; Huo *et al.*, 2022). This positive effect means that brand loyalty can enhance repeat purchases, positive word-of-mouth and differentiation, thereby positively influencing consumers' intentions to purchase from a socially responsible brand.

Finally, the moderation effect of Generation Y consumer attitudes towards DSR was insignificant, which was contrary to the previous studies by Arachchi and Samarasinghe (2023), which revealed a moderation effect. This insignificant effect could be attributed to the fact that Generation Y consumers' awareness of DSR programmes does not automatically translate into behavioural outcomes such as brand loyalty and purchase intention. The brand must be committed to DSR initiatives its target consumers must take notice of responsible business practices in their everyday lives (Luger *et al.*, 2022).

In conclusion, this study delved into the intricate relationship between DSR, consumer engagement, brand loyalty and purchase intention. Findings suggest a significant correlation between DSR and consumer engagement, reinforcing the notion that proactive DSR initiatives drive consumer engagement and support. Moreover, the positive association between DSR, brand loyalty, and purchase intention underscores the growing consumer preference for socially responsible brands. The mediating role of consumer engagement and brand loyalty further emphasizes their importance in shaping purchase intentions. While the moderation effect of Generation Y consumer attitudes towards DSR was insignificant, it highlighted the need for sustained commitment to DSR initiatives to foster consumer loyalty and purchase intent. These insights offer valuable implications for businesses navigating the digital landscape amidst evolving consumer expectations and societal concerns. Continued research in this area is essential to further elucidate the dynamics of DSR and its impact on consumer behaviour.

Practical implications

We made significant contributions to practices. We encourage firms to effectively allocate resources to DSR initiatives that support Generation Y consumers' beliefs and issues. Depending on the unique tastes and preferences of consumers, these resources should focus on social issues, environmental sustainability or ethical corporate operations. The positive relationship between DSR and purchase intention suggests that businesses should incorporate DSR principles into product development that align with generation Y consumers ethical values and preferences. Again, we create managers' awareness of the importance of DSR communication as a result of the positive link between consumer engagement and purchase intention. Businesses can use these findings to optimise customer relationship management considering the positive impact of DSR on consumer engagement,

brand loyalty and purchase intention. This may involve implementing personalized communication strategies that emphasize the company's commitment to social responsibility. By strengthening relationships with customers through DSR-focused CRM initiatives, businesses can increase brand loyalty and purchase intention among their customer base. We suggest that managers should create open lines of communication to successfully communicate DSR efforts to Generation Y consumers in order to develop lasting bonds with the firm's consumers. The positive link between DSR, consumer engagement, brand loyalty and purchase intention can guide businesses in creating more compelling and effective marketing strategies. In order to improve the customer experience, modern marketers must recognize new approaches to meaningfully engaging customers. Social media use in this situation is the beginning of a new era that involves various stakeholders, including customers, in DSR initiatives for fulfilling corporate responsibility. Customers who see an organization's sustainable practices identify positively with it; as a result, they share and like DSR-related content from that company to promote that company's positive posts on social media. In addition, we advise managers to make sure that Generation Y consumers can see and access the firm's sustainability initiatives, ethical sourcing and community involvement by using digital platforms and social media to spread the word. We further advise management to encourage Generation Y consumers to share opinions, take part in charitable endeavours and co-create content about the firm's brand's ethical business practices. We advise managers to make sure DSR activities align with the firm's brand values and are not seen as merely clever marketing ploys.

Theoretical implications

The finding that DSR, customer engagement, brand loyalty and purchase intention are all positively correlated among Generation Y consumers enhances and improves our theoretical understanding of consumer behaviour in the digital age. The increased significance of customer-centric marketing strategies is demonstrated by the positive association between DSR and consumer engagement. Consumer decision-making is moving away from traditional models that just assess the specifications and cost of a product and towards models that place a strong emphasis on social responsibility and ethical issues. Theoretically, researchers should take into account how the digital ecosystem is intertwined with consumer behaviour. The result lends credence to the notion that brand loyalty is not a one-dimensional concept that depends just on the value and quality of a product. It is actually a complex concept that has ethical and emotional components. Theoretical ramifications imply that companies should view DSR as a long-term strategic investment rather than a passing marketing strategy. The positive correlation between DSR and purchase intention suggests that ethical and sustainable business practices might increase long-term value by encouraging customer loyalty and repeat business. Understanding how DSR influences Generation Y consumers' engagement, loyalty and purchase intent sheds light on how various generations' values and priorities are changing. It demonstrates that younger consumers place a higher value on social responsibility and ethical issues than older consumers, emphasizing the significance of generational segmentation in marketing techniques. Theoretically, digital channels may serve as catalysts for enhancing consumer participation in DSR projects. These platforms facilitate in-the-moment communication, information sharing and collaborative content production, making them useful tools for fostering brand loyalty and buying intent among Generation Y consumers.

Limitations and future scope

As with other earlier studies, this one has limitations. No studies have yet looked at the impact of DSR on consumer behaviour in the Ghanaian economy or the moderating impact of

Generation Y consumer attitudes on this model. This study makes an effort to investigate these factors in emerging countries like Ghana; however, because there are few studies in this field and the study is cross-sectional, it limits the generalizability of the findings. We advise future researchers in developing nations to keep examining the impact of DSR on consumer behaviour beyond the industrial sector to the service sector because it is a newly discovered variable. Once more, the moderating function of Generation Y consumers in this study was unfavourable and inconsequential. Its moderate impact should be further investigated in future studies. In the future, we also advise conducting longitudinal research to help analyze how customer behaviour develops over time. Finally, since this study did not take into account any specific digital tool that makes DSR implementation easier, future research may take into account using specific digital social media platforms.

References

- Aaker, D.A. (1991), *Managing Brand Equity*, New York, The Free Press, New York.
- Abbas, M., Gao, Y. and Shah, S.S.H. (2018), "CSR and customer outcomes: the mediating role of customer engagement", *Sustainability (Switzerland)*, Vol. 10 No. 11, p. 4243, doi: 10.3390/su10114243.
- Abdeen, A., Rajah, E. and Gaur, S.S. (2016), "Consumers' beliefs about firm's CSR initiatives and their purchase behaviour", *Marketing Intelligence and Planning*, Vol. 34 No. 1, pp. 2-18, doi: 10.1108/MIP-06-2014-0107.
- Addo, P.C., Jiaming, F., Kulbo, N.B. and Liangqiang, L. (2020), "COVID-19: fear appeal favoring purchase behavior towards personal protective equipment", *Service Industries Journal*, Vol. 40 Nos 7-8, pp. 471-490, doi: 10.1080/02642069.2020.1751823.
- Ahmad, T. (2019), "Corporate social responsibility: a value-creation strategy to engage millennials", *Strategic Direction*, Vol. 35 No. 7, pp. 5-8, doi: 10.1108/SD-11-2018-0232.
- Ahmad, M., Wu, Q. and Ahmed, S. (2023), "Does CSR digitalization improve the sustainable competitive performance of SMEs? Evidence from an emerging economy", *Sustainability Accounting, Management and Policy Journal*, Vol. 15 No. 1, pp. 119-147, [Preprint] doi: 10.1108/SAMPJ-03-2023-0169.
- Ahn, J. (2021), "Role of hope and compulsion for CSR activities in hotel customers' engagement", *Current Issues in Tourism*, Vol. 24 No. 14, pp. 1958-1964, doi: 10.1080/13683500.2020.1806797.
- Ozdora Aksak, E., Ferguson, M.A. and Atakan Duman, S. (2016), "Corporate social responsibility and CSR fit as predictors of corporate reputation: a global perspective", *Public Relations Review*, Vol. 42 No. 1, pp. 79-81, doi: 10.1016/j.pubrev.2015.11.004.
- Akturan, U. (2018), "How does greenwashing affect green branding equity and purchase intention? An empirical research", *Marketing Intelligence and Planning*, Vol. 36 No. 7, pp. 809-824, doi: 10.1108/MIP-12-2017-0339.
- Al-Haddad, S., Sharabati, A.A.A., Al-Khasawneh, M., Maraqa, R. and Hashem, R. (2022), "The influence of corporate social responsibility on consumer purchase intention: the mediating role of consumer engagement via social media", *Sustainability (Switzerland)*, Vol. 14 No. 11, p. 6771, doi: 10.3390/su14116771.
- Alhouthi, S. and D'Souza, G. (2018), "Benefits of corporate social responsibility", *Journal of Consumer Marketing*, Vol. 35 No. 3, pp. 277-286, doi: 10.1108/JCM-08-2016-1895.
- Aljarah, A. and Ibrahim, B. (2020), "The robustness of corporate social responsibility and brand loyalty relation: a meta-analytic examination", *Journal of Promotion Management*, Vol. 26 No. 7, pp. 1038-1072, doi: 10.1080/10496491.2020.1746464.
- Aluri, A., Price, B.S. and McIntyre, N.H. (2019), "Using machine learning to cocreate value through dynamic customer engagement in A brand loyalty program", *Journal of Hospitality and Tourism Research*, Vol. 43 No. 1, pp. 78-100, doi: 10.1177/1096348017753521.

- Ameyaw, M.A., Sun, B., Antwi, S., Bentum-Micah, G. and Ameyaw, J.E. (2022), "Relationship beyond the workplace: impact of Guanxi GRX scale on employee engagement and performance", *Sustainability (Switzerland)*, Vol. 14 No. 12, p. 7364, doi: 10.3390/su14127364.
- Amoroso, D.L. (2015), "Corporate social responsibility and purchase intention: the roles of loyalty, advocacy and quality of life in the Philippines", *The International Journal Of Management*, available at: www.theijm.com
- Arachchi, H.A.D.M. and Samarasinghe, G.D. (2023), "Influence of corporate social responsibility and brand attitude on purchase intention", *Spanish Journal of Marketing - ESIC*, Vol. 27 No. 3, pp. 389-406, [Preprint], doi: 10.1108/SJME-12-2021-0224.
- Bagozzi, R.P., Yi, Y. and Phillips, L.W. (1991), "Assessing construct validity in organizational research", *Administrative Science Quarterly*, Vol. 36 No. 3, p. 421, doi: 10.2307/2393203.
- Beneke, J., de Sousa, S., Mbuyu, M. and Wickham, B. (2016), "The effect of negative online customer reviews on brand equity and purchase intention of consumer electronics in South Africa", *International Review of Retail, Distribution and Consumer Research*, Vol. 26 No. 2, pp. 171-201, doi: 10.1080/09593969.2015.1068828.
- Bianchi, E., Bruno, J.M. and Sarabia-Sanchez, F.J. (2019), "The impact of perceived CSR on corporate reputation and purchase intention", *European Journal of Management and Business Economics*, Vol. 28 No. 3, pp. 206-221, doi: 10.1108/EJMBE-12-2017-0068.
- Bilgin, Y. (2018), "The effect of social media marketing activities on brand awareness, brand image and brand loyalty", *Business and Management Studies: An International Journal*, Vol. 6 No. 1, pp. 128-148, doi: 10.15295/bmij.v6i1.229.
- Blau, P. (1986), *Exchange and Power in Social Life*, Wiley, New York.
- Boateng, S.L. (2019), "Online relationship marketing and customer loyalty: a signaling theory perspective", *International Journal of Bank Marketing*, Vol. 37 No. 1, pp. 226-240, doi: 10.1108/IJBM-01-2018-0009.
- Boccia, F. and Sarnacchiaro, P. (2020), "Chi-squared automatic interaction detector analysis on a choice experiment: an evaluation of responsible initiatives on consumers' purchasing behavior", *Corporate Social Responsibility and Environmental Management*, Vol. 27 No. 2, pp. 1143-1151, doi: 10.1002/csr.1873.
- Boccia, F., Covino, D. and Sarnacchiaro, P. (2018), "Genetically modified food versus knowledge and fear: a Noumenic approach for consumer behaviour", *Food Research International*, Vol. 111, pp. 682-688, doi: 10.1016/j.foodres.2018.06.013.
- Carvalho, A. and Fernandes, T. (2018), "Understanding customer brand engagement with virtual social communities: a comprehensive model of drivers, outcomes and moderators", *Journal of Marketing Theory and Practice*, Vol. 26 Nos 1-2, pp. 23-37, doi: 10.1080/10696679.2017.1389241.
- Casidy, R., Nuryana, A.N. and Hati, S.R.H. (2015), "Linking fashion consciousness with Gen Y attitude towards prestige brands", *Asia Pacific Journal of Marketing and Logistics*, Vol. 27 No. 3, pp. 406-420, doi: 10.1108/APJML-09-2014-0136.
- Catic, L. and Poturak, M. (2022), "Influence of brand loyalty on consumer purchase behavior", *International Journal of Research in Business and Social Science (2147-4478)*, Vol. 11 No. 8, pp. 83-91, doi: 10.20525/ijrbs.v11i8.2024.
- Chakraborty, U. (2019), "The impact of source credible online reviews on purchase intention: the mediating roles of brand equity dimensions", *Journal of Research in Interactive Marketing*, Vol. 13 No. 2, pp. 142-161, doi: 10.1108/JRIM-06-2018-0080.
- Choi, B. and Choi, B.J. (2014), "The effects of perceived service recovery justice on customer affection, loyalty, and word-of-mouth", *European Journal of Marketing*, Vol. 48 No. 1, pp. 108-131, doi: 10.1108/EJM-06-2011-0299.
- Chu, S.C. and Chen, H.T. (2019), "Impact of consumers' corporate social responsibility-related activities in social media on brand attitude, electronic word-of-mouth intention, and purchase intention:

- a study of Chinese consumer behavior”, *Journal of Consumer Behaviour*, Vol. 18 No. 6, pp. 453-462, doi: 10.1002/cb.1784.
- Chung, K.-H., Yu, J.E., Choi, M.G. and Shin, J.I. (2015), “The effects of CSR on customer satisfaction and loyalty in China: the moderating role of corporate image”, *Journal of Economics, Business and Management*, Vol. 3 No. 5, pp. 542-547, doi: 10.7763/joebm.2015.v3.243.
- Copeland, M.T. (1923), *Relation of Consumers' Buying Habits to Marketing Methods*.
- Crane, A., Matten, D. and Spence, L. (2019), “Corporate social responsibility: in global context business of modern slavery view project moral markets view project”, available at: <http://ssrn.com/abstract=1667081> Electronic copy available at: <http://ssrn.com/abstract=1667081>
- Creswell, J.W. (2009), *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, Sage Publications, Los Angeles, CA.
- Cropanzano, R. and Mitchell, M.S. (2005), “Social exchange theory: an Interdisciplinary review”, *Journal of Management*, Vol. 31 No. 6, pp. 874-900, doi: 10.1177/0149206305279602.
- de Maya, S.R., Lardín-Zambudio, R. and López-López, I. (2016), “I Will do it if i enjoy it! The moderating effect of seeking sensory pleasure when exposed to participatory CSR campaigns”, *Frontiers in Psychology*, Vol. 6 JAN, pp. 1-10, doi: 10.3389/fpsyg.2015.01940.
- de Villiers, R. (2015), “Consumer brand enmeshment: typography and complexity modeling of consumer brand engagement and brand loyalty enactments”, *Journal of Business Research*, Vol. 68 No. 9, pp. 1953-1963, doi: 10.1016/j.jbusres.2015.01.005.
- Dessart, L., Veloutsou, C. and Morgan-Thomas, A. (2015), “Consumer engagement in online brand communities: a social media perspective”, *Journal of Product and Brand Management*, Vol. 24 No. 1, pp. 28-42, doi: 10.1108/JPBM-06-2014-0635.
- Du, S. and Vieira, E.T. (2012), “Striving for legitimacy through corporate social responsibility: insights from oil companies”, *Journal of Business Ethics*, Vol. 110 No. 4, pp. 413-427, doi: 10.1007/s10551-012-1490-4.
- Dwivedi, A. (2015), “A higher-order model of consumer brand engagement and its impact on loyalty intentions”, *Journal of Retailing and Consumer Services*, Vol. 24 C, pp. 100-109, doi: 10.1016/j.jretconser.2015.02.007.
- Dwivedi, Y.K., Ismagilova, E., Hughes, D.L., Carlson, J., Filieri, R., Jacobson, J., Jain, V., Karjaluoto, H., Kefi, H., Krishen, A.S., Kumar, V., Rahman, M.M., Raman, R., Rauschnabel, P.A., Rowley, J., Salo, J., Tran, G.A. and Wang, Y. (2021), “Setting the future of digital and social media marketing research: perspectives and research propositions”, *International Journal of Information Management*, Vol. 59, 102168, doi: 10.1016/j.ijinfomgt.2020.102168.
- Eisingerich, A.B., Marchand, A., Fritze, M.P. and Dong, L. (2019), “Hook vs. hope: how to enhance customer engagement through gamification”, *International Journal of Research in Marketing*, Vol. 36 No. 2, pp. 200-215, doi: 10.1016/j.ijresmar.2019.02.003.
- Elia, G., Messeni Petruzzelli, A. and Urbinati, A. (2020), “Implementing open innovation through virtual brand communities: a case study analysis in the semiconductor industry”, *Technological Forecasting and Social Change*, Vol. 155, 119994, doi: 10.1016/j.techfore.2020.119994.
- Fang, B., Ye, Q., Kucukusta, D. and Law, R. (2016), “Analysis of the perceived value of online tourism reviews: influence of readability and reviewer characteristics”, *Tourism Management*, Vol. 52, pp. 498-506, doi: 10.1016/j.tourman.2015.07.018.
- Fang, J., Chen, L., Wen, C. and Prybutok, V.R. (2018), “Co-Viewing experience in video websites: the effect of social presence on E-loyalty”, *International Journal of Electronic Commerce*, Vol. 22 No. 3, pp. 446-476, doi: 10.1080/10864415.2018.1462929.
- Fatma, M., Khan, I. and Rahman, Z. (2018), “CSR and consumer behavioral responses: the role of customer-company identification”, *Asia Pacific Journal of Marketing and Logistics*, Vol. 30 No. 2, pp. 460-477, doi: 10.1108/APJML-01-2017-0017.

- Fatma, M., Ruiz, A.P., Khan, I. and Rahman, Z. (2020), "The effect of CSR engagement on eWOM on social media", *International Journal of Organizational Analysis*, Vol. 28 No. 4, pp. 941-956, doi: 10.1108/IJOA-10-2019-1895.
- Glavee-Geo, R., Shaikh, A.A., Karjaluoto, H. and Hinson, R.E. (2020), "Drivers and outcomes of consumer engagement: insights from mobile money usage in Ghana", *International Journal of Bank Marketing*, Vol. 38 No. 1, pp. 1-20, doi: 10.1108/IJBM-01-2019-0007.
- Glaveli, N. (2020), "Corporate social responsibility toward stakeholders and customer loyalty: investigating the roles of trust and customer identification with the company", *Social Responsibility Journal*, Vol. 17 No. 3, pp. 367-383, doi: 10.1108/SRJ-07-2019-0257.
- Gong, M., Gao, Y., Koh, L., Sutcliffe, C. and Cullen, J. (2019), "The role of customer awareness in promoting firm sustainability and sustainable supply chain management", *International Journal of Production Economics*, Vol. 217, pp. 88-96, doi: 10.1016/j.ijpe.2019.01.033.
- Gong, Y., Xiao, J., Tang, X. and Li, J. (2023), "How sustainable marketing influences the customer engagement and sustainable purchase intention? The moderating role of corporate social responsibility", *Frontiers in Psychology*, Vol. 14, 1128686, doi: 10.3389/fpsyg.2023.1128686.
- Gupta, S.S. and Wadera, D. (2021), "Impact of cause-affinity and CSR fit on consumer purchase intention", *Society and Business Review*, Vol. 16 No. 1, pp. 26-50, doi: 10.1108/SBR-01-2020-0012.
- Gupta, S., Nawaz, N., Alfalah, A.A., Naveed, R.T., Muneer, S. and Ahmad, N. (2021), "The relationship of CSR communication on social media with consumer purchase intention and brand admiration", *Journal of Theoretical and Applied Electronic Commerce Research*, Vol. 16 No. 5, pp. 1217-1230, doi: 10.3390/jtaer16050068.
- Hair, J.F. (2010), *Multivariate Data Analysis: A Global Perspective*, Pearson Education, Upper Saddle River, NJ.
- Hair, J., Hollingsworth, C.L., Randolph, A.B. and Chong, A.Y.L. (2017), "An updated and expanded assessment of PLS-SEM in information systems research", *Industrial Management and Data Systems*, Vol. 117 No. 3, pp. 442-458, doi: 10.1108/IMDS-04-2016-0130.
- Hair, J.F., Hult, G.T.M., Ringle, C.M. and Sarstedt, M. (2014), *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*, Sage, Thousand, Oaks.
- Hancu-Budui, A., Zorio-Grima, A. and Blanco-Vega, J. (2020), "Audit institutions in the European Union: public service promotion, environmental engagement and COVID crisis communication through social media", *Sustainability (Switzerland)*, Vol. 12 No. 23, pp. 1-32, doi: 10.3390/su12239816.
- Hayes, R.A. and Carr, C.T. (2015), "Does being social matter? Effects of enabled commenting on credibility and brand attitude in social media", *Journal of Promotion Management*, Vol. 21 No. 3, pp. 371-390, doi: 10.1080/10496491.2015.1039178.
- Hollebeek, L.D., Glynn, M.S. and Brodie, R.J. (2014), "Consumer brand engagement in social media: conceptualization, scale development and validation", *Journal of Interactive Marketing*, Vol. 28 No. 2, pp. 149-165, doi: 10.1016/j.intmar.2013.12.002.
- Hsu, C.L., Chen, M.C., Kikuchi, K. and Machida, I. (2017), "Elucidating the determinants of purchase intention toward social shopping sites: a comparative study of Taiwan and Japan", *Telematics and Informatics*, Vol. 34 No. 4, pp. 326-338, doi: 10.1016/j.tele.2016.04.016.
- Huerta-Álvarez, R., Cambra-Fierro, J.J. and Fuentes-Blasco, M. (2020), "The interplay between social media communication, brand equity and brand engagement in tourist destinations: an analysis in an emerging economy", *Journal of Destination Marketing and Management*, Vol. 16, 100413, doi: 10.1016/j.jdmm.2020.100413.
- Huo, C., Hameed, J., Zhang, M., Bin Mohd Ali, A.F. and Amri Nik Hashim, N.A. (2022), "Modeling the impact of corporate social responsibility on sustainable purchase intentions: insights into brand trust and brand loyalty", *Economic Research-Ekonomika Istrazivanja*, Vol. 35 No. 1, pp. 4710-4739, doi: 10.1080/1331677X.2021.2016465.

- Iglesias, O., Markovic, S., Bagherzadeh, M. and Singh, J.J. (2020), "Co-Creation: a key link between corporate social responsibility, customer trust, and customer loyalty", *Journal of Business Ethics*, Vol. 163 No. 1, pp. 151-166, doi: 10.1007/s10551-018-4015-y.
- Irawan, E.P., Sumartias, S., Priyatna, S. and Rahmat, A. (2022), "A review on digitalization of CSR during the COVID-19 pandemic in Indonesia: opportunities and challenges", doi: 10.3390/socsci.
- Javeed, S.A., Teh, B.H., Ong, T.S., Chong, L.L., Abd Rahim, M.F.B. and Latief, R. (2022), "How does green innovation strategy influence corporate financing? Corporate social responsibility and gender diversity play a moderating role", *International Journal of Environmental Research and Public Health*, Vol. 19 No. 14, p. 8724, doi: 10.3390/ijerph19148724.
- Jiang, H. and Zhang, Y. (2016), "An investigation of service quality, customer satisfaction and loyalty in China's airline market", *Journal of Air Transport Management*, Vol. 57, pp. 80-88, doi: 10.1016/j.jairtraman.2016.07.008.
- Johnston, R., Jones, K. and Manley, D. (2018), "Confounding and collinearity in regression analysis: a cautionary tale and an alternative procedure, illustrated by studies of British voting behaviour", *Quality and Quantity*, Vol. 52 No. 4, pp. 1957-1976, doi: 10.1007/s11135-017-0584-6.
- Karaosmanoglu, E., Altinigne, N. and Isiksal, D.G. (2016), "CSR motivation and customer extra-role behavior: moderation of ethical corporate identity", *Journal of Business Research*, Vol. 69 No. 10, pp. 4161-4167, doi: 10.1016/j.jbusres.2016.03.035.
- Khattak, A. and Yousaf, Z. (2022), "Digital social responsibility towards corporate social responsibility and strategic performance of hi-tech SMEs: customer engagement as a mediator", *Sustainability (Switzerland)*, Vol. 14 No. 1, p. 131, doi: 10.3390/su14010131.
- Kiffin-Petersen, S.A. and Soutar, G.N. (2020), "Service employees' personality, customer orientation and customer incivility", *International Journal of Quality and Service Sciences*, Vol. 12 No. 3, pp. 281-296, doi: 10.1108/IJQSS-12-2018-0104.
- Kim, J.H. (2019), "Multicollinearity and misleading statistical results", *Korean Journal of Anesthesiology*, Vol. 72 No. 6, pp. 558-569, doi: 10.4097/kja.19087.
- Kim, H.B., Kim, W.G. and An, J.A. (2003), "The effect of consumer-based brand equity on firms' financial performance", *Journal of Consumer Marketing*, Vol. 20 Nos 4-5, pp. 335-351, doi: 10.1108/07363760310483694.
- Kotler, P., Kartajaya, H. and Setiawan, I. (2016), *Books Marketing 4.0: Moving from Traditional to Digital Moving from Tradition Moving from Tradition*, John Wiley and Sons, Hoboken, NJ.
- Kraus, S., Rehman, S.U. and García, F.J.S. (2020), "Corporate social responsibility and environmental performance: the mediating role of environmental strategy and green innovation", *Technological Forecasting and Social Change*, Vol. 160, 120262, doi: 10.1016/j.techfore.2020.120262.
- Kressmann, F., Sirgy, M.J., Herrmann, A., Huber, F., Huber, S. and Lee, D.J. (2006), "Direct and indirect effects of self-image congruence on brand loyalty", *Journal of Business Research*, Vol. 59 No. 9, pp. 955-964, doi: 10.1016/j.jbusres.2006.06.001.
- Kristia, K. (2021), "Mediating effect of customer engagement on the relations between eWOM, environmental concern, and intention to purchase second-hand clothing among college students in Yogyakarta", *Jurnal Manajemen Bisnis*, Vol. 12 No. 2, pp. 162-175, doi: 10.18196/mb.v12i2.11424.
- Kumar, A., Mangla, S.K., Luthra, S., Rana, N.P. and Dwivedi, Y.K. (2018), "Predicting changing pattern: building model for consumer decision making in digital market", *Journal of Enterprise Information Management*, Vol. 31 No. 5, pp. 674-703, doi: 10.1108/JEIM-01-2018-0003.
- Lacap, J.P.G., Cham, T.-H. and Xin Jean, L. (2021), "The influence of corporate social responsibility on brand loyalty and the mediating effects of brand satisfaction and perceived quality", *International Journal of Economics and Management*, Vol. 15 No. 1, pp. 69-87, available at: <http://www.ijem.upm.edu.my>.

- Lai, C.S., Chiu, C.J., Yang, C.F. and Pai, D.C. (2010), "The effects of corporate social responsibility on brand performance: the mediating effect of industrial brand equity and corporate reputation", *Journal of Business Ethics*, Vol. 95 No. 3, pp. 457-469, doi: 10.1007/s10551-010-0433-1.
- Lecuyer, C., Capelli, S. and Sabadie, W. (2017), "Corporate social responsibility communication effects: a comparison between investor-owned banks and member-owned banks", *Journal of Advertising Research*, Vol. 57 No. 4, pp. 436-446, doi: 10.2501/JAR-2017-051.
- Lee, C.Y. (2019), "Does corporate social responsibility influence customer loyalty in the Taiwan insurance sector? The role of corporate image and customer satisfaction", *Journal of Promotion Management*, Vol. 25 No. 1, pp. 43-64, doi: 10.1080/10496491.2018.1427651.
- Lee, J. and Lee, Y. (2018), "Effects of multi-brand company's CSR activities on purchase intention through a mediating role of corporate image and brand image", *Journal of Fashion Marketing and Management*, Vol. 22 No. 3, pp. 387-403, doi: 10.1108/JFMM-08-2017-0087.
- Lee, S.Y., Kim, Y. and Kim, Y. (2021), "Engaging consumers with corporate social responsibility campaigns: the roles of interactivity, psychological empowerment, and identification", *Journal of Business Research*, Vol. 134, pp. 507-517, doi: 10.1016/j.jbusres.2021.05.062.
- Lep, Ž., Babnik, K. and Hacin, B.K. (2020), "Emotional responses and self-protective behavior within days of the COVID-19 outbreak: the promoting role of information credibility", *Frontiers in Psychology*, Vol. 11, 1846, doi: 10.3389/fpsyg.2020.01846.
- Lim, J.S., Hwang, Y., Kim, S. and Biocca, F.A. (2015), "How social media engagement leads to sports channel loyalty: mediating roles of social presence and channel commitment", *Computers in Human Behavior*, Vol. 46, pp. 158-167, doi: 10.1016/j.chb.2015.01.013.
- Lin, M.S. and Chung, Y.K. (2019), "Understanding the impacts of corporate social responsibility and brand attributes on brand equity in the restaurant industry", *Tourism Economics*, Vol. 25 No. 4, pp. 639-658, doi: 10.1177/1354816618813619.
- Lissitsa, S. and Kol, O. (2016), "Generation X vs. Generation Y – a decade of online shopping", *Journal of Retailing and Consumer Services*, Vol. 31, pp. 304-312, doi: 10.1016/j.jretconser.2016.04.015.
- Luger, M., Hofer, K.M. and Floh, A. (2022), "Support for corporate social responsibility among generation Y consumers in advanced versus emerging markets", *International Business Review*, Vol. 31 No. 2, 101903, doi: 10.1016/J.IBUSREV.2021.101903.
- Martínez, P. and Rodríguez del Bosque, I. (2013), "CSR and customer loyalty: the roles of trust, customer identification with the company and satisfaction", *International Journal of Hospitality Management*, Vol. 35, pp. 89-99, doi: 10.1016/j.ijhm.2013.05.009.
- Martínez-Caro, E., Cegarra-Navarro, J.G. and Alfonso-Ruiz, F.J. (2020), "Digital technologies and firm performance: the role of digital organisational culture", *Technological Forecasting and Social Change*, Vol. 154, 119962, doi: 10.1016/j.techfore.2020.119962.
- Moon, B.J., Lee, L.W. and Oh, C.H. (2015), "The impact of CSR on consumer-corporate connection and brand loyalty: a cross cultural investigation", *International Marketing Review*, Vol. 32 No. 5, pp. 518-539, doi: 10.1108/IMR-03-2014-0089.
- Müller-Stewens, J., Schlager, T., Häubl, G. and Herrmann, A. (2016), "Gamified information presentation and consumer adoption of product innovations", *Journal of Marketing*, Vol. 81 No. 2, pp. 8-24, doi: 10.1509/jm.15.0396.
- Öberseder, M., Schlegelmilch, B.B. and Murphy, P.E. (2013), "CSR practices and consumer perceptions", *Journal of Business Research*, Vol. 66 No. 10, pp. 1839-1851, doi: 10.1016/J.JBUSRES.2013.02.005.
- Overall, J. (2017), "CSR and CRM: the impact on purchase intentions", *International Journal of Internet Marketing and Advertising*, Vol. 11 No. 3, p. 252, doi: 10.1504/ijima.2017.10006732.
- O'Cass, A. and Choy, E. (2008), "Studying Chinese generation Y consumers' involvement in fashion clothing and perceived brand status", *Journal of Product and Brand Management*, Vol. 17 No. 5, pp. 341-352, doi: 10.1108/10610420810896095.

- Panda, T.K., Kumar, A., Jakhar, S., Luthra, S., Garza-Reyes, J.A., Kazancoglu, I. and Nayak, S.S. (2020), "Social and environmental sustainability model on consumers' altruism, green purchase intention, green brand loyalty and evangelism", *Journal of Cleaner Production*, Vol. 243, 118575, doi: 10.1016/J.CLEPRO.2019.118575.
- Pansari, A. and Kumar, V. (2017), "Customer engagement: the construct, antecedents, and consequences", *Journal of the Academy of Marketing Science*, Vol. 45 No. 3, pp. 294-311, doi: 10.1007/s11747-016-0485-6.
- Parente, R. (2020), "Digitalization, consumer social responsibility, and humane entrepreneurship: good news from the future?", *Journal of the International Council for Small Business*, Vol. 1 No. 1, pp. 56-63, doi: 10.1080/26437015.2020.1714368.
- Park, E. (2019), "Corporate social responsibility as a determinant of corporate reputation in the airline industry", *Journal of Retailing and Consumer Services*, Vol. 47, pp. 215-221, doi: 10.1016/j.jretconser.2018.11.013.
- Park, H. and Jiang, Y. (2020), "A human touch and content matter for consumer engagement on social media", *Corporate Communications*, Vol. 26 No. 3, pp. 501-520, doi: 10.1108/CCIJ-01-2020-0033.
- Parment, A. (2012), *Generation Y in Consumer and Labour Markets*, Taylor and Francis Group, Routledge.
- Paul, J., Modi, A. and Patel, J. (2016), "Predicting green product consumption using theory of planned behavior and reasoned action", *Journal of Retailing and Consumer Services*, Vol. 29, pp. 123-134, doi: 10.1016/j.jretconser.2015.11.006.
- Pipatprapa, A., Huang, H.H. and Huang, C.H. (2017), "The role of quality management & innovativeness on green performance", *Corporate Social Responsibility and Environmental Management*, Vol. 24 No. 3, pp. 249-260, doi: 10.1002/csr.1416.
- Puriwat, W. and Tripopsakul, S. (2021), "The impact of digital social responsibility on preference and purchase intentions: the implication for open innovation", *Journal of Open Innovation: Technology, Market, and Complexity*, Vol. 7 No. 1, pp. 1-11, doi: 10.3390/joitmc7010024.
- Ramesh, K., Saha, R., Goswami, S., Sekar and Dahiya, R. (2019), "Consumer's response to CSR activities: mediating role of brand image and brand attitude", *Corporate Social Responsibility and Environmental Management*, Vol. 26 No. 2, pp. 377-387, doi: 10.1002/csr.1689.
- Reinartz, W., Wiegand, N. and Imschloss, M. (2019), "The impact of digital transformation on the retailing value chain", *International Journal of Research in Marketing*, Vol. 36 No. 3, pp. 350-366, doi: 10.1016/j.ijresmar.2018.12.002.
- Rivera, J.J., Bigne, E. and Curras-Perez, R. (2019), "Efeitos da responsabilidade social corporativa na lealdade do consumidor com a marca", *Revista Brasileira de Gestao de Negocios*, Vol. 21 No. 3, pp. 395-415, doi: 10.7819/rbgn.v21i3.4003.
- Romaniuk, J. and Nenycz-Thiel, M. (2013), "Behavioral brand loyalty and consumer brand associations", *Journal of Business Research*, Vol. 66 No. 1, pp. 67-72, doi: 10.1016/J.JBUSRES.2011.07.024.
- Saxton, G.D., Gomez, L., Ngoh, Z., Lin, Y.P. and Dietrich, S. (2019), "Do CSR messages resonate? Examining public reactions to firms' CSR efforts on social media", *Journal of Business Ethics*, Vol. 155 No. 2, pp. 359-377, doi: 10.1007/s10551-017-3464-z.
- Sekaran, U. and Bougie, R. (2016), *Research Methods for Business: A Skill-Building Approach*, 7th ed., John Wiley and sons, Chichester, West Sussex, pp. 1-448.
- Sharma, V., Poulouse, J., Mohanta, S. and Elizabeth Antony, L. (2018), "Influence of the dimensions of CSR activities on consumer purchase intention", *Innovative Marketing*, Vol. 14 No. 1, pp. 23-32, doi: 10.21511/im.14(1).2018.03.
- Sidek, J.J., Omar, N.H.O. and Hua, N.T. (2017), "Influence of corporate social responsibility on consumer brand engagement: a study on Malaysian youth", *The Asian Conference on Arts and Humanities 2017 Official Conference Proceedings*, available at: <https://www.iafor.org/>

- Tackie, E.A., Chen, H., Ahakwa, I., Atingabili, S. and Ansah, K.A. (2022), "Investigating the relationship between local business and employment creation for poverty reduction in Northern Ghana: the moderating role of local economic development (LED) policy", *SAGE Open*, Vol. 12 No. 2, 215824402211081, doi: 10.1177/21582440221108173.
- Tetrault Sirsly, C.A. and Lvina, E. (2019), "From doing good to looking even better: the dynamics of CSR and reputation", *Business and Society*, Vol. 58 No. 6, pp. 1234-1266, doi: 10.1177/0007650315627996.
- Toor, A., Husnain, M. and Hussain, T. (2017), "The impact of social network marketing on consumer purchase intention in Pakistan: consumer engagement as a mediator", *Asian Journal of Business and Accounting*, Vol. 10 No. 1, pp. 167-199.
- Tseng, F.C., Cheng, T., Yu, P.L., Huang, T.L. and Teng, C.I. (2019), "Media richness, social presence and loyalty to mobile instant messaging", *Industrial Management and Data Systems*, Vol. 119 No. 6, pp. 1357-1373, doi: 10.1108/IMDS-09-2018-0415.
- Tunjungsari, H.K., Syahrivar, J. and Chairy, C. (2020), "Brand loyalty as mediator of brand image-repurchase intention relationship of premium-priced, high-tech product in Indonesia", *Jurnal Manajemen Maranatha*, Vol. 20 No. 1, pp. 21-30, doi: 10.28932/jmm.v20i1.2815.
- Uhlig, M.R.H., Mainardes, E.W. and Nossa, V. (2020), "Corporate social responsibility and consumer's relationship intention", *Corporate Social Responsibility and Environmental Management*, Vol. 27 No. 1, pp. 313-324, doi: 10.1002/csr.1807.
- Ur Rehman, S., Bhatti, A. and Chaudhry, N.I. (2019), "Mediating effect of innovative culture and organizational learning between leadership styles at third-order and organizational performance in Malaysian SMEs", *Journal of Global Entrepreneurship Research*, Vol. 9 No. 1, 36, doi: 10.1186/s40497-019-0159-1.
- Vanko, M., Zaušková, A. and Kubovics, M. (2021), "Communication of brands on social sites during the COVID-19 pandemic in the context of globalization", *SHS Web of Conferences*, Vol. 92, p. 01055, 01055, doi: 10.1051/shsconf/20219201055.
- Vera-Martínez, J., Alvarado-Herrera, A. and Currás-Pérez, R. (2022), "Do consumers really care about aspects of corporate social responsibility when developing attitudes toward a brand?", *Journal of Global Marketing*, Vol. 35 No. 3, pp. 193-207, doi: 10.1080/08911762.2021.1958277.
- Verma, P. (2021), "The effect of brand engagement and brand love upon overall brand equity and purchase intention: a moderated –mediated model", *Journal of Promotion Management*, Vol. 27 No. 1, pp. 103-132, doi: 10.1080/10496491.2020.1809591.
- Wu, Y. and Zhu, W. (2021), "The role of CSR engagement in customer-company identification and behavioral intention during the COVID-19 pandemic", *Frontiers in Psychology*, Vol. 12, 721410, doi: 10.3389/fpsyg.2021.721410.
- Yadav, G., Mangla, S.K., Luthra, S. and Rai, D.P. (2019), "Developing a sustainable smart city framework for developing economies: an Indian context", *Sustainable Cities and Society*, Vol. 47, 101462, doi: 10.1016/j.scs.2019.101462.
- Yong, J.Y., Yusliza, M., Ramayah, T., Chiappetta Jabbour, C.J., Sehnem, S. and Mani, V. (2020), "Pathways towards sustainability in manufacturing organizations: empirical evidence on the role of green human resource management", *Business Strategy and the Environment*, Vol. 29 No. 1, pp. 212-228, doi: 10.1002/bse.2359.
- Zailani, S., Jeyaraman, K., Vengadasan, G. and Premkumar, R. (2012), "Sustainable supply chain management (SSCM) in Malaysia: a survey", *International Journal of Production Economics*, Vol. 140 No. 1, pp. 330-340, doi: 10.1016/j.ijpe.2012.02.008.
- Zainol, Z., Mohd Yasin, N., Omar, N.A., Nik Hashim, N.M.H. and Osman, J. (2015), "The effect of customer-brand relationship investments on customer engagement: an imperative for sustained competitiveness", *Jurnal Pengurusan*, Vol. 44, pp. 117-127, doi: 10.17576/pengurusan-2015-44-11.
- Zhang, Q. and Ahmad, S. (2021), "Analysis of corporate social responsibility execution effects on purchase intention with the moderating role of customer awareness", *Sustainability (Switzerland)*, Vol. 13 No. 8, p. 4548, doi: 10.3390/su13084548.

Construct	Source
<p><i>Digital social responsibility</i> Company X is dedicated to using a percentage of its earnings to support societies and communities through digitally platforms Company X utilizes digital tools to give back to the areas where it conducts business Company X's efforts via digital platforms assist communities and societies Company X incorporates online donations to charities into its daily operations</p>	Puriwat and Tripopsakul (2021)
<p><i>Customer engagement in DSR</i> I feel enthusiastic when interacting with the company X online I get absorbed when I interact with the company x online I feel happy when I interact with the company X online I am passionate about using company X online</p>	Carvalho and Fernandes (2018)
<p><i>Purchase intention</i> I will purchase the brand/company the next time I need a product It is very likely that I will buy from company X Definitely, I will buy some products of that brand/company X</p>	Bianchi <i>et al.</i> (2019)
<p><i>Customer loyalty</i> It would be costly in terms of money, time and effort to end the relationship with this company X I shall continue considering this 1 as my main brand/company X in the next few years I would recommend this brand/company X if somebody asked my advice Usually use this brand/company as is my first choice compared to other hotel brands</p>	Martínez and Rodríguez del Bosque (2013)
<p><i>Generation Y consumers</i> I always consider purchasing goods with CSR-supportive brand names that have online presence I consider the CSR commitment on online platforms when purchasing goods I usually only shop in outlets with CSR-related brand names and activities online</p>	Casidy <i>et al.</i> (2015)

Table A1.
Measurement
construct

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Generational persona and entrepreneurial behavior among millennial entrepreneurs: the mediating role of adaptability tendencies

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Abstract

Purpose – The purpose of this study is to examine the relationship between generational persona, adaptability tendencies and entrepreneurial behavior. The paper also aims at testing the mediating role of adaptability tendencies in the relationship between generational persona and entrepreneurial behavior among millennial entrepreneurs in an African setting.

Design/methodology/approach – The study adopts a quantitative methodological approach with a cross-sectional, questionnaire survey and correlational design where hypotheses were statistically tested using Structural Equation Modelling based on survey data ($n = 382$) from millennial entrepreneurs in Kampala Uganda.

Findings – Drawing on the sample of 382 millennial entrepreneurs in Kampala, findings show that both generational persona and adaptability tendencies are positively and significantly associated with entrepreneurial behavior. Results further indicate that adaptability tendencies partially mediates the relationship between generational persona and entrepreneurial behavior among millennial entrepreneurs.

Research limitations/implications – This study focused only on millennial entrepreneurs in Kampala Uganda ignoring other equally important groups of entrepreneurs like the baby boomers, generation Xers, generation Y and others. As such, the findings of this research do not entirely apply to all entrepreneurs in the country and this may have affected the generalizability of the results. Therefore, future studies can be done on

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the entrepreneurial behavior focusing on all entrepreneurs from all generations. Also, the study used a quantitative approach, future studies should consider a mixed methodology, which may give a more holistic understanding of entrepreneurial behavior.

Practical implications – In practice, millennial entrepreneurs may use the results of the study to see how they can improve their performance for their businesses to benefit. Specifically, they ought to focus on adaptability, and generational persona to exhibit those entrepreneurial behaviors which will generally lead to the improvement of their businesses.

Originality/value – To the authors' knowledge, this study provides a shred of initial empirical evidence on the relationship between generational persona, adaptability tendencies and entrepreneurial behavior using evidence from a low developed African country Uganda. Mostly, this study provides initial evidence of the mediating role of adaptability tendencies in the relationship between generational persona and entrepreneurial behavior. This study incorporates the Generational Cohort Theory and the Complex Adaptive Systems Theory into an applied theoretical framework that explains entrepreneurial behavior. More still, this study answers the call for more empirical studies on entrepreneurial behavior.

Keywords Generational persona, Adaptability tendencies, Entrepreneurial behavior, Millennial entrepreneurs

Paper type Research paper

1. Introduction

Globally, millennial entrepreneurial behavior plays a dominant role in enacting entrepreneurial action. Scholars Guga and Peta (2023) acknowledge that it promotes economic growth and development. The respective entrepreneurial behaviors millennials possess like technology savviness, innovation and proactiveness help them to start, manage and develop a venture. It is because of such behaviors millennials demonstrate that entrepreneurship has extended beyond large-scale industries. Small businesses and family enterprises have begun to thrive. Millennial entrepreneurial behaviors have demonstrated that innovation and creativity can drive success even for those without significant resources. These behaviors have lowered the barriers to entry allowing entrepreneurs to easily start businesses thus enabling economic growth. Researchers like Pidduck and Tucker (2022) recognize that entrepreneurship is evident in non-traditional forms and contexts giving rise to entrepreneurial behaviors which differ from the known standards to unconventional ones. Therefore, there is no consensus on which key entrepreneurial behaviors manifest in a certain context for a particular generation.

Scholars such as Liu *et al.* (2019), assert that millennials are differently categorized because their economic, technological and social aspects of their growth period are unique. They are characterized by the significant changes that occurred during their time like the rapid development of technology, globalization, the increasing connectivity of life and businesses worldwide. These have greatly impacted on their lives, their way of thinking, their behaviors and the way they work (Stewart *et al.*, 2017; Struckell, 2019). It is because of these behaviors they demonstrate that scholars have come to describe millennials as curious, creative and hardworking (Yiga *et al.*, 2023). Empirical evidence shows that younger individuals are more likely to start a new firm than older ones (Levesque and Minniti, 2006). As a result, the age distribution of a population may be important for the rate of new firm creation. Despite that, millennial entrepreneurs' business failure rate is high (Asimwe, 2023), with 70% of such businesses failing worldwide (Liu *et al.*, 2019).

Prior research on millennial entrepreneurship has focused on areas like; the role of social media in building trust and satisfaction for millennial entrepreneurs (Hamid *et al.*, 2023), effect of business climate on entrepreneurial behavior (Kurniawati *et al.*, 2023), factors influencing green purchase behavior among millennials (Qureshi *et al.*, 2023) among others. However, research on millennial entrepreneurial behavior is still limited and gaps still exist in the literature. First, to the author's knowledge, there is less empirical attention paid on the mediating role of adaptability tendencies in the relationship between generational persona,

and entrepreneurial behavior among millennial entrepreneurs. Secondly, no evidence of the direct relationship between generational persona, adaptability tendencies and entrepreneurial behavior has been explored among millennials in Uganda. These provide research gaps that this study addresses. Besides, Yiga *et al.* (2023) had earlier conceptualized these variables and called for further understanding of the phenomenon. Thus, this paper contributes to the statistical testing of entrepreneurial behavior conceptual model.

The authors note that majority of the earlier studies on millennial entrepreneurial behavior have focused more on developed economies whose business environment is different and their findings may not be applicable to low developed economies like Uganda where over 80% of entrepreneurs are still facing challenges of celebrating their first birthday (Ssekiziyivu and Banyenzaki, 2021). Also the link between generational persona, adaptability tendencies and entrepreneurial behavior is scarcely explored especially in the context of millennial entrepreneurs. We fill this research gap by reporting that adaptability tendencies and generational persona positively and significantly predict entrepreneurial behavior among Millennial Entrepreneurs in Uganda. Also, adaptability tendencies partially mediate the relationship between generational persona and entrepreneurial behavior contributing to the existing body of knowledge in the fields of entrepreneurship (Li *et al.*, 2020).

Further, the study also contributes to the existing literature by first exploring the role of two theories that is, the generational cohort theory and complex adaptive systems theory in explaining entrepreneurial behavior. More still, this study answers the call for more empirical studies on entrepreneurial behavior as recommended by Zahoor *et al.* (2023). Moreover, this study adds to literature by authenticating that generational persona and adaptability tendencies are significantly associated with entrepreneurial behavior. And it provides initial evidence on the mediating role of adaptability tendencies in the relationship between generational persona and entrepreneurial behavior.

The rest of the paper is organized as follows. Section 2 is literature and theoretical review where hypotheses have been developed and this is followed by section 3 which is methodology. Section 4 is results while section 5 is discussion. The last section which is section 6 is conclusion and implications.

2. Literature review

2.1 Theoretical review

This being a quantitative study, theory is studied deductively as the study is testing and verifying theories rather than developing theories (Rodrigo and Mendis, 2023). The paper adopts the Complex Adaptive Systems Theory (CAST) and the Generational Cohort Theory (GCT) giving a theoretical support to explain the mediating effect of adaptability tendencies in the relationship between generational persona and entrepreneurial behavior. CAST (Goldstein *et al.*, 2010) consists of diverse components called agents that are interdependent, act as a unified whole and have the ability to adapt to change (Goldstein *et al.*, 2010). The insights of complex adaptive systems are the high degree of adaptive capacity and resilience in the face of disruptive change. Complex adaptive systems help one to get a strategic fit between themselves and their environment (Kim and Mackey, 2014). The theory demonstrates how entrepreneurs use adaptation by adjusting to difficult situations. Because complex adaptive systems have bounded stability due to their adaptation, even millennial entrepreneurs require a system that will enable stability through adaptation (Yolles, 2018). However, the theory does not explain generation attributes which are important in this study but have been addressed by the generation cohort theory.

The Generational Cohort Theory (GCT) (Strauss and Howe, 1991) states that historical events are associated with recurring generational personas. Each generational persona unleashes a new era called a turning lasting around 20–25 years in which a new social,

political and economic climate exists. Each successive generation brings new and innovative ideas to replace those of older generations. The theory assumes that people in a particular age group tend to share a distinct set of beliefs, values and attributes because they all grow up and come of age during the same period. It is these beliefs, and attitudes that shape them to behave in a given way. Scholars Yiga *et al.* (2023) interpreted the theory as providing an approach to predicting key characteristics of the millennial generation which makes the theory relevant to the study. The theory demonstrates that when people believe in their abilities, they change their behavior (Howe and Strauss, 2003). This is exhibited when millennial entrepreneurs change their attitudes at work by becoming innovative and develop unique concepts and strategies for their businesses. After a critical review of theories, a conceptual framework was developed to depict entrepreneurial behaviour among millennials as seen in Figure 1.

2.2 Entrepreneurship

Good science begins with good definitions (Bygrave and Hofer, 1991). An entrepreneur is an individual who exploits a market opportunity through technical and organizational innovation (Schumpeter, 1965). According to Schumpeter (1965), an entrepreneur is an innovator who endeavors to bring in change by introducing new goods or new production methods. To Peter Drucker (1970), entrepreneurship is about taking risks. Entrepreneurship which is the process of starting a venture is of critical importance to the economy (Asimwe, 2023). Researchers, Nsereko *et al.* (2018), have as well conducted studies on entrepreneurship and their findings have lauded entrepreneurship as an effective means to create employment.

2.3 Entrepreneurial behavior

Entrepreneurial behaviour are those entrepreneurial actions of starting a venture, managing and developing it, bearing all the risks with a hope of making profits. Entrepreneurship is a struggle, it requires specific attributes for one to succeed (Wang *et al.*, 2022). Entrepreneurial behavior is therefore the result of the desire, character and talents of the entrepreneur which are usually spread through action (Nicolaou and Shane, 2009). However, the success of entrepreneurial activities for the different entrepreneurs depends on a variety of factors both within and beyond the control of individual entrepreneurs (Castellanza and Woywode, 2024).

2.4 Millennials

The certainty of the millennial generation category has so far been limited to when they were born and when they came of age (Han *et al.*, 2023; Chan and Lee, 2023). The generation of people born between 1980 and 2000 is called Millennials. Millennials are also known as Generation Y, Generation Me and Trophy Generation (Dalton, 2014). A generation is an

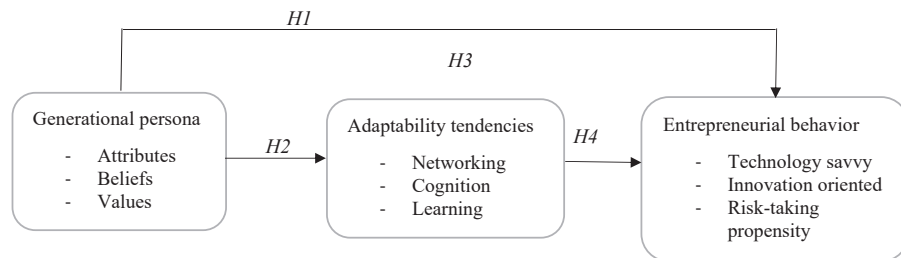


Figure 1.
Proposed model for
entrepreneurial
behavior

Source(s): Figure by authors

identifiable group of people or a cohort that shares birth years normally a 20 years span (Dimock, 2019). The historical events that occur during that time impact that generation (Strauss and Howe, 1997; Kessler, 2016). The year 2000 is a meaningful cutoff between millennials and gen Z because of the key political, economic and social factors that define the millennial generation's formative years. This generation is an active learner, absorbing knowledge and information quickly and these bring them closer to creating a business (Hermawan *et al.*, 2024). Therefore, managers need to understand the differences and similarities between generational groups within the workplace (Sessoms-Penny *et al.*, 2023).

2.5 Millennial entrepreneurs

Millennial entrepreneurs are those entrepreneurs who were born between 1980 and 2000 (Howe and Strauss, 2003). Prominent millennial entrepreneurs include Evan Spiegel and Bobby Murphy the founders of Snapchat (1990 and 1988), Ben Silbermann and Evan Sharp of Pinterest (1982), Adam D'Angelo of Quora (1984) and Jason Njoku of IROKO TV (1980). In Uganda, noticeable millennial entrepreneurs are Kevin Lubega of Ezeemoney, Hamis Kiggundu of Ham Enterprises, Gloria Wavamunno Founder of Kampala Fashion Week, Livingstone Mukasa CEO of Mazima Retirement Plan among others. Millennials have different characteristics in regard to careers and job expectations than people of other generations (Bagheri and Zhu, 2023).

2.6 Hypothesis development

2.6.1 Generational persona and entrepreneurial behavior among Millennial entrepreneurs. According to Weber and Urick (2023) age group typically identifies millennials. Generational persona is a way of categorizing a group of people with similarities in form of the era in which they were born and when they came of age (Boyle, 2023). This is so, regardless of where they were born, their culture or location (Twenge, 2023). Generational personas are a good tool in modern economic growth, they help to identify the attributes of a generation. Millennials display generalized and unique traits that help them to start and manage their businesses (Boyle, 2023). The generational persona of millennials has been characterized as being innovative with an entrepreneurial intention than generations before and it is these behaviors which help them to be entrepreneurial (Wibowo *et al.*, 2019). Twenge (2023), found this cohort of millennials to be alert, with an intention to start a business. Economic globalization, Internet penetration and being only children are typical characteristics of millennials and they all play a big role in their entrepreneurial behaviors. Scholars Mayanja *et al.* (2023) acknowledge that individuals with the capacity to think outside the box are motivated to start businesses. Such entrepreneurs are trying to find unique solutions to improve their society (Nsereko *et al.*, 2018). Generational Persona is consistent with the entrepreneurial behavior domain. We thus hypothesize that;

H1. There is a positive relationship between generational persona and entrepreneurial behavior.

2.6.2 Generational persona and adaptability tendencies. The generational persona of millennials is described as the most creative and adaptable generation (Horsaengchai, 2011). Understanding this adaptable generation is not only beneficial, but it is critical for the success of a business because they are quick to master new processes and are comfortable doing so. The adaptability of the millennials is the reason behind social changes and improvements. Millennials are quick to adapt to new technologies, and to their environment (Boyle, 2023). This generation has come to be known as very fast learners that are not afraid to throw themselves into new situations because they are able to adapt (Struckell, 2019). They are credited with being the driving force behind change. They have a level of agility to react to

changing environments and are very comfortable trying new things and learning new skills (Pew research centre, 2015). Millennials are able to perform well under pressure even with unknown outcomes (Twenge, 2006). Basing on this argument, we thus hypothesize that;

H2. There is a positive relationship between generational persona and adaptability tendencies

2.6.3 Mediating role of adaptability tendencies in the relationship between generational persona, and entrepreneurial behavior among Millennial entrepreneurs. The generation attributes of millennials greatly influence them (Boyle, 2023). Millennial entrepreneurs are pragmatic, innovation-oriented and focus on long-term development (Zhang *et al.*, 2021). Evidence shows that millennials are differently categorized because the economic, technological and social aspects of their growth period are unique (Twenge, 2006). It has been reported in prior studies that millennial entrepreneurs use generational attributes to perform by adapting to overcome challenges in the business environment (Othman *et al.*, 2018; Stewart *et al.*, 2017). Adaptability is conceptualized as an effective reaction that is being experienced by someone to adjust to the changing situation (Othman *et al.*, 2018). Millennials through their career pathways adapt to a series of situations, challenges and contexts.

Adaptation requires individuals to reevaluate their goals and attitudes. It is presumed that growth is driven by generational turnover, with each generation bringing new and innovative ideas (Strauss and Howe, 1991). It is this continuous innovation and idea generation that drive millennials to adapt and perform. Scholars (Howe and Strauss, 2003; Twenge, 2013; Dimock, 2019), support the notion that the millennial generation's behaviors are distinct to include; technologically savvy, high level of belief in themselves, multi taskers, job hoppers, ethnically diverse and the most highly educated generation in history. It is no surprise that they use such behaviors to adapt to the harsh conditions and perform in their businesses. Even Struckell (2019), stresses that it is these set of behaviors that influence them, their way of living, the way they work and are the drivers when chasing their entrepreneurial goals. Based on this, we thus hypothesize that;

H3. Adaptability tendencies mediates the relationship between generational persona, and entrepreneurial behavior among millennial entrepreneurs.

2.6.4 Adaptability Tendencies and Entrepreneurial Behavior. Millennials have grown up along with the technologies which require them to continuously adapt to changes. Drucker (1995) notes that, the entrepreneur may or may not be visionary in terms of an initial concept, but ultimate success is likely to be much more a function of appropriate and timely adaptation of the concept overtime. Entrepreneurs have to be able to overcome obstacles and adapt in order to perform. The entrepreneur has to make appropriate adjustments to the business and its strategic focus for him to be able to succeed (Drucker, 1995). The millennial entrepreneur has to make changes in strategic behavior, so as to improve competitive posture and achieve better fit between the business and its ecological niche (Schindehutte and Morris, 2001). The change in behavior can be in form of establishing/building networks with key contacts or by seeking for knowledge that help one to start, manage and develop the venture. Most businesses for the millennials are small (Liu *et al.*, 2019), they are defenseless against the changes in the environment in which they operate from, this is so because most of them use less capital to start and even to run their businesses. And they tend to rely on a small defined customer base which makes them vulnerable (Liu *et al.*, 2019).

According to Frese (2015), an entrepreneur can have a deeper impact on the core focus, and direction of their business. But where he/she has a strong intellectual and emotional attachment to their original concept, resistance to adaptation is likely (Schindehutte and Morris, 2001). Characteristics such as an ability to manage risks and tolerance for ambiguity have been shown to influence the adaptation behaviors of small firms (Morris and Zahra,

2000; Schindehutte and Morris, 2001). Scholars Liu *et al.* (2019) also found millennial entrepreneurs' businesses to require some level of adaptation for them to get higher levels of performance. Schindehutte and Morris (2001) adds that adaptation modifies the relationship between environmental hostility and performance of a business. Based on the above, we therefore hypothesize that;

- H4. There is a positive relationship between adaptability tendencies and entrepreneurial behavior.

3. Methodology

3.1 Research design, population and sample

A cross-sectional, questionnaire survey and correlational research design were used. This enabled data to be collected and analyzed at a single point in time (Ismail, 2023). The respondents were defined as millennial entrepreneurs in Kampala city. A correlational design was chosen because the study involved examining the relationships between the study variables (Nalweyiso *et al.*, 2022). As per the Krejcie and Morgan table guidelines for sample determination, the study focused on a sample of 382 millennial entrepreneurs in Kampala. This is because Kampala represents a third of Uganda's entrepreneurial activities and hosts 46% of all entrepreneurial set ups in Uganda (Uganda entrepreneurial ecosystem initiative phase 1, 2018). The study used a snowball sampling technique to select the respondents (Neuman, 2007). And to choose the participants, we used age inclusion and exclusion criteria. Millennial entrepreneurs formed the unit of analysis and inquiry. Useable questionnaires were received from 371 respondents representing a response rate of 98%. All the respondents were within the age bracket of the millennials who are 23–43 years old. Many of them were sole owners (67.1%), employing 1–5 workers (76%) and had worked in the enterprise for a period between 5 years and above (61.2%) and majority of them were using their own capital representing a 76.3%, this explains why most of their businesses were micro and small.

3.2 Controlling biases

To control for the common methods bias, the study used procedural remedies as recommended by Podsakoff *et al.* (2003) these included; using a 6-point scale to eliminate the middle point. Items were adopted and adapted to suit the current study, questionnaire items were simplified, we avoided double barreled questions, items were mixed based on the verbal anchors. To control for the Non Response Bias, we made physical visits to the respondent's workplaces, made phone calls and sent SMSs and guaranteed confidentiality to the respondents. To control for the endogenous bias, measurement models were confirmed using Confirmatory Factor Analysis (CFA) (Hair *et al.*, 2017). Lastly, we tested the influence of the confounding factors on entrepreneurial behavior among millennial entrepreneurs using control variables (age, gender and education).

3.3 Questionnaire and measurement items

Measurement items adapted from previous studies were employed (Ismail and Changalima, 2022). To collect data, we used a structured questionnaire (Nanjundaswamy *et al.*, 2023) which we developed after reviewing the existing literature and the constructs items in the questionnaire were anchored on a six Likert scale. This was favored because it does not give respondents an "easy way out" of picking a neutral option when they do not want to put their thoughts to the question (Nadler *et al.*, 2015). The study adopted items from previous studies with minor modifications to adjust to the current study context. Entrepreneurial behavior was measured in terms of technology savviness, risk-taking propensity, innovation-oriented

and multi-tasking. Generational persona was measured in terms of beliefs, values and attributes while adaptability tendencies was in terms of networking, cognition and learning.

3.4 Validity and reliability of the study instrument

We tested for reliability to determine whether the instrument can give consistent and dependable results if used repeatedly and it was tested for both Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) (Cherian *et al.*, 2023). At EFA we used Cronbach's Alpha Coefficient and at CFA we used the Composite Reliability Coefficient. We considered a cut-off of 0.70 appropriate in this study (Hair *et al.*, 2014). The Cronbach's Alpha coefficient was favored because it gives very few measurement errors (Field, 2013). However, caution was taken against a very high alpha coefficient like 0.9 and above as such a situation would mean same items.

For validity, we focused on content and construct validity. Content validity measured the extent to which individual items reflect the construct being measured (Field, 2009). We used 5 Academicians and 5 practitioners in the field of entrepreneurship to validate the items under the respective variables. A cut off of 0.7 and above was accepted and considered appropriate (Nalweyiso *et al.*, 2022). Construct validity was examined by carrying out convergent and discriminant validity (Blumberg *et al.*, 2014). To test for convergent validity, we used communalities through the principal component analysis as the extraction method to extract items that highly converge. Items with factor loadings of 0.5 and above were considered appropriate and retained for all the variables under study (Field, 2009; Hair *et al.*, 2014). To test for discriminant validity, we used the rotated component matrix through principal component analysis as the extraction method and varimax with kaiser normalization as the rotation method. Factors with eigenvalues greater than 1.0 were retained, for millennial entrepreneurial behavior multi-tasking had 4.105, technology savvy 3.946, innovation oriented 3.195 and risk-taking propensity 2.852 (see Table 1). For generational persona, eigenvalues were; attributes 2.695, cognition 2.273 and learning 1.950 respectively (see Table 2). For adaptability tendencies; networking had 3.717, cognition 3.492 while learning 3.168 (See Table 3).

3.5 Confirmatory Factor Analysis – CFA

After running EFA using SPSS, we run the CFA using AMOS version 23. Because our sample size was large and over 200, AMOS was the suitable software for CFA and later Structural Equation Modeling (SEM) for the study. According to Field (2009), a large sample size minimizes the negative effects of non-normality as seen in small samples. Also, Hair *et al.* (2010), echo that the negative effects associated with small samples significantly affect the results of the study but for the large samples above 200, these effects are considered insignificant.

CFA Measurement Model for Generational Persona, Adaptability Tendencies and Millennial Entrepreneurial Behavior.

The items for Generational Persona, Adaptability Tendencies and Entrepreneurial Behavior dimensions that remained after EFA were subjected to CFA. Generational Persona dimensions included Beliefs, Values and Attributes. Adaptability Tendencies had Cognition, Networking and Learning while for Entrepreneurial Behavior; Technology Savvy, Multitasking, Risk Taking Propensity and Innovation Oriented were the dimensions.

At CFA, the EFA model was re-specified where Generational Persona remained with only Beliefs with items like; B10 and B11, Adaptability Tendencies remained with one dimension of Networking with items like N2, N3, N4 and N8. Entrepreneurial Behavior also remained with one dimension of Multi-Tasking with items like MT1, MT2, MT3, MT4, MT5 and MT6.

Code	Label	Multitasking	Technology savvy	Innovation oriented	Risk-taking propensity
MT1	I give multiple tasks the same time	0.722			
MT7	I read office messages while in meetings	0.721			
MT8	I text clients even during meetings	0.687			
MT2	I use my skills to handle different workloads at the same time	0.671			
MT5	I am productive even when multitasking	0.665			
MT9	I answer clients' phone calls during meetings	0.642			
MT6	I now use less time when doing multiple tasks	0.619			
MT3	I immediately refocus once interrupted at work	0.581			
MT4	I easily manage my workload	0.550			
TS9	I normally use online platforms to promote my business		0.809		
TS6	I read the information concerning business on the Internet		0.807		
TS10	I do marketing for my business through social media		0.804		
TS4	I normally use my phone to look for business ideas		0.764		
TS8	I easily locate the information I want for my business on the Internet		0.762		
TS1	I evaluate the information I find on the internet		0.644		
IO7	I am a creative kind of person			0.780	
IO6	I consider myself to be creative in my thinking			0.767	
IO5	I enjoy trying out new ideas			0.729	
IO8	I am receptive to new ideas			0.728	
IO1	I generate new ideas for this business			0.643	
RTP10	The greater the risk, the more fun in that work				0.786
RTP11	I like to do things that almost paralyze me with fear				0.771
RTP13	I often do things that arouse a great deal of anxiety in me				0.698
RTP8	I like the feeling that comes with taking physical risks				0.683
RTP12	I like the feeling that comes from entering a new situation				0.640
<i>Eigen value</i>		4.105	3.946	3.195	2.852
<i>Variance (%)</i>		16.419	15.784	12.779	11.407
<i>Cumulative Variance (%)</i>		16.419	32.203	44.982	56.389
Source(s): Table by authors					

Table 1.
Rotated component matrix for millennial entrepreneurial behavior

MANM
21,2

152

Code	Label	Attributes	Values	Beliefs
A4	I have the ability to meet commitments in a timely manner	0.717		
A8	I have the willingness to take initiative	0.696		
A12	I have a basic understanding of business operations	0.690		
A5	I have the ability to overcome failure	0.636		
A10	I am able to think originally	0.607		
V9	I value doing work that affords me a good salary		0.778	
V7	I appreciate doing work that I find exciting		0.624	
V8	I think it is important that workers in this business be treated equally		0.615	
V3	Being creative is important to me		0.614	
V5	I like the opportunity to acquire new knowledge		0.540	
B11	I believe that everyone has a high value at work			0.821
B10	At work I believe that everyone's life is precious			0.819
B9	I believe that my physical abilities help me to perform in this business			0.516
	<i>Eigen value</i>	2.695	2.273	1.950
	<i>Variance (%)</i>	20.732	17.481	15.000
	<i>Cumulative Variance (%)</i>	20.732	38.213	53.213

Table 2.
Rotated component
matrix for generational
persona

Source(s): Table by authors

Code	Label	Networking	Cognition	Learning
N2	I am good at getting others to work well together	0.800		
N4	At work I understand people very well	0.791		
N3	I am able to make most people feel at ease around me	0.728		
N8	I am good at building relationships with influential people at work	0.677		
N7	I am the one who can get people to work together	0.660		
N13	I am good at using my connections to make things happen	0.612		
N20	I am good at using my connections to make things happen at work	0.586		
C11	I try to translate new information into my own understanding		0.739	
C12	I know what kind of information is most important to me		0.721	
C9	I think of several ways to solve a problem		0.708	
C10	I ask myself questions about the task before I begin		0.679	
C8	I am able to notice my competitor's weaknesses		0.618	
C4	I have enough experience to know our customers' needs		0.599	
C13	I ask myself if I have considered all the options when solving a problem		0.573	
L6	This business is able to survive because of my continuous learning			0.773
L4	Learning in this business guarantees business survival			0.757
L7	My ability to learn gives us a competitive advantage			0.667
L5	Unstable business situations provide me with a platform for learning			0.654
L3	Learning is an investment			0.616
L2	Learning is my basic value that help me improve my operations			0.603
	<i>Eigen value</i>	3.717	3.492	3.168
	<i>Variance (%)</i>	18.587	17.458	15.840
	<i>Cumulative Variance (%)</i>	18.587	36.045	51.885

Table 3.
Rotated component
matrix for adaptability
tendencies

Source(s): Table by authors

The removal of the weak items reduced the number of the items of the constructs as they were conceptualized. The model provided good fit as indicated by both Table 4 and Figure 2.

To assess discriminant validity, we used the Fornell-Larcker criterion by comparing the square root of the reflective constructs' AVE and correlations between the constructs. And all variables had AVEs which were higher than their squared correlation which means there was discriminant validity between them.

3.6 Structural Equation Modeling (SEM)

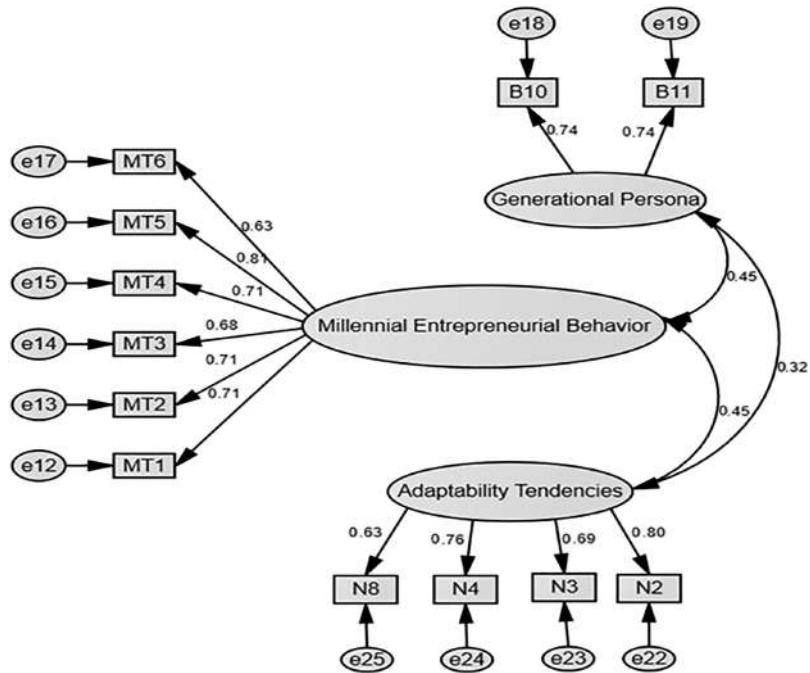
Structural Equation Modeling (SEM) using AMOS 23 was used to test the hypotheses. SEM was preferred because of its ability to analyze the direct, indirect and total relationships in the study comprehensively as opposed to the regression analysis which requires individual analysis for each of the relationships. Besides, since some hypotheses were mediations, SEM was chosen to explore the mediation effect in the study. It also offers a reasonable way to control for measurement error and some other alternative ways to explore the mediation effect (Hair *et al.*, 2017). This entailed simultaneously testing for both the direct and indirect relationships in a single model. And the mediation effects were tested using the bootstrap approach which we favored because it facilitates the determination of the significance or non-significance of the relationships expansively. It also provides information on the degree of fit for the entire model after controlling measurement error. The results are shown in Figure 3.

Variable	Code	Label	Beta	S.E.	C.R.	CR	AVE
Millennial Entrepreneurial Behavior	MT1	I give multiple tasks the same time	0.712			0.859	0.506
	MT2	I use my skills to handle different workloads at the same time	0.712	0.072	12.537		
	MT3	I immediately refocus once interrupted at work	0.684	0.069	12.072		
	MT4	I easily manage my workload	0.709	0.07	12.488		
	MT5	I am productive even when multitasking	0.809	0.072	14.046		
	MT6	I now use less time when doing multiple tasks	0.631	0.074	11.179		
Generational Persona	B10	At work I believe that everyone's life is precious	0.736			0.704	0.543
	B11	I believe that everyone has a high value at work	0.738	0.146	6.538		
Adaptability Tendencies	N2	I am good at getting others to work well together	0.802			0.815	0.526
	N3	I am able to make most people feel at ease around me	0.695	0.069	12.646		
	N4	At work I understand people very well	0.764	0.071	13.729		
	N8	I am good at building relationships with influential people at work	0.629	0.062	11.438		

Overall AVE = 0.525

Source(s): Table by authors

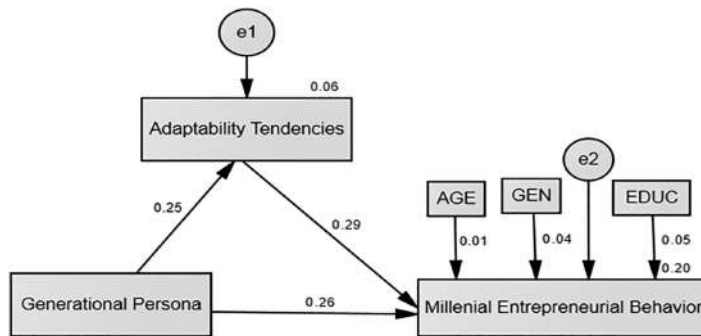
Table 4.
Measurement model for generational persona, adaptability tendencies and millennial entrepreneurial behavior



CMIN = 108.898, DF = 51, CMIN/DF = 2.135, P = 0.061, GFI = 0.953, AGFI = 0.929, IFI = 0.965, TLI = 0.954, CFI = 0.964, RMSEA = 0.055

Source(s): Figure by authors

Figure 2. Measurement model for generational persona, adaptability tendencies and millennial entrepreneurial behavior



CMIN = 108.898, DF = 51, CMIN/DF = 2.135, P = 0.061, GFI = 0.953, AGFI = 0.929, IFI = 0.965, TLI = 0.954, CFI = 0.964, RMSEA = 0.055

Source(s): Figure by authors

Figure 3. Model for Millennial Entrepreneurial behavior

4. Results

4.1 Hypothesis testing

The results of testing the direct paths between generational persona, adaptability tendencies and entrepreneurial behavior among millennials show that all the three hypothesized direct paths, were found to be significant as can be seen in Table 5.

Hypothesis 1: There is a positive relationship between generational persona and entrepreneurial behavior.

The results indicate a positive and significant relationship between generational persona and entrepreneurial behavior ($\beta = 0.264, p\text{-value} = 000$).

Hypothesis 2: There is a positive relationship between adaptability tendencies and entrepreneurial behavior.

The results indicate a positive and significant relationship between adaptability tendencies and entrepreneurial behavior ($\beta = 0.290, p\text{-value} = 000$).

Hypothesis 3: There is a positive relationship between generational persona and adaptability tendencies.

The results indicate a positive and significant relationship between generational persona and adaptability tendencies ($\beta = 0.227, p\text{-value} = 000$).

Hypothesis 4: Adaptability tendencies mediate the relationship between generational persona and entrepreneurial behavior.

These results are also supported by the descriptive statistics and correlation results in Table 6.

A bootstrap procedure was employed to test for mediation effects and also determine the level of significance of the mediation effect. Results are indicated in Table 7 and Table 8.

The study had one indirect hypothesis. To get its standardized indirect effect, we subtracted its standardized direct effect from the standardized total effect. Looking at its point estimate and the *p*-value, we see that it was supported. This is further confirmed by the lower and upper bounds because there are no zero scores between the limits (Ismail, 2022, 2023). The bootstrap result of testing the mediating effect of adaptability tendencies in the

			Unstandardized coefficients B	Standardized coefficients S.E. Beta		t- values	P
Gender	→	Entrepreneurial Behavior	0.091	0.095	0.044	0.953	0.341
Age	→	Entrepreneurial Behavior	0.009	0.045	0.010	0.204	0.838
Education level	→	Entrepreneurial Behavior	0.052	0.047	0.051	1.085	0.278
Generational Persona	→	Adaptability Tendencies	0.235	0.048	0.227	4.897	0.000
Generational Persona	→	Entrepreneurial Behavior	0.278	0.051	0.264	5.494	0.000
Adaptability Tendencies	→	Entrepreneurial Behavior	0.322	0.053	0.290	6.021	0.000

Source(s): Table by authors

Table 5.
Results for the direct
relationships

relationship between generational persona and entrepreneurial behavior revealed a significant partial mediation.

5. Discussion

Regarding H1, the finding revealed a positive and significant association between generational persona and entrepreneurial behavior among millennial entrepreneurs. This implies that people in a particular age group tend to share a distinct set of beliefs because they grew up and came of age during the same period. It is these beliefs that shape their behaviors at work or in business. Similarly, this indicates that millennial entrepreneurs who believe in their abilities, are likely to take risks that benefit their businesses. This is because the belief makes them willing to take risks. The results revealed that confident people are open to new experiences regardless of whether they can estimate the outcome or not. This finding is in agreement with Pidduck *et al.* (2023), who argue that beliefs reflect the specific conditions surrounding an opportunity and it gives one strength of the stimulus to pursue the opportunity and take risks to achieve their goal. However, their study focused on conceptualizing entrepreneurial mindset as a goal orientation formed through dispositional beliefs about entrepreneurship and opportunity beliefs which results in entrepreneurial behaviors. Our study looks at generational persona, adaptability tendencies and entrepreneurial behavior. Thus, this study adds to the existing body of knowledge by indicating that if one has confidence in their capabilities they are likely to start businesses,

	Mean	SD	1	2	3
Generational Persona (1)	4.883	0.973	1		
Adaptability Tendencies (2)	4.678	0.922	0.247**	1	
Entrepreneurial Behavior (3)	4.050	0.832	0.342**	0.365**	1

Note(s): ** Correlation is significant at the 0.01 level (2-tailed)
Source(s): Table by authors

Table 6.
Descriptive statistics and correlation results

	Generational persona
<i>Standardized Total Effects</i>	
Generational Persona → Adaptability Tendencies → Entrepreneurial Behaviour	0.336
<i>Standardized Direct Effects</i>	
Generational Persona → Adaptability Tendencies → Entrepreneurial Behaviour	0.265
<i>Standardized Indirect Effects</i>	
Generational Persona → Adaptability Tendencies → Entrepreneurial Behaviour	0.071

Source(s): Table by authors

Table 7.
Total, direct and indirect effects (beta coefficients)

Bootstrap mediation results Path	Point estimate	SE	Lower bounds	Upper bounds	P
Generational Persona-Adaptability Tendencies → Entrepreneurial Behavior	0.012	0.019	0.045	0.107	0.012

Source(s): Table by authors

Table 8.
Mediation effect

manage and develop them. Also, the findings of our study concur with GCT which assumes that when people believe in their abilities, they take relevant actions to achieve their aspirations.

For H2, findings revealed a positive and significant relationship between adaptability tendencies and entrepreneurial behavior. Thus, the hypothesis was supported. This shows that any positive changes in adaptability tendencies are associated with a positive change in entrepreneurial behavior. Such a finding implies that millennial entrepreneurs with the ability to withstand tough challenges at work are likely to focus on finding strategies that develop their businesses. This further indicates that millennial entrepreneurs who quickly decide on the threatening situations at work are likely to continuously look for new strategies that help their businesses. They enhance their individual skills through learning or experience and become more up to date. The enhanced skills make them more open to change by developing a growth mindset and believing that they can do new things. This way they become adaptable to the changes happening in their businesses and are therefore willing to take on new ways of working. Graham (2023), is in support of this finding by acknowledging that millennial leaders constantly learn new skills and adapt to situations and according to him, this involves continuous improvement which helps the business. Therefore, this finding agrees with the CAST which asserts that the insights of complex adaptive systems are the high degree of adaptive capacity and resilience in the face of disruptive change and the ability to learn from experience (Goldstein *et al.*, 2010).

Regarding H3, findings showed a positive and significant relationship between generational persona and adaptability tendencies. Hence, the hypothesis was supported. This shows that any positive changes in generational persona are associated with a positive change in adaptability tendencies. This finding indicates that millennial entrepreneurs who believe in themselves, are likely to take relevant actions in their businesses when faced with difficult situations. They have the courage to work on challenging tasks and are ready and willing to take on tasks that even seem impossible sometimes. The finding is similar to Pidduck *et al.* (2023) who asserts that a mindset consists of a disposition or readiness to respond to situations in a particular manner. It is that belief that causes them to think in an entrepreneurial way which then informs entrepreneurial behavior. The finding is explained by GCT which presumes that people who grew up together have similar beliefs and these beliefs drive them to become innovative and develop strategies for their businesses.

The results for H4 revealed that it was supported and it was a partial mediation. It is a partial mediation because both the direct and indirect relationships are significant (Hair *et al.*, 2021). This means that while the relationship between generational persona and entrepreneurial behavior can be directly ascertained, part of this contribution can be channeled through adaptability tendencies to relate to entrepreneurial behavior among millennials. This suggests that people who believe in their ideas, are likely to generate new solutions for their businesses. This finding indicates that millennial entrepreneurs who decide their own ideas of what is right continuously generate new ideas for their businesses. In other words, millennial entrepreneurs who believe that there is something good about their personality that drive their success, are likely to challenge their own assumptions about a task before working on it. Consequently, they innovatively enter new situations and design concepts and projects that benefit their enterprises. This concurs with Duong (2023), who noted that when people believe, their mindset drives them to exhibit pro-social behaviors including entrepreneurial actions that lead them to start and manage their businesses. However, his study mainly focused on social entrepreneurship but the current study looked at entrepreneurship in general with a special focus on entrepreneurial behaviors among millennial entrepreneurs in Uganda a less developed country.

6. Conclusion, implications and limitations of the study

In conclusion, this paper summarizes the mediating role of adaptability tendencies in the relationship between generational persona and entrepreneurial behavior among millennial entrepreneurs. The study digests that a cross-sectional, questionnaire survey and correlational research design is appropriate for getting a clear role of adaptability tendencies to bring out the relationship that exists between the generational persona of the millennial generation and the entrepreneurial behaviors that they demonstrate. Thus, these findings increase the amount of empirical evidence on the study context.

The study provides initial evidence on the role of adaptability tendencies on the relationship between generational persona and entrepreneurial behavior among millennial entrepreneurs by authenticating that generational persona and adaptability tendencies positively and significantly predict entrepreneurial behavior among Millennial Entrepreneurs in Uganda. More still, this study answers the call for more empirical studies on entrepreneurial behavior.

Regarding theory, the current study used GCT and CAST to explain the mediating role of adaptability tendencies on the relationship between generational persona and entrepreneurial behavior among millennial entrepreneurs. Therefore, the study contributes (1) to the use of a multi-theoretical approach to study entrepreneurial behavior, (2) to scientific knowledge with regard to the role of generational persona as an antecedent to entrepreneurial behavior among millennial entrepreneurs in Uganda, (3) to the mediating role of adaptability tendencies in the relationship between generational persona and entrepreneurial behavior among millennial entrepreneurs in Uganda.

In practice, millennial entrepreneurs may use the results of the study to see how they can improve their performance for their businesses to benefit. Specifically, they ought to focus on adaptability, and generational persona to exhibit those entrepreneurial behaviors which will generally lead to the improvement of their businesses. Similarly, having established that adaptability tendencies influences entrepreneurial behavior, this study informs millennials on the need to understand how to adapt in the unstable business environment if they are to start and successfully manage their businesses. They need to take the responsibility to build networks, and learn how to operate in such business atmosphere.

The present study has a few limitations, which could form the basis for further research (Wickramasinghe and Mallawaarachchi, 2023). This study focused only on millennial entrepreneurs in Kampala Uganda ignoring other equally important groups of entrepreneurs like the baby boomers, generation Xers, generation Y and others. As such, the findings of this research do not entirely apply to all entrepreneurs in the country and this may have affected the generalizability of the results. Therefore, future studies can be done on the entrepreneurial behavior focusing on all entrepreneurs from all generations. Also, the study used a quantitative approach, future studies should consider a mixed methodology, which may give a more holistic understanding of entrepreneurial behavior.

This study examined the relationship between generational persona, adaptability tendencies and entrepreneurial behavior among millennial entrepreneurs in Uganda. This suggests that the study focused only on generational persona and adaptability tendencies as antecedents of entrepreneurial behavior. This may have limited the scope of this study. Therefore, future studies can be done on entrepreneurial behavior using different variables.

References

- Asimwe, G.B. (2023), "Interrogating unemployment amid growth: tracking youth unemployment in neo-liberal Uganda, 1990-2019", *Journal of Asian and African Studies*, Vol. 58 No. 5, pp. 812-828, doi: 10.1177/00219096221076113.

- Bagheri, A. and Zhu, Y. (2023), "Millennial entrepreneurial persistence under harsh contextual environments in Iran", *Journal of General Management*, Vol. 48 No. 2, pp. 171-183, doi: 10.1177/03063070221080558.
- Blumberg, B., Cooper, D. and Schindler, P. (2014), *EBOOK: Business Research Methods*, McGraw Hill.
- Boyle, K.A. (2023), "Millennial career-identities: reevaluating social identification and intergenerational relations", *Journal of Intergenerational Relationships*, Vol. 21 No. 1, pp. 89-109, doi: 10.1080/15350770.2021.1945989.
- Bygrave, W.D. and Hofer, C.W. (1991), "Theorizing about entrepreneurship", *Entrepreneurship Theory and Practice*, Vol. 16 No. 2, pp. 13-22, doi: 10.1177/104225879201600203.
- Castellanza, L. and Woywode, M. (2024), "Types, determinants, and outcomes of entrepreneurial behaviours during crises", *Entrepreneurship and Regional Development*, pp. 1-30, doi: 10.1080/08985626.2024.2324320.
- Chan, C.K.Y. and Lee, K.K. (2023), "The AI generation gap: are Gen Z students more interested in adopting generative AI such as ChatGPT in teaching and learning than their Gen X and Millennial Generation teachers", *arXiv Preprint arXiv:2305.02878*, Vol. 10 No. 1, 60, doi: 10.1186/s40561-023-00269-3.
- Cherian, T.M., Mathivathanan, D., Arun Sj, C.J., Ramasubramaniam, M. and Alathur, S. (2023), "Influence of supply chain resilience, information technology capabilities and agility on cost and delivery performance in construction supply chains: an Indian perspective", *The International Journal of Logistics Management*, Vol. 34 No. 4, pp. 1050-1076, doi: 10.1108/ijlm-04-2022-0164.
- Dalton, K. (2014), "Bridging the digital divide and guiding the millennial generation's research and analysis", *Barry Law Review*, Vol. 1, doi: 10.1525/sp.2007.54.1.23.
- Dimock, M. (2019), "Defining generations: where Millennials end and Generation Z begins", *Pew Research Center*, Vol. 17 No. 1, pp. 1-7.
- Drucker, P. (1970), "The new markets and the new capitalism", *The Public Interest*, Vol. 21, p. 44.
- Drucker, P.F. (1995/2006), *People and Performance: the Best of Peter Drucker on Management*, Collins, Google Scholar RemoteXs, New York.
- Duong, C.D. (2023), "Karmic beliefs and social entrepreneurial intentions: a moderated mediation model of environmental complexity and empathy", *Journal of Open Innovation: Technology, Market, and Complexity*, Vol. 9 No. 1, 100022, doi: 10.1016/j.joitmc.2023.100022.
- Field, A. (2009), "Logistic regression", *Discovering Statistics Using SPSS*, Vol. 264 No. 1, p. 315.
- Field, A. (2013), *Discovering Statistics Using IBM SPSS Statistics*.
- Frese, M. (2015), *Psychological Interventions for Effective Entrepreneurial Mind-Sets*, NUS, Business School, Department of Management and Organization, Singapore.
- Goldstein, J., Hazy, J. and Lichtenstein, B. (2010), *Complexity and the Nexus of Leadership: Leveraging Non-linear Science to Create Ecologies of Innovation*, Palgrave Macmillan, New York, NY, ISBN 0230107710.
- Graham, T.M. (2023), *Considerations and Characteristics of the Millennial Leader in Today's Global Society*, (Ed.), IGI Global, Hershey, PA.
- Guga, E. and Peta, E. (2023), "Exploring the factors influencing entrepreneurial behavior among Albanian millennials", *International Journal of Professional Business Review*, Vol. 8 No. 8, e03636, doi: 10.26668/businessreview/2023.v8i8.3636.
- Hair, J.F., Black, W.C., Babin, B.J. and Anderson, R.E. (2010), *Multivariate Data Analysis*, 7th ed., Pearson, New York.
- Hair, J.F., Gabriel, M. and Patel, V. (2014), "AMOS covariance-based structural equation modeling (CB-SEM): guidelines on its application as a marketing research tool", *Brazilian Journal of Marketing*, Vol. 13 No. 2.

- Hair, J., Hollingsworth, C.L., Randolph, A.B. and Chong, A.Y.L. (2017), "An updated and expanded assessment of PLS-SEM in information systems research", *Industrial Management and Data Systems*, Vol. 117 No. 3, pp. 442-458, doi: 10.1108/imds-04-2016-0130.
- Hair, J.F., Hult, G.T.M., Ringle, C.M., Sarstedt, M., Danks, N.P. and Ray, S. (2021), "An introduction to structural equation modeling", in *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R. Classroom Companion: Business*, Springer, Cham, doi: 10.1007/978-3-030-80519-7_1.
- Hamid, R.S., Ukkas, I., Goso, G., Abror, A., Anwar, S.M. and Munir, A.R. (2023), "The role of social media in building trust, self-perceived creativity and satisfaction for millennial entrepreneurs", *Journal of Small Business and Enterprise Development*, Vol. 31 No. 2, pp. 377-394, doi: 10.1108/jsbed-11-2022-0482.
- Han, C., Mamahit, H. and Panggara, R. (2023), "Christlikeness: an attempt to build christian spirituality for Indonesian millennial generation", *Evangelikal: Jurnal Teologi Injili Dan Pembinaan Warga Jemaat*, Vol. 7 No. 1, pp. 23-34, doi: 10.46445/ejti.v7i1.559.
- Hermawan, I., Inayah, I., Hindrawati, G., Suharmanto, S. and Nugroho, J. (2024), "Fostering creative performance in digital business: the role of innovative millennial entrepreneurship", *Management and Accounting Review (MAR)*, Vol. 23 No. 1, pp. 521-540.
- Horsaengchai, W. (2011), Are millennials potential entrepreneurs?.
- Howe, N. and Strauss, W. (2003), *Millennials Go to College*, American Association of Collegiate Registrars, Washington, pp. 1-4.
- Ismail, I.J. (2022), "I trust friends before I trust companies: the mediation of WOM and brand love on psychological contract fulfilment and repurchase intention", *Management Matters*, Vol. 19 No. 2, pp. 167-186, doi: 10.1108/MANM-02-2022-0033.
- Ismail, I.J. (2023), "I have to apply this strategy! Understanding the mediating effect of digitalization on strategic orientations and sustainable competitive advantage among small enterprises in Tanzania", *Management Matters*, Vol. 20 No. 1, pp. 53-73, doi: 10.1108/MANM-01-2022-0019.
- Ismail, I.J. and Changalima, I.A. (2022), "Thank you for sharing! Unravelling the perceived usefulness of word of mouth in public procurement for small and medium enterprises", *Management Matters*, Vol. 19 No. 2, pp. 187-208, doi: 10.1108/MANM-01-2022-0005.
- Kessler, A.N. (2016), Retaining the non retainable: a correlational exploration of work centrality and turnover among the millennial workforce, (May).
- Kim, R.E. and Mackey, B. (2014), "International environmental law as a complex adaptive system", *International Environmental Agreements: Politics, Law and Economics*, Vol. 14 No. 1, pp. 5-24, doi: 10.1007/s10784-013-9225-2.
- Kurniawati, T., Suparmoko, M., Nuryanto, U.W., Suseno, B.D. and Basrowi, B. (2023), "Effect of business climate on entrepreneurial behavior and its implications for performance in culinary micro enterprises, serang regency", *International Journal of Education, Social Studies, and Management (IJESSM)*, Vol. 3 No. 1, pp. 126-134, doi: 10.52121/ijessm.v3i1.144.
- Levesque, M. and Minniti, M. (2006), "The effect of aging on entrepreneurial behavior", *Journal of Business Venturing*, Vol. 21 No. 2, pp. 177-194, doi: 10.1016/j.jbusvent.2005.04.003.
- Li, C., Murad, M., Shahzad, F., Khan, M.A.S., Ashraf, S.F. and Dogbe, C.S.K. (2020), "Entrepreneurial passion to entrepreneurial behavior: role of entrepreneurial alertness, entrepreneurial self-efficacy and proactive personality", *Frontiers in Psychology*, Vol. 11, 1611, doi: 10.3389/fpsyg.2020.01611.
- Liu, J., Zhu, Y., Serapio, M.G. and Cavusgil, S.T. (2019), "The new generation of millennial entrepreneurs: a review and call for research", *International Business Review*, Vol. 28 No. 5, 101581, doi: 10.1016/j.ibusrev.2019.05.001.
- Mayanja, S., Ntayi, J.M., Munene, J.C., Wasswa, B. and Kagaari, J.R. (2023), "Ecologies of innovation as a mediator between nexus of generative influence and entrepreneurial networking among small

- and medium enterprises in Uganda”, *Journal of Small Business and Entrepreneurship*, Vol. 35 No. 2, pp. 236-262, doi: 10.1080/08276331.2020.1764731.
- Morris, M.H. and Zahra, S. (2000), “Adaptation of the business concept over time: the case of historically disadvantaged South African owner/managers”, *Journal of Small Business Management*, Vol. 38 No. 1, pp. 92-100.
- Nadler, J.T., Weston, R. and Voyles, E.C. (2015), “Stuck in the middle: the use and interpretation of mid-points in items on questionnaires”, *The Journal of General Psychology*, Vol. 142 No. 2, pp. 71-89, doi: 10.1080/00221309.2014.994590.
- Nalweyiso, G., Mafabi, S., Kagaari, J., Munene, J., Ntayi, J. and Abaho, E. (2022), “Relational agency and relational people management: evidence from Uganda’s micro and small enterprises”, *Asia Pacific Journal of Innovation and Entrepreneurship*, Vol. 16 No. 1, pp. 51-68, doi: 10.1108/APJIE-01-2022-0004.
- Nanjundaswamy, A., Kulal, A., Dinesh, S. and Divyashree, M.S. (2023), “Electric vehicles in the business processes and sustainable development”, *Management Matters*, Vol. 20 No. 1, pp. 95-113, doi: 10.1108/MANM-11-2022-0111.
- Neuman, W.L. (2007), *Basics of Social Research Methods: Qualitative and Quantitative Approaches*, 2nd ed., Allyn and Bacon, Boston.
- Nicolaou, N. and Shane, S. (2009), “Can genetic factors influence the likelihood of engaging in entrepreneurial activity?”, *Journal of Business Venturing*, Vol. 24 No. 1, pp. 1-22, available at: doi: 10.1016/j.jbusvent.2007.11.003.
- Nsereko, I., Balunywa, W., Munene, J., Orobias, L. and Muhammed, N. (2018), “Personal initiative: its power in social entrepreneurial venture creation”, *Cogent Business and Management*, Vol. 5 No. 1, 1443686, doi: 10.1080/23311975.2018.1443686.
- Othman, R., Kamal, N.M., Alias, N.E., Ismail, S. and Sahiq, A.N.M. (2018), “Positive psychological traits and career adaptability among millennials”, *International Journal of Academic Research in Business and Social Sciences*, Vol. 8 No. 9, pp. 1420-1433.
- Pew Research Center (2015), *Millennials Generation Next, Confident, Connected and Open to Change*, National Center for Health Statistics, MD.
- Pidduck, R.J. and Tucker, R. (2022), “Meaningful heterodoxies: advancing entrepreneurship through engagement with unorthodox phenomena”, *Journal of Business Venturing Insights*, Vol. 18, e00319, ISSN 2352-6734 doi: 10.1016/j.jbvi.2022.e00319.
- Pidduck, R.J., Clark, D.R. and Lumpkin, G.T. (2023), “Entrepreneurial mindset: dispositional beliefs, opportunity beliefs, and entrepreneurial behavior”, *Journal of Small Business Management*, Vol. 61 No. 1, pp. 45-79, doi: 10.1080/00472778.2021.1907582.
- Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y. and Podsakoff, N.P. (2003), “Common method biases in behavioral research: a critical review of the literature and recommended remedies”, *Journal of Applied Psychology*, Vol. 88 No. 5, pp. 879-903, doi: 10.1037/0021-9010.88.5.879.
- Qureshi, M.A., Khaskheli, A., Qureshi, J.A., Raza, S.A. and Khan, K.A. (2023), “Factors influencing green purchase behavior among millennials: the moderating role of religious values”, *Journal of Islamic Marketing*, Vol. 14 No. 6, pp. 1417-1437, doi: 10.1108/jima-06-2020-0174.
- Rodrigo, A. and Mendis, T. (2023), “Impact of social media influencers’ credibility on millennial consumers’ green purchasing behavior: a concept paper on personal and social identities”, *Management Matters*, Vol. 20 No. 2, pp. 134-153, doi: 10.1108/MANM-12-2022-0113.
- Schindehutte, M. and Morris, M.H. (2001), “Understanding strategic adaptation in small firms”, *International Journal of Entrepreneurial Behavior and Research*, Vol. 7 No. 3, pp. 84-107, doi: 10.1108/eum000000005532.
- Schumpeter, J. (1965), “Economic theory and entrepreneurial history”, in *Aitken Explorations in Enterprise*, Harvard University Press, Cambridge, MA, by NS Tülücea 2015.

- Sessoms-Penny, S., Underwood, K.M. and Taylor, J. (2023), "A decade later: exploring managerial insights on millennials", *Management Matters*, Vol. 20 No. 1, pp. 36-52, doi: 10.1108/MANM-03-2022-0044.
- Ssekiziyivu, B. and Banyenzaki, Y. (2021), "Business incubation practices and sustainability of incubatee start-up firms in Uganda", *Cogent Business and Management*, Vol. 8 No. 1, 1963168.
- Stewart, J.S., Oliver, E.G., Cravens, K.S. and Oishi, S. (2017), "Managing millennials: embracing generational differences", *Business Horizons*, Vol. 60 No. 1, pp. 45-54, doi: 10.1016/j.bushor.2016.08.011.
- Strauss, W. and Howe, N. (1991), *Generations: The History of America's Future, 1584 to 2069*, Vol. 538, Quill, New York, p. v3.0_r3.
- Strauss, W. and Howe, N. (1997), "The fourth turning: an American prophecy—what the cycles of history tell us about America's next rendezvous with destiny", *Broadway, Great Falls*.
- Struckell, E.M. (2019), "Millennials: a generation of un-entrepreneurs", *Journal of Business Diversity*, Vol. 19 No. 2.
- Twenge, J.M. (2006), *Generation Me: Why Today's Young Americans Are More Confident, Assertive, Entitled, and More Motivated than Ever before*, Free Press, New York.
- Twenge, J.M. (2013), "The evidence for generation me and against generation we", *Emerging Adulthood*, Vol. 1 No. 1, pp. 11-16, doi: 10.1177/2167696812466548.
- Twenge, J.M. (2023), *Generations: The Real Differences Between Gen Z, Millennials, Gen X, Boomers, and Silents—And What They Mean for America's Future*, Simon & Schuster, doi: 10.56315/PSCF12-23, available at: <https://andeglobal.org/publication/uganda-entrepreneurial-ecosystem-initiative-phase-1-summary-report-of-findings-recommendations/> and https://www.ubos.org/wp-content/uploads/publications/01_20202019_Statistical_Abstract_Final.pdf
- Wang, Y., Zhou, H., Zhang, Y. and Sun, X. (2022), "Role of entrepreneurial behavior in achieving sustainable digital economy", *Front Public Health*, Vol. 10, 829289, PMID: 35284394; PMCID: PMC8913519, doi: 10.3389/fpubh.2022.829289.
- Weber, J. and Urick, M.J. (2023), "Searching for a stronger generational understanding than just age: a multi-country analysis of millennials' personal values and moral reasoning", *Journal of Intergenerational Relationships*, Vol. 21 No. 1, pp. 110-135, doi: 10.1080/15350770.2021.1951920.
- Wibowo, S.F., Purwana, D., Wibowo, A. and Saptono, A. (2019), "Determinants of entrepreneurial intention among millennial generation in emerging countries", *International Journal of Entrepreneurship*, Vol. 23 No. 2, pp. 1-10.
- Wickramasinghe, V. and Mallawaarachchi, C. (2023), "Hope during the COVID-19 lockdown – the role of organization interventions", *Management Matters*, Vol. 20 No. 1, pp. 74-94, doi: 10.1108/MANM-08-2022-0091.
- Yiga, S., Abaho, E., Nsereko, I., Ngoma, M., Balunywa, W. and Basalirwa, E.M. (2023), "Exhibiting entrepreneurial behavior at work: a lived experience of a millennial entrepreneur", *Journal of Work-Applied Management*, Vol. 15 No. 2, pp. 314-329, doi: 10.1108/jwam-04-2023-0033.
- Yolles, M. (2018), "The complexity continuum, Part 1: hard and soft theories", *Kybernetes*, Vol. 48 No. 6, pp. 1330-1354, doi: 10.1108/k-06-2018-0337.
- Zahoor, N., Khan, Z., Meyer, M. and Laker, B. (2023), "International entrepreneurial behavior of internationalizing African SMEs—Towards a new research agenda", *Journal of Business Research*, Vol. 154, 113367, doi: 10.1016/j.jbusres.2022.113367.
- Zhang, L., Zhou, X. and Shirshitskaia, E. (2021), "Millennials' entrepreneurial values, entrepreneurial symbiosis network and new ventures growth: evidence from China", *Frontiers in Psychology*, Vol. 12, 713280, doi: 10.3389/fpsyg.2021.713280.

Further reading

Nalweyiso, G., Mafabi, S., Kagaari, J., Munene, J. and Abaho, E. (2023), "Theorizing relational people management in micro enterprises: a multi-theoretical perspective", *Journal of Work-Applied Management*, Vol. 15 No. 1, pp. 6-20, doi: 10.1108/jwam-02-2022-0008.

Nsereko, I. (2020), "Comprehensive social competence and social entrepreneurial action: the mediating role of entrepreneurial tenacity", *World Journal of Entrepreneurship, Management and Sustainable Development*, Vol. 17 No. 1, pp. 16-29, doi: 10.1108/wjem-04-2020-0038.

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The influence of transformational and transactional leadership on employee retention: mediating role of employee engagement

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Abstract

Purpose – The study aims to investigate the relationship between transformational, transactional leadership and employee retention with the mediating effect of employee engagement.

Design/methodology/approach – Using judgemental sampling, data were collected from 650 employees serving at different levels in the pharmaceutical industry of Bangladesh. Structural equation modeling was employed to test the hypothesized relationships using AMOS.

Findings – The study found that transformational and transactional leadership significantly impact employee retention. The direct effects of transformational leadership (TFL) on employee engagement were found to be significant, while transactional leadership (TSL) has no significant direct influence on employee engagement. The output of the mediation analysis revealed that employee engagement significantly mediates the relationship between TFL and employee retention, whereas it showed an insignificant relationship between TSL and employee retention.

Practical implications – Based on the findings and the literature support, it can be postulated that an appropriate leadership style, especially TFL, that drives employee engagement can influence employees to stay with the organization longer. The study recommends that managers and leaders comprehend the importance of leadership and its appropriateness to retain valued employees by ensuring high workplace engagement.

Originality/value – The study would provide a unique insight into TFL and TSL practices and their impact on the pharmaceutical industry's employee retention. This study also extends the research on employee engagement as a mediator between TFL and TSL and employee retention.

Keywords Transformational leadership, Transactional leadership, Employee retention, Employee engagement, Pharmaceutical industry

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1. Introduction

Amidst globalization and rigid competition in the global marketplace, retaining and engaging qualified employees become a growing challenge for organizations (Chopra *et al.*, 2024; Mukherjee *et al.*, 2019). Retaining employees is crucial for gaining competitive advantages and organizational success (Islam *et al.*, 2024; Kim *et al.*, 2020). In a knowledge-based society, organizations need to retain employees with expertise and experience who have the potential to serve in the best possible ways (Islam *et al.*, 2024). Employee retention is a major concern for organizations to adapt to the ever-changing business environment. Employee retention is a process in which the employees are encouraged to remain with the organization for the maximum period of time (Khalid and Nawab, 2018). No organization expects a high turnover rate, which negatively influences business performance and reduces the organization's reputation (Ali and Ullah, 2023; Arasanmi and Krishna, 2019). Acquiring and properly placing the right employees is challenging, but keeping them serving is more challenging (Lee *et al.*, 2022). The researchers claim that employee retention is crucial, and companies need to focus on retention strategies (Chopra *et al.*, 2024; Mukherjee *et al.*, 2019). However, noticeable attention is absent for retaining employees, particularly, in Asian contexts like Bangladesh. The literature demonstrates that Asian countries have abundant young talents serving in different organizations, but there is a shortage of mobility and career sustainability (Eva, 2015; Arasanmi and Krishna, 2019; Lee *et al.*, 2022). Engaging employees is also a big challenge for organizations in this region. Employee engagement is an essential factor that connects employees physically and psychologically. Employee engagement refers to the extent to which employees are employed and devote themselves toward their roles physically, cognitively and emotionally (Aboramadan and Kundi, 2020; Kahn, 1990). The more the employees are engaged, the more productive they are (Ali *et al.*, 2021). Therefore, employee engagement is an essential predictor of organizational success. Employee wants meaning in their job, and it is the responsibility of the leaders to add vitality to their work. Prior research stated that an effective leadership approach could make the job meaningful and boost employee intention to stay (Kim *et al.*, 2020).

Retaining employees has become a great challenge for Bangladesh's private sector, irrespective of industry. Average employee turnover in Bangladesh's public and private sectors is about 9% and 27%, respectively (Rubel *et al.*, 2017). However, this challenge is acute in the pharmaceutical industry of Bangladesh. The job-switching rate of employees in the pharmaceutical industry is also alarming (Jalil *et al.*, 2017). Tazin (2016) stated that retaining highly qualified and professional employees is a significant challenge for pharmaceutical companies. Akter (2018) found that pharmaceutical employees tend to quit their jobs due to inadequate compensation, lack of career growth and training opportunities, ultimately increasing the turnover rate. As a result, the development of this industry is not always upward moving and faces unexpected fluctuation (Jalil *et al.*, 2017). Moreover, high turnover decreases productivity and increases the organization's cost (Islam *et al.*, 2024). Hence, retaining employees in this industry is a buzzword that should be investigated.

Researchers have identified different reasons which can enhance employee retention, for instance, perceived organizational support and organizational commitment (Arasanmi and Krishna, 2019), corporate social responsibility (Kim *et al.*, 2020), green human resource management (green HRM) and psychological empowerment (Islam *et al.*, 2022), HR practices and work environment (Islam *et al.*, 2024), contacting knowledge contract and psychological contract (Nayak *et al.*, 2021). Earlier literature also identified leadership practices, such as transformational leadership (TFL) and transactional leadership (TSL), as an important predictor of employee retention (Thomas and Aurora, 2024; Tian *et al.*, 2020; Ohunakin *et al.*, 2019; Krishna *et al.*, 2022). TFL is a process of raising moral values and ethical issues and mobilizing followers towards reform (Yukl, 2010). Under this leadership theory, leaders go beyond self-interest and inspire followers to achieve the goals which are good for the group

and organization (Ali *et al.*, 2023). On the other hand, TSL occurs when leaders offer subordinates rewards and disciplines based on their level of performance (Yukl, 2010). Under this leadership style, leaders motivate followers by appealing to the leader's self-interests (Burns, 1978) and followers are expected to perform their duties and responsibilities according to the instructions of the leader (Ali *et al.*, 2023). In Asian and South Asian contexts, fewer studies have identified considering leadership practices and employee retention (Iqbal *et al.*, 2022). Moreover, there is a research gap concerning TFL, TSL and employee retention in South Asian and local contexts. Furthermore, in the context of Bangladesh, leadership practices get less emphasis in the literature (Jabber *et al.*, 2023) and few studies have explored the influence of leadership practices on different employee work outcomes in the organization. Specifically, there is a paucity of research on TFL and TSL practices on employee retention. Moreover, there is a research gap in the context of pharmaceuticals focusing on leadership practices, employee retention and employee engagement as work outcomes in the local and global context (Ali, 2021).

Another focus of the current research is to see the mediating effect of employee engagement between TFL, TSL and employee retention. Work engagement was covered in numerous studies, whereas less research has been found that explored the probable relationship between leadership attitude and employee engagement in wider HR literature (Gemedá and Lee, 2020). There is a lack of empirical findings that connect work engagement with leadership style (Kwarteng *et al.*, 2024). Moreover, despite evidence on the relationship between leadership styles and employee retention (Park and Pierce, 2020), studies exploring the mediating role of work engagement in the link between leadership and retention were insignificant. Therefore, the present research focused on assessing the association between leadership style, employee engagement and retention, considering employee engagement as a mediating variable (Figure 1). Moreover, research pertaining to retention in the pharmaceutical sector is ignored, particularly in the context of Bangladesh. The existing literature on retention as a significant element of strategic HRM is insufficient, and there is a dearth of empirical research on retention in developing countries.

Even though employee retention is an extensive research area, still many scholars are working on this to resolve the turnover problem of organizations (Climek *et al.*, 2024). Academic researchers have recommended that leadership style could have an immense influence on employee retention even in various contexts (Park and Pierce, 2020; Younas and Waseem Bari, 2020). The current study focuses on two prominent approaches of leadership

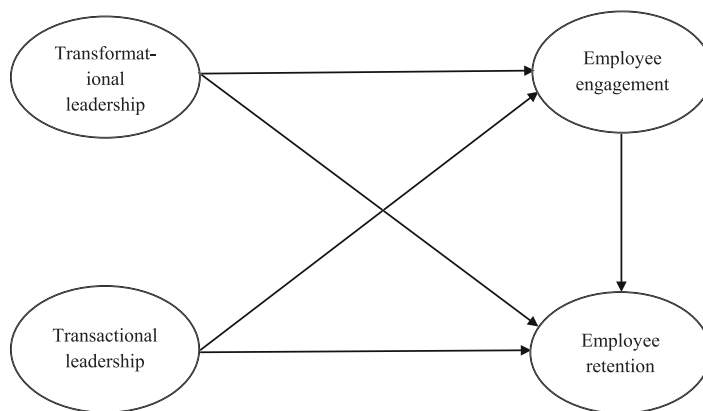


Figure 1.
Research framework

Source(s): Figure by authors

namely: transformational and transactional, in relation to their importance in enhancing the employee retention state of the organizations. There is a gap found in earlier literature between the relationship of specific/single leadership style and their association either with employee engagement or retention. Therefore, this study incorporates two approaches of leadership and employee engagement to explore their impact on employee retention. Employee engagement might bring a new intuition into mediating impacts on the relationship between individual leadership approaches and employee retention. Thus, this study imparts an effort to connect the gap in the existing literature regarding the linkage between TFL, TSL, employee engagement and retention.

The study contributes to the body of knowledge regarding how leadership can play a crucial role in retaining and engaging employees. For this purpose, social exchange theory was incorporated. The study provides a comprehensive comparative analysis between TFL and TSL. It indicates how this differentiation can help practitioners understand each leadership style for retaining and engaging employees in the context of the pharmaceutical industry of Bangladesh. Moreover, the practitioners might have clear insights into the impact of TFL and TSL on employee retention directly and indirectly through employee engagement. Therefore, the study will help them to decide about the leadership style and apply the appropriate one to change the situation positively by ensuring high engagement and devotion of the subordinates.

2. Literature review

2.1 Social exchange theory

Employment sustainability involves a series of transactions between leaders and employees in the form of exchanging benefits (Rubel *et al.*, 2020). Social exchange theory (SET) can be viewed as a building block of employment relationships (Blau, 1964; Rubel *et al.*, 2020). SET assumes an exchange relationship and trustworthiness between the involved parties who try to fulfil their mutual responsibilities (Blau, 1964). Blau also advocated that intended involvements of individual actions are instigated by the returns they expect to receive from other parties. Therefore, SET might be a suitable theoretical model to elucidate employee retention by leadership style and reciprocating engagement through long-term relation (Aboramadan and Kundi, 2020; Rubel *et al.*, 2020).

SET advocates that social exchanges between leaders and followers are a bidirectional transaction (Blau, 1964). Leader exchanges required resources with their followers, which are reciprocated by the behavioral outcomes and performance of the subordinates (Babalola *et al.*, 2021). This theory also illustrates that subordinates' positive and negative actions and behaviors depend on the leaders' approaches through mutual reciprocity (Aboramadan and Kundi, 2020). A good number of studies rooted in SET explored how leadership promotes employee intentions and work-outcomes in a positive manner (Aboramadan and Kundi, 2020). Hence, based on the previous literature support, the study believes that when employees positively perceive their leaders' behaviors, they tend to reciprocate with positive outcomes such as intention to stay longer, work engagement, high commitment, etc.

The assumptions of SET can be related to the present research framework. Specifically, the components of TSL are considered as the mechanism of economic exchange. Employees become enthusiastic to be engaged and stay with the organization when they find contingent reward and active management by exception which are considered as the supports provided by the leaders. The rewards act as an exchange force for the employees to be highly engaged with the assigned responsibilities (Ali *et al.*, 2023) and serve the organization for longer (Ali and Ullah, 2023). On the contrary, TFL is contemplated as the component of social exchange. Transformational leaders highlight the vision and prioritize morality and ethics, which improves employee motivation and perceived support. Employees find social support

as transformational leaders believe in appreciation and participation (Ali *et al.*, 2023). Thus, the social exchange of TFL encourages employee reciprocity through engagement and intention to work for the organizations. Therefore, the study extends the application of SET to TFL, TSL, employee engagement and retention.

2.2 Employee retention

In order to accomplish objectives and keep organizations productive, it is highly required to keep devoted and desirable employees, which can be defined as employee retention (Khalid and Nawab, 2018). Retention refers to the capability of the organizations to keep employees serving in the job for a more extended period (Lee *et al.*, 2022). Mwita and Kinemo (2018) stated that organizations invest time and resources to attract, hire and train employees; therefore, retaining them is crucial as it is not easy to convert an employee into a contributor. Irrespective of the sectors, retaining valued employees is essential for all kinds of organizations as turnover costs the organization. Turnover drains employees, which affects organizational performance (Kundu and Lata, 2017; Thomas and Aurora, 2024). High turnover leads to adverse outcomes for which an organization suffers, which involves high costs, interruption in regular workflow and lack of expertise from the employee side (Islam *et al.*, 2024; Khalid and Nawab, 2018).

Employees are the most significant strategic assets to gain sustainable competitive advantages as they are non-substitutable (Kundu and Lata, 2017). Organizations perceive employee retention as a competitive point because of a gap between talent supply and talent demand. Additionally, employee retention is an important parameter to measure the organization's strength and the caliber of the organizational leaders (Kundu and Lata, 2017). Scholars suggested various retention strategies like job variety, job rotation, working environment, financial and non-financial rewards, fringe benefits, learning opportunities, career development opportunities, work-life balance, challenging work, supportive colleagues and attitudes of leaders (Kundu and Lata, 2017). A good relationship with the leader increases subordinates' psychological attachment to the organization (Ali *et al.*, 2023).

2.3 Employee engagement

Kahn (1990) conceptualized engagement as a means of employee devotion to their physical and emotional roles. It reflects personal energies to drive into the role behaviors and find the self within that role (Hameduddin and Lee, 2019). Engagement consists of three prime components: absorption, dedication and vigor (Aboramadan and Kundi, 2020; Schaufeli *et al.*, 2006). The extent of employee enthusiasm toward the role is absorption, whereas dedication indicates the level of employee concentration while performing the roles (Ali *et al.*, 2020). Vigor denotes the extent to which employees become ready to invest time, energy and effort (Ali *et al.*, 2020). Work engagement is an essential determinant of individual and organizational outcomes (Aboramadan and Kundi, 2020), such as in-role and extra-role behavior, employee commitment, job satisfaction, productivity, performance in the workplace, organizational citizenship behavior (OCB) and high involvement (Hameduddin and Lee, 2019; Kwarteng *et al.*, 2024; Rubel *et al.*, 2018; Yousf and Khurshid, 2024).

Engaged employees are more likely to stay with the organization and eager to learn about the organizational process (Chopra *et al.*, 2024; Kundu and Lata, 2017). Employee engagement is the combination of employees' emotional and cognitive commitment to the organization (Li *et al.*, 2021). Employees are likely to be more empowered and repay more in the organizational process if they are more engaged (Kwarteng *et al.*, 2024). Certain factors play a crucial role in engaging employees like human resource practices (opportunities for career growth, compensation and rewards, working environment, training and development) (Kundu and Lata, 2017), supportive boss (Kwarteng *et al.*, 2024; Li *et al.*, 2021), favorable

working environment (Kundu and Lata, 2017), etc. Moreover, the leadership styles the leaders apply are the critical determinants of employee engagement (Ali and Ullah, 2023). Employees become inspired by the vision set by the leader, rewards communicated with the subordinates and even by the attitude of the leaders (Kwarteng *et al.*, 2024).

2.4 Transformational leadership

TFL is defined as a “style of leadership that transforms followers to rise above their self-interest by altering their morale, ideals, interests and values, motivating them to perform better than initially expected” (Pieterse *et al.*, 2010, p. 610). TFL goes beyond the self-interest of the leaders. This leadership is an approach to raising employees’ moral and ethical values toward change and reform (Yukl, 2010). Transformational leaders emphasize adaptation, develop a vision and inspire followers to accomplish that vision (Bakker *et al.*, 2022; Kwarteng *et al.*, 2024). This is an approach whereby leaders instigate the subordinates to identify interests and goals and to achieve beyond expectations (Ali *et al.*, 2023; Buil *et al.*, 2019). Transformational leaders play an essential role in effective management and bringing changes to the organization. Such leaders have the calibre to transform an organization by articulating a vision through clarifying and empowering employees to work to achieve that vision.

TFL contains four important behaviors: idealized influence, inspirational motivation, intellectual stimulation and individualized consideration (Bass, 1990; Buil *et al.*, 2019). Idealized influence is termed charisma and denotes leaders reflecting moral and ethical behavior. They act just as a model for followers by remaining confident and holding a high standard of personality. Inspirational motivation refers to the ability to instigate followers’ intentions by articulating an inspirational vision. Transformational leaders stimulate subordinates by presenting and empowering them to go for the vision. Intellectual stimulation involves a leader’s ability to inspire followers to innovate and create, demonstrate new challenges and problems and energize them to find new ideas and ways to solve problems. Finally, individualized consideration means taking care of subordinates’ needs, paying attention to their growth and development and providing learning opportunities through coaching and mentoring. As a result of these features, previous studies supported that TFL is more successful than other leadership approaches in enhancing positive behavioral outcomes like employee commitment, job satisfaction, OCB, service behavior, employee engagement and intention to stay (Ali *et al.*, 2023; Ali and Ullah, 2023; Buil *et al.*, 2019; Kwarteng *et al.*, 2024; Park and Pierce, 2020; Thomas and Aurora, 2024).

2.5 Transactional leadership

TSL focuses on the transaction or exchange of interests between leaders and followers (Ali *et al.*, 2023; Alrowwad *et al.*, 2020). This exchange relies on the leader who communicates the goals, tasks or duties and specifies the conditions and rewards for accomplishing the goals and completing the assignments. Transactional leaders clarify what to do and how satisfactory performance will be rewarded (Bass and Avolio, 1994). The transaction can be the exchange of psychological or material rewards given by the leaders, which can be strengthened through the threat of punishment. This leadership approach conceptualizes the idea of effective leadership by promoting desired behavior by offering rewards and preventing unwanted behavior by giving physical and psychological penalties (Ali *et al.*, 2023; Alrowwad *et al.*, 2020; Bass and Bass, 2008). There are three crucial components of TSL: contingent reward, active management-by-exception and passive management-by-exception (Bass, 1996). As a motivating factor, contingent reward indicates the ability and persistence of the leader in clearly postulating expectations and communicating the

outcomes and benefits to the followers (Raziq *et al.*, 2018). In this regard, a leader who specifies the rewards of task accomplishment can expect higher performance from the followers (Raziq *et al.*, 2018). On the contrary, active management-by-exception reflects the managing quality of the leaders (Alrowwad *et al.*, 2020). Here, the leader tries to maintain the organization's status quo. Inversely, passive management-by-exception refers to the involvement of the leader and his/her actions only in case of the emergence of problems (Alrowwad *et al.*, 2020).

Transactional leaders allow employees limited or no participation in decision-making (Dai *et al.*, 2013). Transactional leaders apply compensation methods to improve employee performance, such as rewards for high performance and reprimands for low performance (Burns, 1978). TSL limits the individual development of innovative skills and deters individual and organizational performance (Dai *et al.*, 2013). However, studies also found TSL is an influential positive leadership approach connected with employee behavioral outcomes like OCB, intention to stay, employee commitment and engagement (Ali *et al.*, 2023; Gameda and Lee, 2020; Ha and Moon, 2023; Sobaih *et al.*, 2020).

3. Hypotheses

3.1 Transformational, transactional leadership and employee retention

Retaining employees, specifically within the context of dyad linkage between the leaders and followers, is vital for sustainable performance and competitive advantages (Tian *et al.*, 2020). Chen and Wu (2017) stated that leadership style plays a significant predicting role in affecting employee intention to stay. The factors influencing employees' retention intention are likely to influence their turnover (Sobaih *et al.*, 2020). TFL is an important determinant of employee retention in the organization and also contributes to employability and stronger ties with employees over time in organizations (Thomas and Aurora, 2024). Sobaih *et al.* (2020) investigated how both TFL and TSL affect hotel employees' intention to stay with the organization and found that TFL had a more significant positive impact on employees' choice to stay than TSL. Additionally, they recommended emphasizing more investment in TFL to reduce the extent of employee turnover. Park and Pierce (2020) found that TFL negatively impacted the turnover intention of child welfare workers. On the other hand, Wells and Peachey (2011) revealed that TFL and TSL could reduce turnover intention and enhance employee attachment to the job and organization.

Confirming SET, the leaders' abilities to exchange and inspire are the critical determinants to retaining employees in the organization (Zhang *et al.*, 2018). Employees tend to reveal positive behaviors, for instance, staying with the organization, when they get proper treatment, motivation and rewards as an exchange relationship (Sobaih *et al.*, 2020). Employees reciprocate the social exchange (idealized influence, inspirational motivation, intellectual stimulation and individualized consideration) of TFL and economic exchange (contingent reward) of TSL through dedicated attachment to the organization for a longer period of time. Therefore, the current research predicts the relationship between TFL, TSL and employee retention in the following directions.

H1a. TFL is positively related to employee retention.

H1b. TSL is positively related to employee retention.

3.2 Transformational, transactional leadership and employee engagement

Leaders may have direct and indirect multiplier impacts on the drivers of employee engagement. The components of leadership style stimulate employee inclination toward work and enhance their skills which positively influences employee engagement (Li *et al.*, 2021).

A leader's positive attitude affects the followers' positive behavior, which, in turn, enhances workforce engagement in the workplace (Popli and Rizvi, 2016). Leaders not only play a role in increasing work engagement but also create a culture of engagement in the entire organization (Popli and Rizvi, 2016). Popli and Rizvi (2016) also stated that TSL and TFL contributes to higher engagement levels of frontline employees. Balwant *et al.* (2019) expressed that TFL played an influential role in increasing employee engagement and job resources significantly moderated the relationship.

Moreover, TFL was also found as a moderating determinant; for example, Hai *et al.* (2020) claimed the significant moderating role of TFL in the relationship between high-performance HR practices and employee engagement. Aboramadan and Kundi (2020) investigated how TFL better explains work engagement than TSL. According to the authors, TFL had a stronger impact on work engagement than TSL, but both approaches were significant predictors for engaging the workforce. Similarly, Adeniji *et al.* (2020) found that TFL and TSL were positively related to employee engagement, but TFL had a higher impact on engagement than TSL. On the other hand, Ali *et al.* (2023) argued that TSL is critical for generation Z as they prioritize the exchange rewards. Talented employees become more engaged when they find clear task assignments and transparent rewards and acknowledgements for their accomplishments (Ali *et al.*, 2023). Ghani *et al.* (2018) concluded that both TFL and TSL styles adopted by female leaders could significantly contribute to engaging employees in their working place. According to SET, TFL and TSL encourage employee engagement by offering social exchange and economic exchange, respectively. These arguments assist in developing the following hypotheses:

H2a. TFL is positively related to employee engagement.

H2b. TSL is positively related to employee engagement.

3.3 Employee engagement and retention

The capability to retain employees is a dominant criterion that indicates the company's strength (Lee *et al.*, 2022). Employee retention largely relies on the extent of employee engagement which is negatively proportional to turnover intention (Chopra *et al.*, 2024). Researchers found that engaged employees tend to stay longer in the organization. Employees are inclined to contribute more to the organizations if they are committed and engaged (Kundu and Lata, 2017). On the other hand, employees with less emotional bonding have a greater tendency to quit the organization (Al Mehrzi and Singh, 2016). Engaged employees generally feel motivated, involved, enthusiastic and energetic toward their work (Al Mehrzi and Singh, 2016; Ali *et al.*, 2023). Engaged employees are passionate at such a level that they cannot even feel when time has passed, and employees' attitude toward work leads to higher performance consistency. Bhattacharya (2015) confirmed that employee engagement is positively related to Seafarer retention. A meta-analysis conducted by Pandita and Ray (2018) disclosed that talent management is an effective tool for keeping employees engaged, and a strong sense of engagement ensures the longer attachment of employees to the organization. Initiatives, such as acknowledgement and feedback, taken by the organization leaders to improve employee engagement can significantly contribute to retaining employees (Jindal *et al.*, 2017). Book *et al.* (2019) claimed that employee engagement is a significant determinant of intention to stay, and it mediates the relationship between leadership satisfaction and intention to stay. Similarly, Houssein *et al.* (2020) concluded that employee engagement, work-life balance and career development are the central factors of employee retention. Hence, the study hypothesized the relationship between employee engagement and retention in the following manner.

H3. Employee engagement is positively related to employee retention.

3.4 Mediating role of employee engagement

The current study is extended by assessing employee engagement as a mediating variable in the relationship between TFL, TSL and employee retention. The importance of a sound relationship between leaders and subordinates to enhance employee engagement has been prioritized in the prior literature (Edelbroek *et al.*, 2019; Gameda and Lee, 2020). Study outcomes revealed that the higher the employee engagement, the more the possibility to stay with the organization or less tendency to quit the job (Bellamkonda *et al.*, 2021). Likewise, several leadership publications have identified that leaders play a crucial role in increasing engagement with the job and organization. TFL significantly enhances employee engagement, while TSL positively improves employee task performance (Gameda and Lee, 2020). Hence, it can be claimed that TFL and TSL may lead to increased employee engagement, increasing employee retention in the organization. The mediating effect of employee engagement can be related to the SET perspective, which explains that social attitude evolves through a reciprocal relationship. Reciprocity, revealed through engagement and intention to serve, for TFL is considered social exchange and TSL is considered an economic exchange. Particular rules of exchange drive this connection and both parties (leaders and followers) abide by the exchange rules, which develop a loyal relationship over time. Consequently, leaders who influence and relate well with their followers may have the possibility to get a highly engaged workforce in the organization.

Accordingly, this study examined the mediating effect of employee engagement in leadership literature. Edelbroek *et al.* (2019) identified that employee engagement influenced by TFL and TSL is a potential mediator in the relationship between these two leadership approaches and the quality of open innovation. Their study supported the partial mediation effect of employee engagement between TFL and the quality of open innovation. Moreover, it was found that employee engagement partially mediates the relationship between transformational, transactional and laissez-faire leadership and work outcomes (Gameda and Lee, 2020). Similarly, Obuobisa-Darko (2020) found a partial mediating role of employee engagement in the relationship between TFL and employee task performance, but in the case of TSL, the mediating effect of employee engagement was not supported. Other studies also found that employee engagement mediates the impact of leadership on employee performance (Buil *et al.*, 2019), turnover intention (Naeem and Khurram, 2020), affective commitment (Aboramadan and Kundi, 2020) and OCB (Aboramadan and Kundi, 2020). Hence, the current study argues that employee engagement may mediate the relationship between TFL, TSL and employee retention. Therefore, the hypotheses can be formulated as:

H4a. Employee engagement positively mediates the relationship between TFL and employee retention.

H4b. Employee engagement positively mediates the relationship between TSL and employee retention.

4. Methodology

4.1 Population and sample

The study is correlational and cross-sectional since data were collected and analyzed the corresponding relationship of the constructs used in the research framework (Rubel *et al.*, 2018; Sekaran and Bougie, 2010). The study used a structured questionnaire as this approach is highly suitable for sociological constructs like leadership, engagement and retention (Burmester *et al.*, 2015). Population indicates the entire set of people the researcher intends to examine (Sekaran and Bougie, 2010). Though it is crucial to know about the population, there is no clear and specific information about the total number of employees working in the

pharmaceutical industry of Bangladesh. BBS report (2016–2017) revealed 177,000 as the approximate number of employees which can be considered as the population of the present study. Specifically, employees at different levels (lower, mid and top) were considered as the population of the study. Three levels of employees have been taken into consideration as they are under the direct supervision of the immediate upper level. Moreover, each level of employee knows about the leadership behaviour of their immediate supervisor.

The present study collected data only from employees of allopathic companies as most employees, around 67% of the total, work in these companies (Ali, 2021). Additionally, Dhaka city companies were considered the sampling frame since 75.39% of total pharmaceutical companies are located inside the capital. The study used a judgemental sampling technique, a non-probability sampling design, for collecting the data from the respondents. Respondents were chosen based on the following three criteria; (1) One year of serving experience in the current organization, (2) working under a specific supervisor and (3) the individual has regular interaction and has to report to his or her reporting supervisor. Employees working at three different levels in pharmaceutical companies were considered as the sample. The number of samples is 650 which is endorsed by the scholarly arguments (Hair *et al.*, 2013; Sekaran and Bougie, 2010).

A formal mail was sent to the organization to seek the approval of pharmaceutical companies through the HR department, and the mail covered a short description of the project and the criteria for choosing respondents. Data were collected (October–November 2021) online due to the Covid-19 pandemic using a well-prepared comprehensive Google form sent to participants using their mail addresses. The respondents were communicated earlier before sending the mail. After sending the questionnaire, they were communicated as soft reminders to fill it out. Google forms are now widely used to collect data as this method is highly appropriate for distance communication and quick data collection. It is also convenient for the respondents as they can complete the questionnaire at their preferred time (Kapade, 2017). Furthermore, there is no need to input data separately and hardly any possibility of missing data, as choosing each option for each item was mandatory to submit the response finally. We sent the Google form questionnaire to 1,000 respondents working in allopathic pharmaceutical companies and collected 657 responses, while seven were eliminated as outliers and 650 were considered suitable. For multivariate analysis, a range of samples from 30 to 500 is adequate (Roscoe, 1975); hence, a sample of 650 is deemed enough.

4.2 Measures

A total of 25 items for four constructs were adapted from earlier recognized studies. The independent variables are TFL and TSL, which were evaluated by five items and four items adapted from Alrowwad *et al.* (2020). The sample items of leadership style are “*My immediate supervisor encourages me to take challenges*” (transformational leadership) and “*When I am unable to complete my work, my immediate supervisor reprimands me*” (transactional leadership). The study used nine items to measure employee engagement from Bakker and Schaufeli (2003), which is the current research’s mediating variable. The sample item of employee engagement is “*At my work, I feel bursting with energy.*” The study followed Kyndt *et al.* (2009) for adapting seven items to measure employee retention, and the sample item is “*I find future growth of my career within this company.*” The items for all the constructs were measured using a five-point Likert scale of “1 = strongly disagree” to “5 = strongly agree.”

4.3 Data analysis techniques

The study used Statistical Package for Social Science (SPSS) for descriptive analysis, and SEM with Analysis of Moment Structure (AMOS) was employed to test the hypotheses. SEM

is an integration of two interconnected models, one is a measurement model, and another is a structural model. The measurement model is also known as the outer model, which examines the linkage between observable indicators and latent variables, and the structural model is acknowledged as the inner model, which assesses the combined interconnection between latent variables (Mueller and Hancock, 2019).

As a second-generation technique, SEM has several advantages which overcome the limitations of first-generation techniques. Regression analysis as the first-generation technique just can develop a model but cannot assess the unobservable variable. Moreover, measurement of error of variables (both random and systematic error) is also not possible in regression analysis (Haenlein and Kaplan, 2004). The first-generation technique cannot demonstrate the direct association of exogenous variables and the relationship between multiple endogenous variables with multiple exogenous variables. Anyway, SEM can demonstrate the relationship between multiple dependent variables with multiple independent variables and develop complex models. It enables the researchers to construct unobservable variables measured by indicators (items, manifest) as well as to present explicitly model measurement error for the observed variables (Chin, 1998; Rubel, 2015). Thus, SEM emerges as a dynamic analysis to assess measurement and structural model simultaneously with errors of the observed variables.

5. Result

5.1 Common method variance

Common method variance (CMV) is a frequently occurring problem when data for dependent and independent variables are gathered from the same participants (Tehseen *et al.*, 2017). CMV appears due to high common variance ($\geq 50\%$) of a single factor from the dataset (Lindell and Whitney, 2001). To minimize CMV, the current research employed several measures, such as the proximal methodological separation technique used in the questionnaire. Harman's single-factor test was used to trace such problems with unrotated factor analysis and eigenvalue greater than one. In the present study, three factors accounted for 62.80% of the total variance, and one single factor explained 44.90%, the highest variance. CMV was not a major concern for this study since a single factor did not account for more than 50% of the variance.

5.2 Respondent's profile

In the current study, most respondents were male (74.6%), and the result was consistent with the earlier literature in the same industry (Ali, 2021). The most common age group was 21–30 (60.5%); more than half of the respondents fall into this age range (21–30). Around 50% of the employees in this survey have a Bachelor's degree, and 46.2% acquired a Master's degree. The highest percentage of the length of service went for 1–5 years (64.2%), and it showed consistency with the study of Haque and Islam (2018). In addition, most respondents (70.9%) worked in mid-level positions in the organizations, and the position holders at the lower and top levels were consecutively 11.7% and 17.4% (Table 1).

5.3 Correlation matrix and descriptive statistics

Employee engagement has the highest mean value (4.20), the lowest mean score (3.56) was for TSL, and the mean value of all the constructs was above 3.0 (Table 2). TSL and employee engagement were found to have the highest and lowest standard deviation, with a score of 0.91 and 0.65 consecutively. The current study found a positive correlation between the constructs used in the research framework. TFL showed significant positive correlations with TSL (0.795^{**}, $p < 0.01$), employee engagement (0.442^{**}, $p < 0.01$) and employee retention

Demographic variable	Attribute	Frequency (N = 650)	Percentage
Gender	Male	485	74.6
	Female	165	25.4
Age	21–30	393	60.5
	31–40	189	29.1
	41–50	51	7.8
	51–60	17	2.6
Education	Bachelor	326	50.2
	Master	300	46.2
	MPhil	12	1.8
	PhD	12	1.8
Experience	1–5 years	417	64.2
	6–10 years	127	19.5
	11–15 years	77	11.8
	16–20 years	18	2.8
Job Level	Above 20 years	11	1.7
	Upper level	113	17.4
	Mid-level	461	70.9
	Lower level	76	11.7

Source(s): Table by authors

Table 1. Demographic profile of respondents

Constructs	TFL	TSL	EE	ER	Mean	SD
Transformational leadership	1				3.64	0.90
Transactional leadership	0.795**	1			3.56	0.91
Employee engagement	0.442**	0.405**	1		4.20	0.65
Employee retention	0.619**	0.575**	0.680**	1	4.04	0.76

Note(s): **Correlation is significant at the 0.01 level (2-tailed)

TFL-Transformational Leadership, TSL-Transactional Leadership, EE-Employee Engagement, ER-Employee Retention

Source(s): Table by authors

Table 2. Correlation matrix and descriptive statistic of the constructs

(0.619**, $p < 0.01$). Similarly, TSL demonstrated positive correlations with employee engagement (0.405**, $p < 0.01$) and employee retention (0.575**, $p < 0.01$). Lastly, employee engagement indicated a significant positive correlation with the pharmaceutical industry’s employee retention (0.680**, $p < 0.01$).

5.4 Confirmatory factor analysis (CFA)

Confirmatory factor analysis (CFA) was performed to test the constructs’ measurement scale, whereas each dimension’s variance was fixed at 1.0. The extent of the goodness of the relation between the observed and latent variables was tested in the measurement model. The goodness-of-fit of the measurement model determines how good the items are in examining the intended constructs (Ooi, 2013). The study used Chi-square statistics, GFI, AGFI, CFI, NFI, RMSEA and RMR to assess the goodness of fit of the measurement model. The study considered standardized factor loading of each of the constructs. An acceptable range for factor loading is slightly different according to scholarly opinions, for example, Stevens (2002) recommended that the minimum value of a factor loading must be more than 0.4, while Hair *et al.* (2009a, b) stated that the standardized factor loading value needs to be minimum 0.5 and preferably, at least 0.7. In the present study, the factor loading ranges

between 0.617 and 0.849 (Table 3), which indicates the loading of the items is more than 0.50, but two items (EE 9 = 0.42 and ER 7 = 0.37), were removed due to low loading. Hair *et al.* (2013) suggested deleting the item if the factor loading is less than 0.50.

This measurement model's goodness-of-fit indices are as follows: normed chi-square value (χ^2/df) = 2.751, GFI = 0.922, AGFI = 0.903, CFI = 0.958, IFI = 0.958, NFI = 0.936, TLI = 0.952, RMSEA = 0.052 and RMR = 0.037. Standardized estimates of the constructs of the CFA model are presented in Figure 2. The default model is statistically significant, and model fit indices demonstrate that the model is well fit. This model meets most of the fit indices as normed chi-square values are 2.751 and GFI, AGFI, CFI, IFI, NFI and TLI are greater than 0.90 (Ooi, 2013) as well as RMSEA and RMR are less than 0.08. Therefore, the data is successfully verified to fit the model.

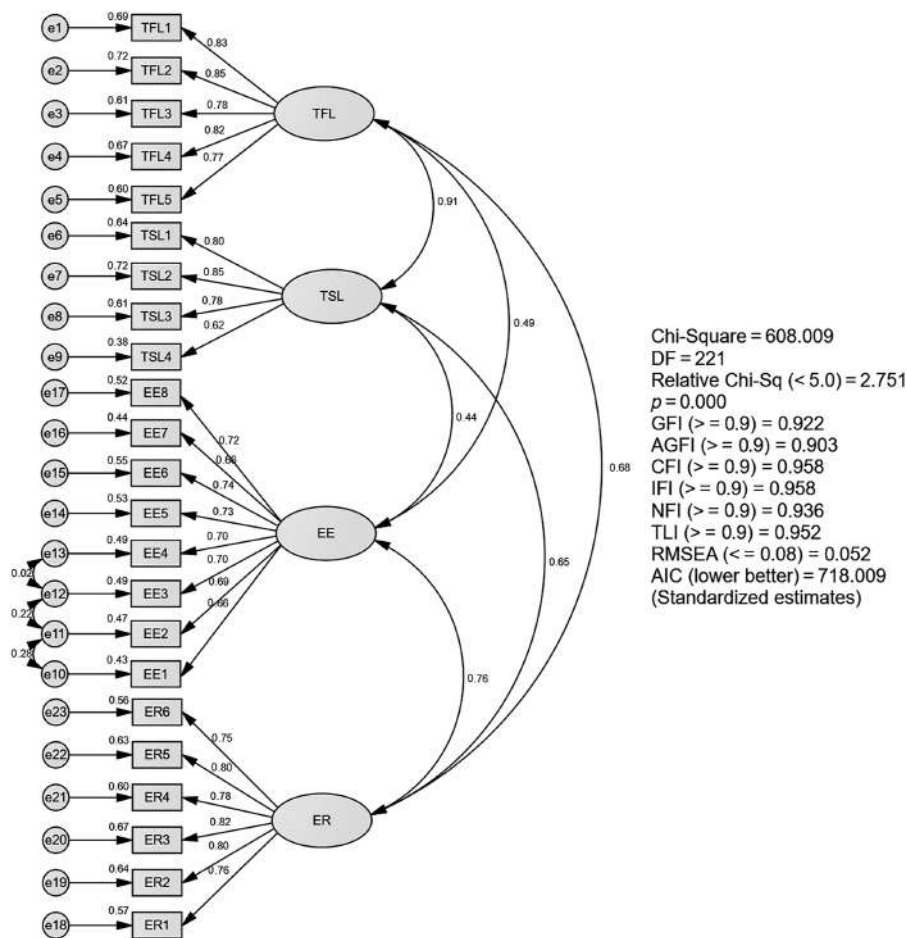
5.5 Reliability and validity

We tested content validity, construct validity, convergent validity and discriminant validity. Content validity refers to the extent to which the measurement unveils the specifically aimed domain of the content (Ooi, 2013). High loadings (>0.90) and high inter-item correlation (>0.80) are required to be avoided, whereas the correlation of inner items is suggested to be moderate (Ooi, 2013). In the present study, the highest factor loading is for TSL 2 (0.849) below 0.90. Hair *et al.* (2013) described construct validity as "the degree to which a set of measure items assess the identical construct." The factor loadings are above 0.50, which supports the factorability of items and establishes construct validity. The value of composite reliability (CR) was also used to measure construct validity. The minimum value of CR should be 0.70 (Ooi, 2013), and the range of CR of this study's constructs is acceptable. The

Constructs	Items	Factor loading	Cronbach's alpha	CR	AVE
Transformational leadership	TFL1	0.831	0.904	0.905	0.656
	TFL2	0.846			
	TFL3	0.778			
	TFL4	0.817			
	TFL5	0.775			
Transactional leadership	TSL1	0.800	0.846	0.850	0.589
	TSL2	0.849			
	TSL3	0.784			
	TSL4	0.617			
Employee engagement	EE1	0.655	0.887	0.885	0.592
	EE2	0.686			
	EE3	0.703			
	EE4	0.703			
	EE5	0.730			
	EE6	0.743			
	EE7	0.665			
	EE8	0.721			
Employee retention	ER1	0.757	0.904	0.904	0.612
	ER2	0.799			
	ER3	0.817			
	ER4	0.777			
	ER5	0.796			
	ER6	0.747			

Table 3.
Factor loadings,
Cronbach's α , AVEs
and CRs

Note(s): TFL-Transformational Leadership, TSL-Transactional Leadership, EE-Employee Engagement, ER-Employee Retention
Source(s): Table by authors



Chi-Square = 608.009
 DF = 221
 Relative Chi-Sq (< 5.0) = 2.751
 p = 0.000
 GFI (> = 0.9) = 0.922
 AGFI (> = 0.9) = 0.903
 CFI (> = 0.9) = 0.958
 IFI (> = 0.9) = 0.958
 NFI (> = 0.9) = 0.936
 TLI (> = 0.9) = 0.952
 RMSEA (< = 0.08) = 0.052
 AIC (lower better) = 718.009
 (Standardized estimates)

Note(s): TFL-Transformational Leadership, TSL-Transactional Leadership, EE-Employee Engagement, ER-Employee Retention
Source(s): Figure by authors

Figure 2.
CFA model

construct's lowest composite reliability value is 0.850, indicating that all the constructs' CR value is above 0.80. Convergent validity was used to test the state of agreement of multiple items used to measure the same concept (Rubel, 2015). CR, AVE and factor loadings are often used to measure convergent validity. The value of AVE should be a minimum of 0.50 (Kline, 2010). Ooi (2013) and Bagozzi and Yi (1988) recommended that CR should exceed 0.60.

The AVE of each construct is as follows: transformational leadership = 0.656, transactional leadership = 0.589, employee engagement = 0.592 and employee retention = 0.612, so all constructs' AVE are above 0.50 as recommended. CR of each construct is as follows: transformational leadership = 0.905, transactional leadership = 0.850, employee engagement = 0.885 and employee retention = 0.904. As suggested by Alarcón *et al.* (2015), the CR values of four constructs are above 7.0. Most of the factors are highly loaded with a value greater than 0.60. The findings reveal that reliability

and convergent validity are satisfactory. Hair *et al.* (2009a, b) stated that discriminant validity is the extent to which a construct is truly distinct from other constructs. To establish discriminant validity, the correlation coefficient should not be too high (more than 0.90) or too low (less than 0.10) (Hair *et al.*, 1998; Ooi, 2013). The correlation matrix shows that the highest value of the correlation coefficient is 0.867 (transactional leadership), less than 0.90 and the lowest value is 0.780 (employee engagement), greater than 0.10. Thus, discriminant validity is confirmed in this study. Discriminant validity is also tested by comparing the AVE's square root with the correlation coefficients between the constructs (Ooi, 2013). Table 4 shows that the square root of AVE was larger than its correlation between every pair of the constructs. Therefore, this evidence is enough to conclude that the discriminant validity of this study is at an acceptable level.

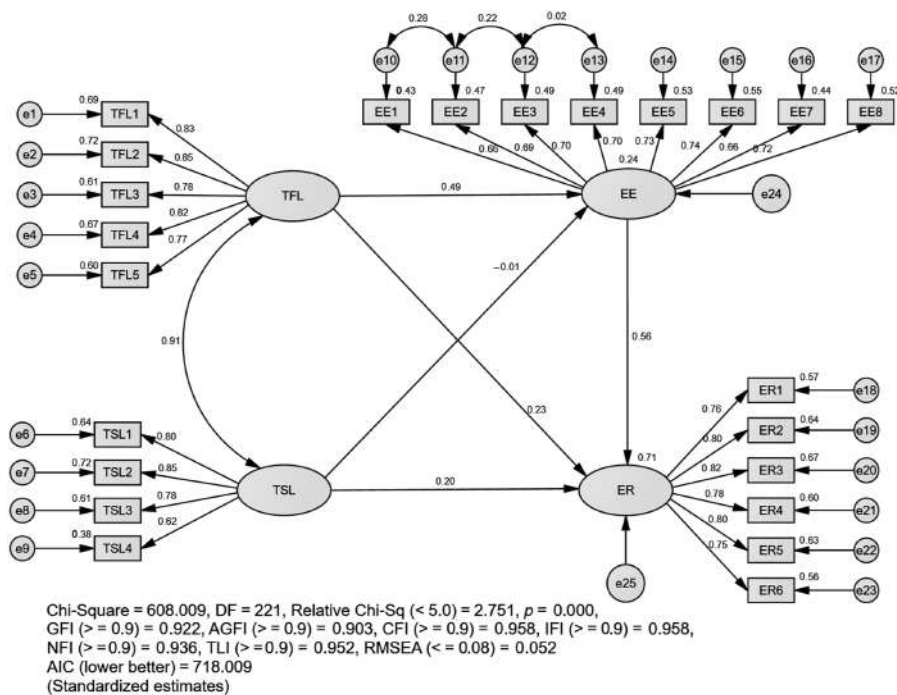
5.6 Assessing structural model

5.6.1 *Direct effect.* The structural model was well-fit to meet the criteria of fit indices; chi-square value (χ^2/df) = 2.751, GFI = 0.922, AGFI = 0.903, CFI = 0.958, IFI = 0.958, NFI = 0.936, TLI = 0.952, RMSEA = 0.052 and RMR = 0.037 (Figure 3). The standardized path coefficient is shown in the path diagram of this model. The present study formulated hypotheses to assess the relationships between TFL, TSL, employee engagement and retention. Based on the standardized estimate and *p*-value of AMOS output (Table 5) of this model, a decision on the hypothesis was made. In hypotheses 1a and 1b, it was hypothesized that TFL and TSL positively impact employee retention. The relationship between TFL and employee retention was significant ($\beta = 0.229$, CR = 2.309, *p* = 0.021). Moreover, the impact of TSL on employee retention was found significant ($\beta = 0.199$, CR = 2.039, *p* = 0.041); hence, hypotheses 1a and 1b were accepted. Hypothesis 2a and 2b postulate the positive influence of TFL and TSL on employee engagement. The analysis reveals that TFL's effect on employee engagement ($\beta = 0.492$, CR = 3.505, *p* = 0.000) was positive and significant. The positive relationship between TSL and employee engagement ($\beta = -0.007$, CR = -0.051, *p* = 0.960) was not accepted because of the insignificant *p*-value. Accordingly, Hypothesis 2a was supported, while 2b was rejected. The impact of employee engagement on employee retention was illustrated with hypothesis 3, and the relationship was found to be significantly positive ($\beta = 0.558$, CR = 12.121, *p* = 0.000); therefore, this study accepted hypothesis 3.

5.6.2 *Mediating effect of employee engagement.* This section explains the output of the mediating effect of employee engagement between TFL, TSL and employee retention. The mediation impact is supposed to be significant if the indirect relationship between exogenous and endogenous variables comes out as significant (Preacher and Hayes, 2008). Moreover, the confidential bootstrap interval's upper limit and lower limit values were shown to ensure the mediation result. Preacher and Hayes (2008) recommended that if the value of the lower

Constructs	TFL	TSL	EE	ER
TFL	0.810			
TSL	0.808	0.867		
EE	0.486	0.440	0.780	
ER	0.681	0.653	0.757	0.783

Table 4. Discriminant validity of the constructs **Note(s):** TFL-Transformational Leadership, TSL-Transactional Leadership, EE-Employee Engagement, ER-Employee Retention **Source(s):** Table by authors



Note(s): TFL-Transformational Leadership, TSL-Transactional Leadership, EE-Employee Engagement, ER-Employee Retention
Source(s): Figure by authors

Figure 3. Structural model

Hypothesis	Direct path	Std Estimate	Std Error	Critical Ratio	P Value	Decision
H1a	TFL → ER	0.229	0.078	2.309	0.021	Supported
H1b	TSL → ER	0.199	0.095	2.039	0.041	Supported
H2a	TFL → EE	0.492	0.087	3.505	0.000	Supported
H2b	TSL → EE	-0.007	0.106	-0.051	0.960	Not supported
H3	EE → ER	0.558	0.059	12.121	0.000	Supported

Note(s): TFL-Transformational Leadership, TSL-Transactional Leadership, EE-Employee Engagement, ER-Employee Retention
Source(s): Table by authors

Table 5. Direct effects of the model

limit is not negative or zero does not exist between the upper bound (UB) and lower bound (LB), it indicates the mediating effect.

In the current study, employee engagement was found with significant indirect effects on the relationship between TFL and employee retention ($\beta = 0.229$, LB = 0.120, UB = 0.440, $p = 0.021$) (Table 6). Hence, the study supported the indirect relationship between TFL and employee retention through employee engagement and accepted hypothesis 4a. The study result showed partial mediation as a direct model, mediation model and standardized indirect effect; all were found significant. Employee engagement demonstrated an insignificant

mediating impact on the relationship between TSL and employee retention ($\beta = 0.199$, LB = -0.158, UB = 0.154, $p = 0.041$) (Table 6). Thus, the study confirmed no mediation for hypothesis 4b, and this hypothesis was rejected accordingly.

6. Discussion

The first findings from the current study supported that both TFL and TSL were positively related to employee retention. The result indicates that TFL and TSL can contribute to ensuring the longer attachment of employees to the organization, particularly in the pharmaceutical industry. The findings are consistent with previous research (Park and Pierce, 2020; Sobaih *et al.*, 2020; Thomas and Aurora, 2024; Wells and Peachey, 2011). This study’s findings impart evidence that subordinates’ intention to stay may be linked with the leadership behavior of the immediate supervisor. In other words, the positive perception of employees towards leadership style influences them not to think of leaving the company. The reforming approach of a transformational leader who prioritizes ethical values and inspires subordinates to be creative can retain employees for longer. The findings endorsed the linkage of SET as a transactional leader communicates the goals and rewards for the accomplishment of goals which directly impact employee retention.

As for the second finding, the positive relationship between TFL and employee engagement was significant, while the impact of TSL on employee engagement was not supported. Past studies also found similar outcomes regarding the relationship between TFL and employee engagement (Aboramadan and Kundi, 2020; Hai *et al.*, 2020). The results indicate the positive influence of TFL to enhance employee engagement. In other words, followers tend to be engaged in the work once the leaders’ vision inspires followers. On the other hand, TSL was not found to be significantly related to employee engagement. The current findings demonstrate some conflicts with earlier research (Ali *et al.*, 2023; Adeniji *et al.*, 2020; Popli and Rizvi, 2016). One possible reason for such an insignificant relationship is that employees in pharmaceutical companies may perceive limited participation in decision-making (Dai *et al.*, 2013), while leaders use a transactional approach. Additionally, there is less opportunity to develop innovative skills (Dai *et al.*, 2013), hindering employee engagement. Hence, it can be claimed that TFL is a crucial determinant of employee engagement for pharmaceutical employees in Bangladesh, and the insignificant relationship between TSL and employee engagement is acceptable.

The third finding endorsed the positive correlation of employee engagement with employee retention. This finding supports the results of the previous studies (Bhattacharya, 2015; Book *et al.*, 2019; Chopra *et al.*, 2024; Houssein *et al.*, 2020; Pandita and Ray, 2018). Hence, it can be asserted that the extent of employee engagement affects escalating employee retention rates in the organization. In the pharmaceutical industry, the outcome is valid as work engagement is directly related to individual behavioral outcomes such as the intention to stay with the organization. When employees are motivated and dedicated towards the job and positive about the organization, they tend to serve longer periods in the same

Hypothesis	Indirect path	Std Estimate	Lower bound	Upper bound	p Value	Result
H4a	TFL → EE → ER	0.229	0.120	0.440	0.021	Partial mediation
H4b	TSL → EE → ER	0.199	-0.158	0.154	0.041	No mediation

Table 6. Mediating effects of the model

Note(s): TFL-Transformational Leadership, TSL-Transactional Leadership, EE-Employee Engagement, ER-Employee Retention
Source(s): Table by authors

organization. Thus, it can be argued that high engagement assurance will help to retain the employees working in pharmaceutical companies in Bangladesh.

The fourth finding focuses on the mediating role of employee engagement between TFL, TSL and employee retention. The study's results supported that employee engagement functions as a mediator in the relationship between TFL and employee retention. The study confirms consistency with prior studies (Gemedá and Lee, 2020), and the outcome is pertinent in the present context of the pharmaceutical industry. In fact, followers feel encouraged to engage in in-depth work when they observe leaders aware of their needs and focus on individual development. Moreover, transformational leaders can ensure high engagement by inspiring subordinates to be innovative and creative. Hence, TFL is essential for the high engagement of pharmaceutical employees. At the same time, employees will be morally obligated to work with such leaders and stay with the organization longer. Thus, employee engagement mediates between TFL and employee retention.

However, the mediating role of employee engagement between TSL and employee retention appears insignificant. This finding contradicts the results of earlier studies (Edelbroek *et al.*, 2019; Gemedá and Lee, 2020) but the result was consistent with the study of Obuobisa-Darko (2020). Several reasons might be assumed for this insignificant result of the mediating impact. TSL is only limited to the exchange of interest, which may not be able to influence the intrinsic inclination of subordinates towards work. Additionally, the fear of punishment or losing rewards also limits employee engagement, which influences employees' intention to stay with the organization. These forces may have dulled the impact of employee engagement between TSL and employee retention.

7. Implications

7.1 Theoretical implications

This study is anticipated to erect three theoretical contributions. First, SET has been adopted as a theoretical lens to investigate the impact of TFL and TSL on employee retention mediated through employee engagement in the context of the pharmaceutical industry of Bangladesh. This study contributes by presenting the concepts of TFL, TSL, employee engagement and retention in one context. The study also contributes to the literature by providing evidence that TFL prioritizes social exchange in the form of emphasizing ethical values, change adaptation, continuous inspiration and individualized consideration. On the other hand, transactional leaders highlight economic exchange in the form of prioritizing clear roles, rewards for task accomplishment, clear communication of exchange and active involvement. Both transformational and transactional leaders play crucial roles in retaining employees in the present context which clarifies the importance of both social and economic exchange of SET.

Second, the study has clearly demonstrated a comparative assessment of each leadership style's effect on employee engagement and retention. The study revealed that TFL is a more vital determinant than TSL in influencing subordinates' engagement and such findings may stimulate more investigation separately on TFL. A recent meta-analysis also demonstrates that TFL in many specific cases, for example, project performance, may be more critical than TSL (Lee *et al.*, 2023). In the present context, although TFL and TSL both contribute to retaining employees, the effect is different for employee engagement. Social exchange is more important than economic exchange for employee engagement, which means, TFL is very crucial to engage employees. However, the effectiveness of TFL and TSL may vary in different contexts, cultures and the requirements of the situation. Finally, the current study could respond to the emerging calls for further research to measure the direct impact of leadership on retaining employees and, more specifically, consider the role of mediating constructs such as the extent of employee engagement. Hence, the indirect impact of

leadership on employee retention through the proper engagement of employees has been clearly reflected in this study.

7.2 Practical implications

The study is also expected to contribute three practical implications to the pharmaceutical industry. First, it is evidenced in the study that employees can be retained by practicing both TFL and TSL, but pharmaceutical managers should closely monitor the well-being of employees and be proactive to ensure the inseparability of employees. The positive intention of employees to stay with the organization may be influenced by growth and development opportunities offered by the transformational leaders of the pharmaceutical industry in Bangladesh. On the other hand, psychological and material rewards provided by transactional leaders can retain the valued workforce. Together, our findings suggest that transformational leaders' vision and inspiration and transactional leaders' clear communication of roles and rewards are required to influence employee intention to stay longer with pharmaceutical organizations.

Second, paying attention to the generation gap and the expectations of Generation Z employees are suggested to assess how leadership should be exercised to boost the employees' tendency to stay with the organization. For example, employees working in Bangladeshi pharmaceutical organizations positively perceive TFL to be engaged and attached in the workplace. Transformational leaders focus on employee development, and a learned workforce enjoys the work with high devotion. The high standard personality of transformational leaders working in the pharmaceutical industry also increases employee inclination to work. Moreover, the current findings would be of great support to mention that as the engagement of employees in pharmaceutical organizations is inevitable, the importance of TFL to engage employees in the workplace is parallelly essential to increase employee retention. The findings suggest that leaders should prefer TFL over TSL to ensure higher engagement of employees in the context of the pharmaceutical industry. Mere communication of contingent rewards is not good enough for employee engagement and leaders' focus on individualized consideration is crucial to engage employees in their role assignment and go beyond that.

Finally, the study postulates some guidelines for managers to sustain a good relationship between leaders and subordinates. For instance, departmental managers of pharmaceutical companies should have better comprehensiveness regarding applicants' motives for coming into the pharmaceutical industry and provide an appropriate working environment for the followers to increase their engagement and intention to serve longer. Engaged employees are passionate to such an extent that they do not think about leaving the job, reducing their inclination to leave the organization. It is recommended that managers impart individualized support and adopt TFL to influence employee behaviors and attitudes. Moreover, managers should continuously emphasize, organize and offer leadership-related training and workshops to help leaders improve their abilities to practice TFL. Our findings suggest that a combination of TFL and TSL can together contribute better to retaining employees but more emphasis on the TFL style is required to engage employees in the pharmaceutical company of Bangladesh.

8. Limitations

Although the research was designed with due sincerity, the study confronts some limitations. First, the study collected data only from the respondents of the pharmaceutical organizations around Dhaka city and a non-probability sampling method was applied to choosing respondents. Hence, it was impossible to generalize the findings that might

represent the entire pharmaceutical industry in Bangladesh. The second limitation is related to the characteristics of the sample, as the majority of the respondents were male (74.6%), which may be problematic in simplifying the outcomes. Third, only two leadership approaches were used to assess the predictors of employee retention and engagement. Contemporary leadership approaches such as responsible leadership, entrepreneurial leadership, distributed leadership and ethical leadership can be used in similar research. Fourth, the elements of transformational (idealized influence, inspirational motivation, intellectual stimulation and individualized consideration) and TSL (contingent reward, active management-by-exception and passive management-by-exception) were not separately tested, although each component may have a different extent of the impact on retaining and engaging employees. Fifth, only the study was performed in a single industry context (pharmaceutical companies), limiting the generalization of the findings nationally. Furthermore, from methodological aspects, the current study was based on self-reported responses of the employees working in pharmaceutical companies. Hence, the problem related to CMV cannot be avoided. Additionally, there might be the possibility of partial responses in the statements of the questionnaire since the researcher did not directly interview respondents.

9. Direction for future research

Although the study confronts limitations, the study revealed unique findings and can be the foundation of future research on leadership, retention and engagement of employees. First, the same model can be used for further research on other Bangladeshi industries, such as ready-made garments, healthcare, telecommunication, banking, nonbanking financial institutions, foods and beverages. Furthermore, the study suggests incorporating the study model in the high-tech manufacturing organizations of both developed and developing countries to examine the generalizability of the findings in the international context. Since most participants were male compared to female, conducting further research on the male employees is suggested to evaluate their intention to stay in a separate study. Furthermore, this study incorporated only SET although other theories are relevant in the same context, such as the Leader-Member Exchange theory; hence, the study recommends connecting other relevant theories in the existing framework. Moreover, TFL and TSL components could be measured separately to comprehend the effect of individual components on employee retention. Another exciting area of future investigation would be assessing contemporary leadership practices to retain valued employees with multiple mediation effects. OCB and employee development can be investigated as mediating variables between leadership style and employee retention. Moreover, moderating variables such as a supportive working environment can be tested in future studies and moderated mediation can be a valuable framework to reinvestigate a similar research framework.

10. Conclusion

The significance of employee retention, which, in turn, reduces employee turnover, has been extensively recognized in this study. In this regard, leadership approaches for retaining employees have attracted the researchers' attention. The present study investigated two prominent leadership approaches (transformational and transactional) to retain employees mediated through employee engagement. The SET was integrated as the lens to confirm the result of the study. The study revealed that TFL and TSL contributes to retaining employees, but employee engagement mediates only the relationship between TFL and employee retention. The study indicates that pharmaceutical companies should comprehend and acknowledge the significance of TFL and TSL to confirm employees' longer attachment to

the organization. In the context of industry and the private sector of the nation, pharmaceutical organizations need to practice suitable leadership approaches to retain employees working at different levels of the organization. Furthermore, pharmaceutical companies also need to determine the extent of employee engagement by ensuring proper care, welfare and application of enthusiastic leadership since employee engagement is directly related to the intention to stay. To conclude, the study serves as empirical evidence to believe that TFL and TSL play crucial roles in increasing employee retention through employee engagement which will eventually determine the sustainable competitiveness and success of the pharmaceutical companies.

References

- Aboramadan, M. and Kundi, Y.M. (2020), "Does transformational leadership better predict work-related outcomes than transactional leadership in the NPO context? Evidence from Italy", *Voluntas: International Journal of Voluntary and Nonprofit Organizations*, Vol. 31 No. 6, pp. 1254-1267, doi: 10.1007/s11266-020-00278-7.
- Adeniji, A., Osibanjo, A., Salau, O., Atolagbe, T., Ojebola, O., Osoko, A., Akindele, R. and Edewor, O. (2020), "Leadership dimensions, employee engagement and job performance of selected consumer-packaged goods firms", *Cogent Arts and Humanities*, Vol. 7 No. 1, 1801115, doi: 10.1080/23311983.2020.1801115.
- Akter, N. (2018), "Socio-economic responsibility of pharmaceutical companies: Bangladesh case", *Asian Business Review*, Vol. 8 No. 3, pp. 19-142, doi: 10.18034/abr.v8i3.165.
- Al Mehrzi, N. and Singh, S.K. (2016), "Competing through employee engagement: a proposed framework", *International Journal of Productivity and Performance Management*, Vol. 65 No. 6, pp. 831-843, doi: 10.1108/ijppm-02-2016-0037.
- Alarcón, D., Sánchez, J.A. and De Olavide, U. (2015), "Assessing convergent and discriminant validity in the ADHD-R IV rating scale: user-written commands for Average Variance Extracted (AVE), Composite Reliability (CR), and Heterotrait-Monotrait ratio of correlations (HTMT)", *Spanish STATA meeting*, Vol. 39, Universidad Pablo de Olavide.
- Ali, M. (2021), "Leadership styles and talent management strategies of pharmaceutical industry in Bangladesh", MPhil thesis, Bangladesh University of Professionals.
- Ali, M. and Ullah, M.S. (2023), "Role of laissez-faire leadership in talent management: evidence from the pharmaceutical industry of Bangladesh", *Heliyon*, Vol. 9 No. 6, E17234, doi: 10.1016/j.heliyon.2023.e17234.
- Ali, M., Ullah, S. and Guha, S. (2020), "Role of talent development on talent engagement and self-efficacy: a structural model", *Journal of Social Economics Research*, Vol. 7 No. 2, pp. 118-129, doi: 10.18488/journal.35.2020.72.118.129.
- Ali, M., Islam, A. and Hasan, N. (2021), "Assessing the mediating role of talent engagement between talent development and retention", *Journal of Innovation in Business Studies*, Vol. 1 No. 1, pp. 81-98.
- Ali, M., Ullah, M.S. and Haque, A. (2023), "Effect of transactional and transformational leadership on talent engagement: mediating role of talent development", *Global Business and Organizational Excellence*, Vol. 42 No. 6, pp. 120-137, doi: 10.1002/joe.22214.
- Alrowwad, A.A., Abualoush, S.H. and Masa'deh, R. (2020), "Innovation and intellectual capital as intermediary variables among transformational leadership, transactional leadership, and organizational performance", *The Journal of Management Development*, Vol. 39 No. 2, pp. 196-222, doi: 10.1108/jmd-02-2019-0062.
- Arasanmi, C.N. and Krishna, A. (2019), "Employer branding: perceived organizational support and employee retention—the mediating role of organizational commitment", *Industrial and Commercial Training*, Vol. 51 No. 3, pp. 174-183, doi: 10.1108/ict-10-2018-0086.

- Babalola, M.T., Mawritz, M.B., Greenbaum, R.L., Ren, S. and Garba, O.A. (2021), "Whatever it takes: how and when supervisor bottom-line mentality motivates employee contributions in the workplace", *Journal of Management*, Vol. 47 No. 5, pp. 1134-1154, doi: 10.1177/0149206320902521.
- Bagozzi, R.P. and Yi, Y. (1988), "On the evaluation of structural equation models", *Journal of the Academy of Marketing Science*, Vol. 16 No. 1, pp. 74-94, doi: 10.1177/009207038801600107.
- Bakker, A.B. and Schaufeli, W.B. (2003), "University utrecht work engagement scale: Preliminary manual version 1. Utrecht, Germany: occupational health psychology".
- Bakker, A.B., Hetland, J., Olsen, O.K. and Espevik, R. (2022), "Daily transformational leadership: a source of inspiration for follower performance?", *European Management Journal*, Vol. 36 No. 6, pp. 746-756, doi: 10.1016/j.emj.2018.01.002.
- Balwant, P.T., Mohammed, R. and Singh, R. (2019), "Transformational leadership and employee engagement in Trinidad's service sector: the role of job resources", *International Journal of Emerging Markets*, Vol. 15 No. 4, pp. 691-715, doi: 10.1108/ijoem-01-2019-0026.
- Bass, B.M. (1990), "From transactional to transformational leadership: learning to share a vision", *Organizational Dynamics*, Vol. 18 No. 3, pp. 19-31, doi: 10.1016/0090-2616(90)90061-s.
- Bass, B.M. (1996), "Theory of transformational leadership redux", *The Leadership Quarterly*, Vol. 6 No. 4, pp. 463-478, doi: 10.1016/1048-9843(95)90021-7.
- Bass, B.M. and Avolio, B.J. (1994), "Transformational leadership and organizational culture", *International Journal of Public Administration*, Vol. 17 No. 3, pp. 541-554, doi: 10.1080/01900699408524907.
- Bass, B.M. and Bass, R. (2008), "The Bass handbook of leadership", *Theory, Research and Managerial Applications*, Simon and Schuster, Free Press, New York, NY.
- Bellamkonda, N., Santhanam, N. and Pattusamy, M. (2021), "Goal clarity, trust in management and intention to stay: the mediating role of work engagement", *South Asian Journal of Human Resources Management*, Vol. 8 No. 1, pp. 9-28.
- Bhattacharya, Y. (2015), "Employee engagement as a predictor of seafarer retention: a study among Indian officers", *The Asian Journal of Shipping and Logistics*, Vol. 31 No. 2, pp. 295-318, doi: 10.1016/j.ajsl.2015.06.007.
- Blau, P.M. (1964), "Social exchange theory", September", Vol. 3 No. 2007, p. 62.
- Book, L., Gatling, A. and Kim, J. (2019), "The effects of leadership satisfaction on employee engagement, loyalty, and retention in the hospitality industry", *Journal of Human Resources in Hospitality and Tourism*, Vol. 18 No. 3, pp. 368-393, doi: 10.1080/15332845.2019.1599787.
- Buil, I., Martínez, E. and Matute, J. (2019), "Transformational leadership and employee performance: the role of identification, engagement and proactive personality", *International Journal of Hospitality Management*, Vol. 77, pp. 64-75, doi: 10.1016/j.ijhm.2018.06.014.
- Burmester, B., Leathem, J. and Merrick, P. (2015), "Assessing subjective memory complaints: a comparison of spontaneous reports and structured questionnaire methods", *International Psychogeriatrics*, Vol. 27 No. 1, pp. 61-77, doi: 10.1017/s1041610214001161.
- Burns, J.M. (1978), *Leadership*, Harper & Row, New York.
- Chen, T.J. and Wu, C.M. (2017), "Improving the turnover intention of tourist hotel employees", *International Journal of Contemporary Hospitality Management*, Vol. 28 No. 3, pp. 586-608.
- Chin, W.W. (1998), "The partial least squares approach to structural equation modeling", *Modern methods for business research*, Vol. 295 No. 2, pp. 295-336.
- Chopra, A., Sahoo, C.K. and Patel, G. (2024), "Exploring the relationship between employer branding and talent retention: the mediation effect of employee engagement", *International Journal of Organizational Analysis*, Vol. 32 No. 4, pp. 702-720, doi: 10.1108/ijoa-02-2023-3638.
- Climek, M., Henry, R. and Jeong, S. (2024), "Integrative literature review on employee turnover antecedents across different generations: commonalities and uniqueness", *European Journal of Training and Development*, Vol. 48 Nos 1/2, pp. 112-132, doi: 10.1108/ejtd-05-2021-0058.

- Dai, Y.D., Dai, Y.Y., Chen, K.Y. and Wu, H.C. (2013), "Transformational vs transactional leadership: which is better? A study on employees of international tourist hotels in Taipei City", *International Journal of Contemporary Hospitality Management*, Vol. 25 No. 5, pp. 760-778, doi: 10.1108/ijchm-dec-2011-0223.
- Edelbroek, R., Peters, P. and Blomme, R.J. (2019), "Engaging in open innovation: the mediating role of work engagement in the relationship between transformational and transactional leadership and the quality of the open innovation process as perceived by employees", *Journal of General Management*, Vol. 45 No. 1, pp. 5-17, doi: 10.1177/0306307019844633.
- Eva, T.P. (2015), "Talent management: a key to success in any organization-perspective from Bangladesh", *International Journal of Business and Management*, Vol. 3 No. 12, pp. 331-336.
- Gemeda, H.K. and Lee, J. (2020), "Leadership styles, work engagement and outcomes among information and communications technology professionals: a cross-national study", *Heliyon*, Vol. 6 No. 4, e03699, doi: 10.1016/j.heliyon.2020.e03699.
- Ghani, F.A., Derani, N.E.S., Aznam, N., Mohamad, N., Zakaria, S.A.A. and Toolib, S.N. (2018), "An empirical investigation of the relationship between transformational, transactional female leadership styles and employee engagement", *Global Business and Management Research*, Vol. 10 No. 3, p. 724.
- Ha, T.S. and Moon, K.K. (2023), "Distributive justice, goal clarity, and organizational citizenship behavior: the moderating role of transactional and transformational leadership", *Sustainability*, Vol. 15 No. 9, p. 7403, doi: 10.3390/su15097403.
- Haenlein, M. and Kaplan, A.M. (2004), "A beginner's guide to partial least squares analysis", *Understanding Statistics*, Vol. 3 No. 4, pp. 283-297, doi: 10.1207/s15328031us0304_4.
- Hai, S., Wu, K., Park, I.J., Li, Y., Chang, Q. and Tang, Y. (2020), "The role of perceived high-performance HR practices and transformational leadership on employee engagement and citizenship behaviors", *Journal of Managerial Psychology*, Vol. 35 No. 6, pp. 513-526, doi: 10.1108/jmp-03-2019-0139.
- Hair, J.F. Jr, Anderson, R.E., Tatham, R.L. and Black, W.C. (1998), *Multivariate Data Analysis* (5th ed.). Englewood Cliffs, NJ: Prentice-Hall.
- Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. and Tatham, R.L. (2009a), *Análise multivariada de dados*, Bookman editora, Porto Alegre.
- Hair, J.F. Jr, Black, W.C., Babin, B.J. and Anderson, R.E. (2009b), *Multivariate Data Analysis*, 7th ed., Pearson Prentice Hall, Upper Saddle River, NJ.
- Hair, J.F. Jr, Hult, G.T.M., Ringle, C. and Sarstedt, M. (2013), *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*, SAGE Publications, London, Incorporated.
- Hameduddin, T. and Lee, S. (2019), "Employee engagement among public employees: examining the role of organizational images", *Public Management Review*, Vol. 23 No. 3, pp. 1-25, doi: 10.1080/14719037.2019.1695879.
- Haque, M. and Islam, R. (2018), "Impact of supply chain collaboration and knowledge sharing on organizational outcomes in pharmaceutical industry of Bangladesh", *Journal of Global Operations and Strategic Sourcing*, Vol. 11 No. 3, pp. 301-320, doi: 10.1108/jgoss-02-2018-0007.
- Houssein, A.A., Singh, J.S.K. and Arumugam, T. (2020), "Retention of employees through career development, employee engagement and work-life balance: an empirical study among employees in the financial sector in Djibouti, East Africa", *Global Business and Management Research*, Vol. 12 No. 3, pp. 17-32.
- Iqbal, J., Asghar, A. and Asghar, M.Z. (2022), "Effect of despotic leadership on employee turnover intention: mediating toxic workplace environment and cognitive distraction in academic institutions", *Behavioral Sciences*, Vol. 12 No. 5, p. 125, doi: 10.3390/bs12050125.
- Islam, M.A., Hack-Polay, D., Haque, A., Rahman, M. and Hossain, M.S. (2022), "Moderating role of psychological empowerment on the relationship between green HRM practices and millennial employee retention in the hotel industry of Bangladesh", *Business Strategy and Development*, Vol. 5 No. 1, pp. 17-29, doi: 10.1002/bsd2.180.

- Islam, M.A., Hack-Polay, D., Rahman, M., Hosen, M., Hunt, A. and Shafique, S. (2024), "Work environment, HR practices and millennial employee retention in hospitality and tourism in Bangladesh", *International Journal of Emerging Markets*, Vol. 19 No. 4, pp. 846-867, doi: 10.1108/ijoem-06-2021-0859.
- Jabber, M.A., Sakib, M.N. and Rahman, M.M. (2023), "Exploring the roles and challenges of the servant leadership: a critical examination of the Bangladesh police", *Heliyon*, Vol. 9 No. 1, e12782, doi: 10.1016/j.heliyon.2022.e12782.
- Jalil, A., Ullah, M.S., Islam, M.T. and Tareq, M. (2017), "Analysis of skill levels in the pharmaceutical sector of Bangladesh", *National Skills Development Council Secretariat (NSDCS)*.
- Jindal, P., Shaikh, M. and Shashank, G. (2017), "Employee engagement; tool of talent retention: study of a pharmaceutical company", *SDMIMD Journal of Management*, Vol. 8 No. 2, pp. 7-16, doi: 10.18311/sdmimd/2017/18024.
- Kahn, W.A. (1990), "Psychological conditions of personal engagement and disengagement at work", *Academy of Management Journal*, Vol. 33 No. 4, pp. 692-724, doi: 10.5465/256287.
- Kapade, D. (2017), "Data collection method in research Throughweb-Based questionnaire: using google form", *Zenith International Journal of Multidisciplinary Research*, Vol. 7 No. 11, pp. 237-241.
- Khalid, K. and Nawab, S. (2018), "Employee participation and employee retention in view of compensation", *Sage Open*, Vol. 8 No. 4, doi: 10.1177/2158244018810067.
- Kim, J., Milliman, J. and Lucas, A. (2020), "Effects of CSR on employee retention via identification and quality-of-work-life", *International Journal of Contemporary Hospitality Management*, Vol. 32 No. 3, pp. 1163-1179, doi: 10.1108/ijchm-06-2019-0573.
- Kline, R.B. (2010), *Principles and Practice of Structural Equation Modeling*, 3rd ed., Guilford Press, New York.
- Krishna, C., Upadhyay, R.K., Ansari, K.R. and Babu, V. (2022), "Transformational leadership and employee retention: a moderated mediation model of intrinsic motivation and perceived organizational support", *International Journal of Learning and Intellectual Capital*, Vol. 19 No. 2, pp. 135-153, doi: 10.1504/ijlic.2022.121252.
- Kundu, S.C. and Lata, K. (2017), "Effects of supportive work environment on employee retention: mediating role of organizational engagement", *International Journal of Organizational Analysis*, Vol. 25 No. 4, pp. 703-722, doi: 10.1108/ijoa-12-2016-1100.
- Kwarteng, S., Frimpong, S.O., Asare, R. and Wiredu, T.J.N. (2024), "Effect of employee recognition, employee engagement on their productivity: the role of transformational leadership style at Ghana health service", *Current Psychology*, Vol. 43 No. 6, pp. 5502-5513, doi: 10.1007/s12144-023-04708-9.
- Kyndt, E., Dochy, F., Michielsen, M. and Moeyaert, B. (2009), "Employee retention: organizational and personal perspectives", *Vocations and Learning*, Vol. 2 No. 3, pp. 195-215, doi: 10.1007/s12186-009-9024-7.
- Lee, C.C., Lim, H.S., Seo, D.J. and Kwak, D.H.A. (2022), "Examining employee retention and motivation: the moderating effect of employee generation", *Evidence-based HRM*, Vol. 10 No. 4, pp. 385-402, doi: 10.1108/ebhrm-05-2021-0101.
- Lee, C.C., Yeh, W.C., Yu, Z. and Lin, X.C. (2023), "The relationships between leader emotional intelligence, transformational leadership, and transactional leadership and job performance: a mediator model of trust", *Heliyon*, Vol. 9 No. 8, e18007, doi: 10.1016/j.heliyon.2023.e18007.
- Li, P., Sun, J.M., Taris, T.W., Xing, L. and Peeters, M.C. (2021), "Country differences in the relationship between leadership and employee engagement: a meta-analysis", *The Leadership Quarterly*, Vol. 32 No. 1, 101458, doi: 10.1016/j.leaqua.2020.101458.
- Lindell, M.K. and Whitney, D.J. (2001), "Accounting for common method variance in cross-sectional research designs", *Journal of Applied Psychology*, Vol. 86 No. 1, pp. 114-121, doi: 10.1037//0021-9010.86.1.114.
- Mueller, R.O. and Hancock, G.R. (2019), *Structural Equation Modeling*, Routledge/Taylor & Francis Group, New York, NY.

- Mukherjee, B., Chandra, B. and Singh, S. (2019), "Talent retention in Indian public sector units (PSUs): an empirical investigation", *Kybernetes*, Vol. 49 No. 6, pp. 1783-1810, doi: 10.1108/k-03-2019-0165.
- Mwita, K.M. and Kinemo, S. M. (2018), "The role of green recruitment and selection on performance of processing industries in Tanzania: a case of Tanzania tobacco processors limited (TTPL)", *International Journal of Human Resource Studies*, Vol. 8 No. 4, pp. 35-46.
- Naeem, F. and Khurram, S. (2020), "Influence of toxic leadership on turnover intention: the mediating role of psychological wellbeing and employee engagement", *Pakistan Journal of Commerce and Social Sciences*, Vol. 14 No. 3, pp. 682-713.
- Nayak, S., Jena, D. and Patnaik, S. (2021), "Mediation framework connecting knowledge contract, psychological contract, employee retention, and employee satisfaction: an empirical study", *International Journal of Engineering Business Management*, Vol. 13, doi: 10.1177/18479790211004007.
- Obuobisa-Darko, T. (2020), "Leaders' behaviour as a determinant of employee performance in Ghana: the mediating role of employee engagement", *Public Organization Review*, Vol. 20 No. 3, pp. 597-611, doi: 10.1007/s11115-019-00460-6.
- Ohunakin, F., Adeniji, A.A., Oludayo, O.A., Osibanjo, A.O. and Oduyoye, O.O. (2019), "Employees' retention in Nigeria's hospitality industry: the role of transformational leadership style and job satisfaction", *Journal of Human Resources in Hospitality and Tourism*, Vol. 18 No. 4, pp. 441-470, doi: 10.1080/15332845.2019.1626795.
- Ooi, K.B. (2013), "Total quality management and knowledge management in Malaysian manufacturing and service firms: a structural equation modeling approach/Ooi Keng Boon", Doctoral dissertation, University of Malaya.
- Pandita, D. and Ray, S. (2018), "Talent management and employee engagement—a meta-analysis of their impact on talent retention", *Industrial and Commercial Training*, Vol. 50 No. 4, pp. 185-199, doi: 10.1108/ict-09-2017-0073.
- Park, T. and Pierce, B. (2020), "Impacts of transformational leadership on turnover intention of child welfare workers", *Children and Youth Services Review*, Vol. 108, 104624, doi: 10.1016/j.childyouth.2019.104624.
- Pieterse, A.N., Van Knippenberg, D., Schippers, M. and Stam, D. (2010), "Transformational and transactional leadership and innovative behavior: the moderating role of psychological empowerment", *Journal of Organizational Behavior*, Vol. 31 No. 4, pp. 609-623, doi: 10.1002/job.650.
- Popli, S. and Rizvi, I.A. (2016), "Drivers of employee engagement: the role of leadership style", *Global Business Review*, Vol. 17 No. 4, pp. 965-979, doi: 10.1177/0972150916645701.
- Preacher, K.J. and Hayes, A.F. (2008), "Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models", *Behavior Research Methods*, Vol. 40 No. 3, pp. 879-891, doi: 10.3758/brm.40.3.879.
- Raziq, M.M., Borini, F.M., Malik, O.F., Ahmad, M. and Shabaz, M. (2018), "Leadership styles, goal clarity, and project success", *The Leadership and Organization Development Journal*, Vol. 39 No. 2, pp. 309-323, doi: 10.1108/lodj-07-2017-0212.
- Roscoe, J.T. (1975), *Fundamental Research Statistics for the Behavioural Sciences*, Holt Rinehart & Winston, New York.
- Rubel, M.R.B. (2015), "Compensation, performance management practices and employee turnover intention of ready-made garment (RMG) industry in Bangladesh", Doctoral dissertation, Universiti Sains Malaysia.
- Rubel, M.R.B., Kee, D.M.H., Quah, C.H. and Rimi, N.N. (2017), "Ethical climate and employee turnover intention in the ready-made garment industry of Bangladesh", *Global Business and Organizational Excellence*, Vol. 36 No. 2, pp. 61-73, doi: 10.1002/joe.21770.
- Rubel, M.R.B., Rimi, N.N., Yusliza, M.Y. and Kee, D.M.H. (2018), "High commitment human resource management practices and employee service behaviour: trust in management as mediator", *IIMB Management Review*, Vol. 30 No. 4, pp. 316-329, doi: 10.1016/j.iimb.2018.05.006.

- Rubel, M.R.B., Kee, D.M.H. and Rimi, N.N. (2020), "High-performance work practices and medical professionals' work outcomes: the mediating effect of perceived organizational support", *Journal of Advances in Management Research*, Vol. 18 No. 3, pp. 368-391, doi: 10.1108/jamr-05-2020-0076.
- Schaufeli, W.B., Bakker, A.B. and Salanova, M. (2006), "The measurement of work engagement with a short questionnaire: a cross-national study", *Educational and Psychological Measurement*, Vol. 66 No. 4, pp. 701-716, doi: 10.1177/0013164405282471.
- Sekaran, U. and Bougie, J. (2010), *Research Methods for Business: A Skill Building Approach*, 6th ed., John Wiley & Sons, Haddington.
- Sobaih, A.E.E., Hasanein, A.M., Aliedan, M.M. and Abdallah, H.S. (2020), "The impact of transactional and transformational leadership on employee intention to stay in deluxe hotels: mediating role of organizational commitment", *Tourism and Hospitality Research*, Vol. 0 No. 0, pp. 1-13.
- Stevens, J. (2002), *Applied Multivariate Statistics for the Social Sciences*, Vol. 4, Lawrence Erlbaum Associates, Mahwah, NJ.
- Tazin, F. (2016), "Pharmaceutical industry of Bangladesh: progress and prospects", *The Millennium University Journal*, Vol. 1 No. 1, pp. 19-20.
- Tehseen, S., Ramayah, T. and Sajilan, S. (2017), "Testing and controlling for common method variance: a review of available methods", *Journal of Management Sciences*, Vol. 4 No. 2, pp. 142-168, doi: 10.20547/jms.2014.1704202.
- Thomas, S.R. and Aurora, S.R. (2024), "The dynamic effects of transformational leadership on employee retention and employability over time: an agent-based model", *Computational and Mathematical Organization Theory*, pp. 1-31, doi: 10.1007/s10588-024-09385-y.
- Tian, H., Iqbal, S., Akhtar, S., Qalati, S.A., Anwar, F. and Khan, M.A.S. (2020), "The impact of transformational leadership on employee retention: mediation and moderation through organizational citizenship behavior and communication", *Frontiers in Psychology*, Vol. 11, p. 314, doi: 10.3389/fpsyg.2020.00314.
- Wells, J.E. and Peachey, J.W. (2011), "Turnover intentions: do leadership behaviors and satisfaction with the leader matter?", *Team Performance Management: International Journal*, Vol. 17 Nos 1/2, pp. 23-40, doi: 10.1108/13527591111114693.
- Younas, M. and Waseem Bari, M. (2020), "The relationship between talent management practices and retention of generation 'Y' employees: mediating role of competency development", *Economic research-Ekonomska istraživanja*, Vol. 33 No. 1, pp. 1330-1353, doi: 10.1080/1331677x.2020.1748510.
- Yousf, A. and Khurshid, S. (2024), "Impact of employer branding on employee commitment: employee engagement as a mediator", *Vision*, Vol. 28 No. 1, pp. 35-46, doi: 10.1177/09722629211013608.
- Yukl, G.A. (2010), *Leadership in Organizations*, 7th ed., Pearson/Prentice Hall, Upper Saddle River, NJ.
- Zhang, X., Zhang, Y., Sun, Y., Lytras, M., Ordóñez de Pablos, P. and He, W. (2018), "Exploring the effect of transformational leadership on individual creativity in e-learning: a perspective of social exchange theory", *Studies in Higher Education*, Vol. 43 No. 11, pp. 1964-1978, doi: 10.1080/03075079.2017.1296824.

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The mediating effect of greed on the relationship between strategic entrepreneurship and entrepreneurial success: does gender of the entrepreneur matter?

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Abstract

Purpose – Understanding the factors that drive entrepreneurial success is crucial, and the role of greed in this context remains controversial. This study investigates how strategic entrepreneurship (SE) influences success, with greed as a mediating factor.

Design/methodology/approach – Using survey data from 127 respondents, we applied exploratory factor analysis (EFA), confirmatory factor analysis (CFA) and structural equation modeling (SEM).

Findings – The findings indicate that while SE enhances success, greed hinders it. Notably, greed does not significantly mediate the relationship between SE and success, and its impact is not gender-sensitive.

Research limitations/implications – These insights contribute to the broader understanding of entrepreneurial dynamics and suggest that future research should explore additional moderating factors such as cultural background, industry type and organizational size.

Originality/value – This research broadens the understanding of the impact of greed on entrepreneurial success, an area that has not been extensively studied. It also uniquely explores the moderating role of gender in the relationship between SE and greed, offering fresh theoretical and practical perspectives on the factors influencing entrepreneurial success.

Keywords Strategic entrepreneurship, Greed, Entrepreneur success, Mediated effect

Paper type Research paper

1. Introduction

In the dynamic and competitive landscape of contemporary business, entrepreneurship plays a pivotal role in driving innovation, economic growth and wealth creation. While entrepreneurial success has often been attributed to a combination of factors, the influence of strategic entrepreneurship (SE) and the complex interplay of human motivations, particularly greed, have garnered increasing attention within the academic and business communities (Hughes *et al.*, 2021; Kantur, 2016; Terri *et al.*, 2015; Tacke *et al.*, 2023; Porfírio *et al.*, 2020). Due to their ambition to make more money, businessmen would be greedy

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(Sinafiksh, 2020). However, this is not helping them as they are less self-controlled and they even do not know the repercussions of their behavior on the long-term effect of their businesses (Knuniantc, 2022). Businesses naturally aim to make profits, but excessive greed can harm entrepreneurs, their partners and the public. Moreover, entrepreneurs should address social issues and not add to them.

In recent years researchers have explored the relationship between the “dark-side” personality characteristics of entrepreneurs and success (Akhtar *et al.*, 2013). These dark side personalities are considered psychopathy, a personality disorder characterized by a lack of empathy, manipulation and callousness (Robert and Craig, 2006; Akhtar *et al.*, 2013; Wei *et al.*, 2023). Taking greed as a behavioral aspect of entrepreneurs, some claim that greed has both positive and negative roles in success. Some argue that a certain degree of greed or ambition is necessary for entrepreneurs to drive innovation, take risks and propel their ventures to success. On the other hand, critics maintain that greed can lead to unethical behavior, exploitation of workers and resources, and a focus on short-term gains at the expense of long-term sustainability. For example, Terri *et al.* (2015) noted that greed has constructive and detrimental roles in success. However, Tacke *et al.* (2023) argued that greed is more likely to be connected to unethical behavior. According to Tacke *et al.* (2023), greed is an extreme kind of self-interest that drives people to pursue material wealth and non-material wants with little or no regard for the welfare of others that expecting positive influence is unlikely. Although greed is mentioned as a positive and negative factor for organizational success in a few researches, an empirical study is still rare and a lot is yet to be done (Wang and Murnighan, 2011). The study conducted by Piispanen *et al.* (2022) also indicated that the business development of small and medium enterprises would be affected by managers’ SE activities and their trusting and distrusting beliefs. Therefore, the nature of this topic underscores the need for a nuanced understanding of the role of greed in entrepreneurial success. Thus, the current study aims at exploring the effect of greed on the entrepreneurs’ success taking it as a mediating variable.

Strategic entrepreneurship is defined as the pursuit of opportunity; an entrepreneur’s capacity to identify an opportunity, utilize underutilized resources and produce value regardless of whether the resources are currently owned or not (Stockley, 2021). According to the definition, entrepreneurship is dependent on an entrepreneur’s capacity to pursue both opportunity and competitive advantage at the same time while entirely *tapping into new resources* which is contrary to effectual entrepreneurship which relies on resources *already available*. For young technological firms facing resource challenges, SE is presumed to be the solution as long as a firm possesses considerable scope for entrepreneurship (Hughes *et al.*, 2021). The study claimed that SE explained as a synthesis of opportunity-seeking and advantage-seeking behaviors, can affect innovation activities.

Though both SE and effectual entrepreneurship behaviors are essential at different times, launching a startup compared to managing a fully-fledged business requires vastly different behaviors and skills so researching separately is essential (Stockley, 2021). Thus, the current study is confined to the analysis of SE on entrepreneurs’ success where success is measured as the self-reported performance of the firm (Dominika *et al.*, 2020).

Kantur (2016) conducted a study and found that SE has a significant mediating role in the relationship between entrepreneurial orientation and performance. The positive association between performance and SE is reported that either variables increase or decrease in the same direction (Mohutsiwa, 2012). Unlike the effect of greed, the role of SE on success is positive (Kantur, 2016; Stockley, 2021; Hughes *et al.*, 2021).

Despite the recognition of SE as a crucial factor for success in the entrepreneurial landscape, there is a significant gap in understanding how greed interacts with SE and influences entrepreneurial outcomes. While the existing literature acknowledges both the positive and negative implications of greed, empirical studies examining greed as a

mediating variable in the relationship between SE and entrepreneurial success are notably limited. Additionally, there is a lack of exploration regarding how the entrepreneur's gender may moderate this relationship, which is critical for achieving a nuanced understanding of entrepreneurial behavior. The literature also presents conflicting views on the role of greed, with some studies suggesting that it fosters innovation and risk-taking, while others link it to unethical behavior and a short-term focus. This inconsistency highlights the urgent need for further research to clarify the contexts in which greed can either be beneficial or detrimental.

To address these gaps, this study aims to investigate the combined effects of SE and greed, while also considering the moderating effects of gender. By examining these relationships, the research seeks to contribute to a comprehensive theoretical framework that reconciles inconsistent findings in the literature and deepens our understanding of the behavioral drivers of entrepreneurial success. The implications of this study extend beyond academic theory; they can provide practical guidance for entrepreneurs seeking to balance ambition with ethical considerations for sustainable business practices. Furthermore, the findings are anticipated to inform policymakers and educators about the importance of promoting ethical entrepreneurship and gender equity within the entrepreneurial ecosystem, ultimately bridging the gap between theoretical concepts and real-world practices. Therefore, the major objective of the study is to investigate the influence of SE on entrepreneurial success when greed takes the mediation position. In line with the major objective, the specific objectives are as follows:

- (1) To examine the effect of SE on greed.
- (2) To investigate the effect of greed on entrepreneurs' success.
- (3) To find out the effect of SE on entrepreneurs' success.
- (4) To study the mediating effect of greed on the relationship between SE and entrepreneurs' success.
- (4) To examine the moderating effect of gender on the relationship between SE and greed.

The rest of this study is structured as follows: Section 2 reviews the relevant literature, Section 3 outlines the research methods and contexts, Section 4 discusses the results and interpretations and Section 5 concludes with practical implications and suggestions for future research directions.

2. Review of related literature

This section establishes the framework for a complete analysis by defining the important areas of attention and emphasizing the need for more research on the role of SE and greed in entrepreneurial success. Thus, we reviewed the literature by critically assessing and synthesizing existing research and set our research hypothesis based on the review. Accordingly, the review encompasses variables of interest mentioned in the objective section and it also determines the measurement of each latent variable.

2.1 Strategic entrepreneurship and success

The term "strategic entrepreneurship" is frequently associated with the contributions of scholars such as Michael A. Hitt, R. Duane Ireland and Robert E. Hoskisson (Mazzei *et al.*, 2017; Mazzei, 2018). Their research weaves together aspects of strategic management and entrepreneurship, illustrating how firms can attain superior performance by concurrently engaging in opportunity-seeking and advantage-seeking behaviors. The SE concept is usually

discussed by two opinion groups as using and creating opportunity with available skills and resources (Stockley, 2021; Timmons, 2004) and the second group of SEs is the identification, evaluation and use of opportunities in a way that has not occurred so far (Shane and Venkataraman, 2000; Shane, 2003). Moreover, SE is conceptualized as a unidimensional construct with nine items under four dimensions of “sustained regeneration,” “organizational rejuvenation,” “strategic renewal” and “domain redefinition” (Kantur, 2016).

In addition to defining exogenous and mediating variables, it is essential to define and measure the endogenous variable, entrepreneurs’ success. Thus, Fisher *et al.* (2014) defined entrepreneurs’ success as a multifaceted construct that best captures more than financial and economic metrics. In many types of research studies, success is equally defined as performance that constitutes financial and non-financial dimensions. In the study conducted in Malaysia and Bangladesh, for example, business growth and financial results are the most important aspects of success (Tehseen *et al.*, 2023). Moreover, Wach *et al.* (2020) used the psychological approach to assess entrepreneurial success and identified 14 items categorized under five main factors “firm performance,” “workplace relationships,” “personal fulfilment,” “community impact” and “personal financial rewards”. In this study however, success is measured in terms of self-reported firm performance to make the measurement easy (Wach *et al.*, 2020; Dominika *et al.*, 2020).

The effect of SE on success is relatively well-researched and a positive association is reported (Kantur, 2016; Stockley, 2021; Hughes *et al.*, 2021). However, the effect could be influenced by culture. The study by Bhasin and Keng Ng (2019) reveals that cultural values foster the entrepreneurial spirit, encourage risk-taking and subsequently drive economic development. Researchers adopted the SE measure proposed by Kantur (2016) and given these insights the following hypothesis is developed:

H1. Strategic entrepreneurship has a significant positive effect on entrepreneurs’ success.

This hypothesis is grounded in the robust theoretical and empirical foundations provided by previous research, offering a clear direction for further investigation into the dynamics of SE and its impact on success.

2.2 Strategic entrepreneurship and greed

Tacke *et al.* (2023) defined greed as “an extreme kind of self-interest that drives people to pursue material wealth and immaterial wants with little or no regard for the welfare of others.” Based on this definition, some scholars contend that greed should not be cultivated as a behavioral trait (Tacke *et al.*, 2023; Wang and Murnighan, 2011). However, some still claim that greed has both positive and negative roles in success that should be nurtured (Terri *et al.*, 2015). Regarding how to measure greed, we adapt the greed scale developed by Lambie and Haugen (2019).

Due to unsettled claims regarding the effect of greed on success, we tried to make further analyses on the effect of greed on success. Moreover, we wanted to examine the effect of SE on greed. In this context, we examine SE as the ability of an entrepreneur to recognize an opportunity, leverage underutilized resources to seize it and create enduring value (Stockley, 2021). Moreover, we presumed that SE exerts a significant negative influence on greed, thereby ensuring the sustained long-term success of entrepreneurs who operate with consideration for others. Therefore, we formulated the second hypothesis:

H2. Strategic entrepreneurship has a significant negative effect on greed.

To establish a theoretical foundation for the hypothesis that “strategic entrepreneurship has a significant negative effect on greed,” we considered the upper echelons theory, which posits

that the traits and values of top executives shape organizational outcomes; and leaders who embrace SE are likely to foster a culture of ethical behavior and long-term thinking within their organizations (Hambrick and Mason, 1984).

2.3 Greed and success

Different researches provide an extensive understanding of greed, exploring it through diverse angles like psychology, economics and literature. These sources emphasize the intricate intricacies of greed and its profound influence on both individuals and the broader community. In a study conducted by Hoyer *et al.* (2022), using a Dutch sample, it was found that individuals characterized by greed tend to have higher personal and household incomes. However, these individuals also reported lower life satisfaction, indicating negative psychological outcomes. The study concluded that while greed is a widespread phenomenon and may have certain advantages, it is frequently criticized. According to Jinyun *et al.* (2022), greed serves as a dual-faceted instrument. On one hand, it can foster competitiveness and contribute to organizational growth. However, it may also lead to detrimental outcomes, including imprudent risk-taking and unscrupulous conduct.

Although some researchers like Terri *et al.* (2015) and Jinyun *et al.* (2022) documented the positive and negative effects of greed on success, we are in accord with the argument of Tacke *et al.* (2023) and Wang and Murnighan (2011) that greed is a trait that has detrimental effect. Assuming the negative effects of greed on success, we formulated the third hypothesis as follows:

H3. Greed has a significant negative effect on entrepreneur's success.

In order to establish a theoretical foundation for the hypothesis "Greed has a significant negative effect on entrepreneurial success," we took prosocial behavior theory as the theoretical foundation. The prosocial behavior theory suggests that greed correlates negatively with prosocial behaviors like empathy and cooperation (Mares and Woodard, 2012). Entrepreneurs who display high levels of greed may be less inclined to participate in activities that foster strong, supportive networks essential for achieving entrepreneurial success. Consequently, the absence of prosocial behavior can impede the formation of valuable relationships and resource acquisition.

In addition to the direct effect, we reviewed the literature on the mediating effect of greed on the association between SE and success. Scholars disagree about greed, which Tacke *et al.* (2023) define as a selfish drive that makes people pursue wealth and needs without caring about others. Thus, some researchers argue against nurturing greed due to its potential harm (Tacke *et al.*, 2023; Wang and Murnighan, 2011), while others see it as having a dual impact on success (Terri *et al.*, 2015). Despite the existence of some literature that recognizes the mixed effect of greed on success, we keep the idea that advocates the detrimental nature of greed. Thus, we formulated the fourth hypothesis:

H4. Greed has a competing mediation effect on the relationship between SE and entrepreneurs' success.

2.4 Gender variation in greed

Although making broad generalizations about the greed of an entire gender is not appropriate at least theoretically, different writers tried to relate the material inclinations of genders. A study conducted by Aidin *et al.* (2023) revealed that strategic foresight plays a crucial role in women's entrepreneurship by contributing to business sustainability, highlighting the correlation between gender and SE. However, greed is a complex human behavior that may not be determined by gender and recognizing such traits may not be

inherently linked to gender as there is a difference between greed and materialism (Lambie and Haugen, 2019). Currie *et al.* (2000) conducted a study in Australian higher education institutions to investigate the sacrifices individuals had to make to pursue their careers and found unvarying responses across genders. Although the study conducted by Workman and Lee (2011) in the USA and Korea revealed that females are more materialist than males, being materialist is different from being greedy (Lambie and Haugen, 2019) and greed would be gender neutral. However, Simpson (2003) claimed that females are more likely than males to cooperate in greed. Thus, we presumed that gender is a factor in determining the relationship between SE and greed and formulated hypothesis five as follows.

H5. The relationship between SE and greed is significantly moderated by gender.

While the literature on SE and its outcomes is extensive, a notable gap exists in the exploration of its effect on greed and, in turn, how greed may mediate the relationship between SE and success.

To date, no empirical studies have specifically investigated these dynamics. This lapse is significant as understanding the influence of SE on greed could provide valuable insights into the ethical dimensions of entrepreneurial behavior. Moreover, examining greed as a potential mediator could reveal how entrepreneurial behavior affects success. Addressing this gap is essential for a comprehensive understanding of the interplay between SE, greed and success and the conceptual framework is presented in Figure 1.

3. Methods and contexts

Contexts of entrepreneurial success greed in Ethiopia.

Greed plays a complex role in entrepreneurship. While ambition and the quest for profit can inspire innovation and growth, an excess of greed may result in unethical behavior and a focus on short-term gains, ultimately detrimental to the business and its stakeholders. In Ethiopia, where community and social responsibility are highly esteemed, it is vital to balance profit-driven motives with ethical considerations for achieving sustainable entrepreneurial success. However, businesses are often viewed as greedy, prompting the government to impose strict regulations to safeguard consumers. Despite its dual nature observed in various countries, exploring the relationship between SE and greed can yield valuable insights into creating a more ethical and sustainable entrepreneurial landscape in Ethiopia.

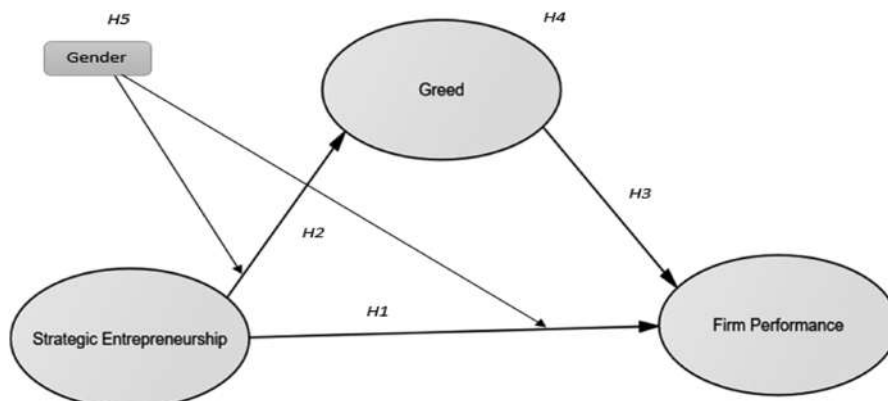


Figure 1.
Conceptual framework

Source(s): Figure by authors

To examine the interplay between SE, greed and entrepreneurs' success, we collected data from postgraduate students of Addis Ababa University, College of Business and Economics who at the same time either own or manage businesses. We preferred postgraduate students in the College of Business and Economics due to their practical and theoretical exposure to the subject matter. To reach the potential respondents, we obtained the total population and their addresses of active postgraduate students from Addis Ababa University, College of Business and Economics registrar and we sent them a questionnaire customized into Google form. From the total list of 1,604 students enrolled in four departments (Department of Accounting and Finance, Department of Economics, Department of Management and Department of Public Administration and Development Management), 104 emails bounced back due to different reasons including wrong address and we were able to reach 1,500 students through their email. Researchers also checked their experiences in either owning or managing businesses.

Questions for the survey related to SE, greed and entrepreneurs' success were adapted from previous studies. Therefore, the questions related to SE are adapted from Kantur (2016) and questions related to greed are adapted from Lambie and Haugen (2019). From the six sub-latent variables of greed: (1) excessive desire for more, material things; (2) excessive desire for more, non-material things; (3) disregard for the potential cost of obtaining one's desire; (4) insatiability; (5) acquisition motivation; and (6) retention motivation, we adapted 20 items initially and reduced later based on the validity. Moreover, questions for entrepreneurs' success were adopted from Wach *et al.* (2020) and the attributes related to firm performance are considered. We assigned codes to items under each of the three main latent variables (SE, greed and entrepreneurial success) that the questionnaire implicitly measured. We did not reveal the names of these variables to the respondents to prevent deliberate bias. From the total of 1,500 appropriate emails sent, we were able to get responses from 127 in the first round and the data are found to be sufficient as per the result of the Kaiser-Meyer-Olkin (KMO) value.

3.1 Robustness check

To check the data sufficiency for factor analysis, researchers used the Barlett Test of Sphericity (BTS) and KMO and obtained the KMO value of 0.761. To resolve the convergent and discriminant validity concerns, the researchers removed some items from Greed (G16, G14, G18, G2, G11, G5, G8, G15, G20, G19 and G4) and ran the exploratory factor analysis (EFA) again and able to increase the KMO value to 0.796 and the cumulative rotation sums of squared loadings to 52%. The rotated component matrix along with components loading and Cronbach's alpha is presented in Table 1.

Table 1 shows reliability (Cronbach's alpha), convergent validity (loadings on a single factor) and discriminant validity (no cross-loadings). Having the clean pattern matrix for the EFA, researchers proceeded to the CFA and checked the model fit and model validity. Thus, we used the AMOS plugin for the pattern matrix model builder as shown in Figure 2 and made some modifications for the model to fit.

Therefore, we co-vary e5 and e7, e13 and e14 and e20 and e22 to improve the model. Moreover, we deleted SE1 and G7 as they carry similar meanings to SE2 and G10, respectively, and the mode fit is presented on Table 2.

The model fit is generated by the Amos plugin and it is acceptable based on the recommendation of Hu and Bentler (1999) and Gaskin and Lim (2018).

For the master validity, we again used the Amos plugin and the validity is accepted according to Malhotra (2011). Malhotra argued that validity can be established through CR alone if it is greater than 0.70 and the model validity is presented on Table 3.

As we hypothesized the moderation effect of gender on the relationship between SE and greed; and SE and firm performance, we ran the configural invariance test, metric invariance test and scalar invariance test as part of the robustness check.

MANM
21,2

198

	Cronbach's alpha	0.870	Component 0.812	0.894
SE3		0.767		
SE7		0.720		
SE6		0.718		
SE4		0.709		
SE8		0.674		
SE2		0.659		
SE9		0.642		
SE5		0.613		
SE1		0.608		
G7			0.670	
G9			0.670	
G12			0.669	
G10			0.661	
G13			0.618	
G1			0.617	
G3			0.603	
G17			0.541	
G6			0.538	
FPS3				0.804
FPS2				0.779
FPS1				0.769
FPS4				0.687

Note(s): Extraction method: principal component analysis

Rotation method: Varimax with Kaiser normalization

a. rotation converged in six iterations

Source(s): Created by authors

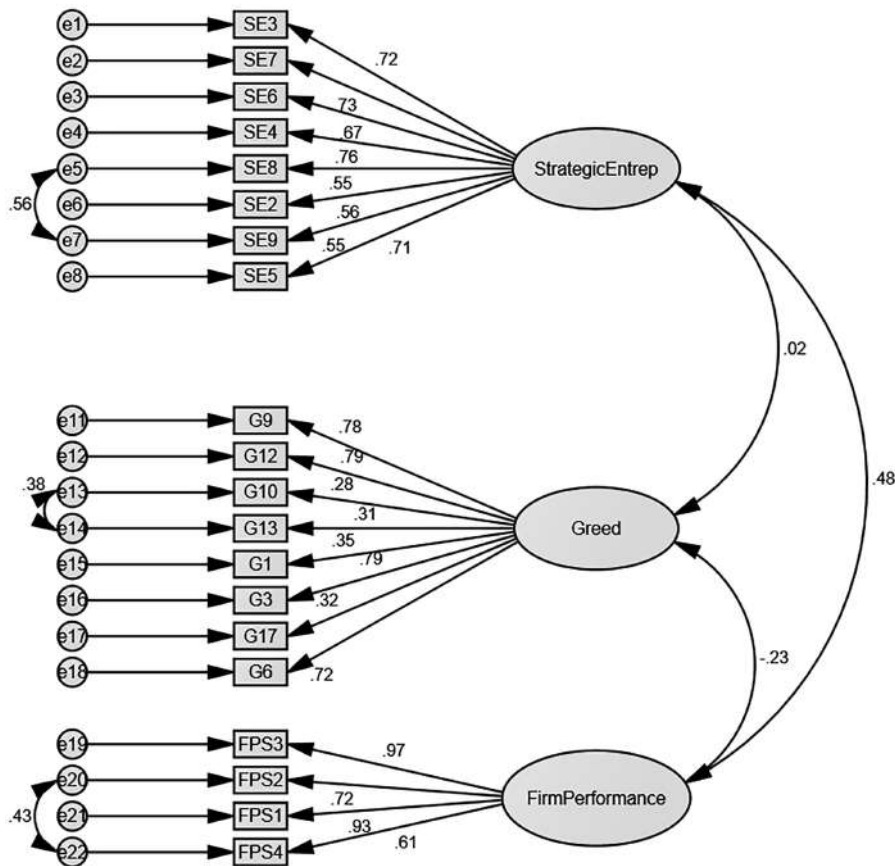
Table 1.
Rotated component
matrix

The configural invariance is met as evidenced by a good model fit measure when estimating two groups (male and female) freely (without constraints). In addition, metric invariance was good as evidenced by the non-significant chi-square difference test between unconstrained and fully constrained models where the regression weights were constrained. Furthermore, scalar invariance was met as evidenced by the insignificant p value that the two groups are structurally not different (they are invariant). As part of the robustness check, researchers also tested the *multicollinearity*, common method bias and other required tests and the results are robust.

4. Results and discussion

In the robustness checking, all the assumptions are satisfied and the data can be used for the analysis to test the formulated hypotheses. Therefore, researchers presented the descriptive analysis, path analysis and structural equation modeling (SEM) analysis results using SPSS and AMOS. The analysis is conducted in terms of direct effect, indirect (mediated) effect and moderating effect.

Table 4 shows the descriptive analysis of variables that are retained and used in the research. The group means for SE, greed and performance are 3.53, 2.24 and 3.77, respectively. Relatively, the mean score of greed is low and respondents replied "Disagree" for respective items. According to the Likert scale mean score interpretation where 1.0–2.4 is considered low, 2.5–3.4 is neutral and 3.5–5.0 is high (Boone and Boone, 2012; Wanjohi and Syokau, 2021), the findings show that the average score for two dimensions (SE and performance) exceeds the neutral midpoint. However, the greed score is relatively low, suggesting that respondents are not prone to the behavior.



Source(s): Created by authors

Figure 2. Confirmatory factor analysis (CFA)

Measure	Estimate	Threshold	Interpretation
CMIN	264.795	-	-
DF	164	-	-
CMIN/DF	1.615	Between 1 and 3	Excellent
CFI	0.913	>0.95	Acceptable
SRMR	0.083	<0.08	Acceptable
RMSEA	0.070	<0.06	Acceptable
PClose	0.022	>0.05	Acceptable

Source(s): Created by authors

Table 2. Model fit measure

4.1 Direct effect analysis

To do the direct, indirect and moderated effect analysis, researchers employed structural equation modeling. Therefore, the direct and indirect effect analysis is conducted based on the path diagram presented in Figure 3.

The effect of SE on firm performance (Hypothesis 1), the effect of SE on greed (Hypothesis 2) and the effect of greed on firm performance (Hypothesis 3) is determined based on the direct effect analysis as results are presented in Figure 3 and Table 5. Table 5 shows the standardized and unstandardized coefficients of the variables SE, greed and performance.

The partial effect of SE on greed, holding other variables constant is 0.019 as indicated by the unstandardized coefficient. The effect is not significant and SE does not affect greed. Although we expect a negative effect of SE on greed, the result indicated that SE does not affect greed. We hypothesized that SE, which involves spotting and seizing opportunities with underutilized resources and creating lasting value, reduces greed and leads to long-

Table 3.
Model master validity

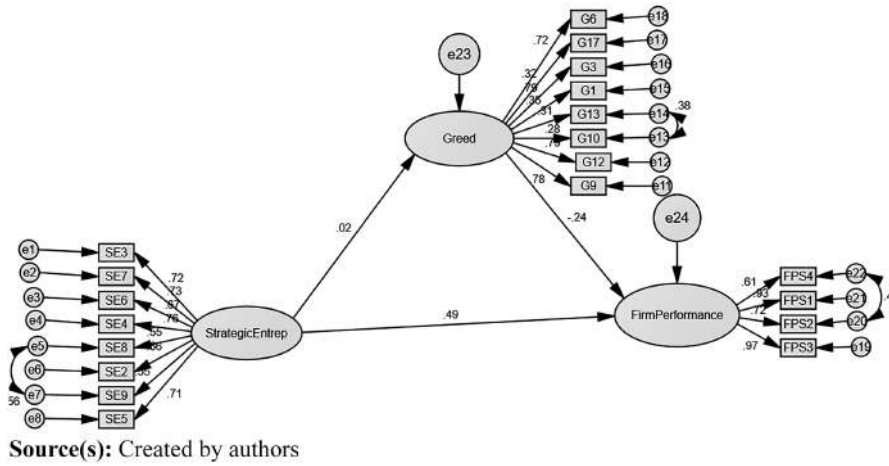
	CR	AVE	MSV	MaxR(H)	Strategic entrep	Greed	Firm performance
Strategic ENTREP	0.859	0.436	0.232	0.870	0.660		
Greed	0.784	0.349	0.055	0.866	0.015	0.590	
Firm performance	0.888	0.672	0.232	0.957	0.482***	-0.233*	0.820

Source(s): Created by authors

Table 4.
Descriptive statistics

Code	Items	N	Mean	Std. Deviation
SE1	You/your firm introduced new product/service lines	127	3.72	0.989
SE2	You/your firm introduced new product/service lines in new/different industries	127	3.36	1.110
SE3	You/your firm reorganized to foster innovation	127	3.59	0.995
SE4	You/your firm adopted flexible organizational structures to foster innovation	127	3.43	1.080
SE5	You/your firm introduced teamwork to foster innovation	127	3.68	0.950
SE6	You/your firm increased spending on new product development	127	3.47	1.022
SE7	You/your firm adopted new strategies to exploit new opportunities	127	3.83	0.969
SE8	You/your firm changed the rules of competition	127	3.39	1.039
SE9	You/your firm moved the competition to a new platform	127	3.27	1.080
	<i>Strategic entrepreneurship mean</i>		3.53	
G1	It is ok to harm others to get what you want	127	1.65	1.049
G3	You are fearful that you might lose everything you have	127	2.63	1.187
G6	You are concerned that you will lose what you have	127	2.65	1.102
G7	You will get what you want at all costs, even if you have to lie	127	1.99	1.020
G9	You afraid that everything you have might be gone one day	127	2.71	1.155
G10	You would cheat to get what you desire	127	1.64	0.833
G12	You worry about losing what you have	127	2.74	1.100
G13	You are so focused on getting what you want, that you do not think about the consequences	127	2.18	0.946
G17	You do not think about consequences when pursuing what you desire	127	1.94	0.871
	<i>Greed means</i>		2.24	
FPS1	The profitability of your firm has increased from time to time for the last three years	127	3.84	0.840
FPS2	The turnover/sales of your firm increases from time to time	127	3.76	0.906
FPS3	The profit of your firm is increasing from time to time	127	3.80	0.920
FPS4	The market share of your firm increases from time to time	127	3.69	0.861
	<i>Performance means</i>		3.77	

Source(s): Created by authors



Source(s): Created by authors

Figure 3. Causal model

		Estimate		S.E.	C.R.	p
		Unstandardized	Standardized			
Greed	← Strategic Entrep	0.019	0.015	0.131	0.148	0.882
Firm performance	← Greed	-0.236	-0.241	0.086	-2.749	0.006
Firm performance	← Strategic Entrep	0.605	0.485	0.120	5.030	0.001

Source(s): Created by authors

Table 5. Regression weights

term success for entrepreneurs who care about others. However, we found no evidence for this and we rejected Hypothesis 2. According to Goldberg (2023), keeping the mission and values of businesses at the forefront would help to sidestep greed. However, our results show that SE has no significant influence on greed that factors other than SE would affect greed.

The unstandardized coefficient of greed on entrepreneur success expressed as firm performance is -0.236 which represents the partial effect of greed on performance, holding other variables constant. The negative sign implies that such an effect is negative and performance would decrease by 0.236 for every unit increase of greed. Assuming the negative effects of greed on success could stem from its potential to distort decision-making, compromise ethical standards and increase risk, we claimed the negative effect on firm performance and the result indicates that the negative effect of greed on performance is significant. Therefore, we accepted Hypothesis 3 and the result concurs with the finding reported by Tacke *et al.* (2023) and Wang and Murnighan (2011). However, it still refutes the finding reported by Terri *et al.* (2015) as they reported the constructive aspect of greed as well.

Similarly, the unstandardized coefficient of SE on performance is 0.605 which reflects the partial impact of SE on performance, holding other factors constant. The positive sign implies that performance would increase by 0.605 units for every unit increase in SE. Accordingly, Hypothesis 1 is accepted and this result concurs with the study reported by Kantur (2016), Stockley (2021) and Hughes *et al.* (2021).

4.2 Indirect effect analysis

To examine the indirect effect of SE on firm performance through the mediating variable greed, we formulated the hypothesis that reads “Greed has a competing mediation effect on the relationship between strategic entrepreneurship and entrepreneurs’ success”. We argued that the total effect of SE on performance is significantly less than its direct effect due to the competing mediation effect of greed. Therefore, Hypothesis 4 was tested based on the result presented in Figure 3 and Table 6.

Using the bootstrap confidence interval technique, the analysis result shows a standardized estimate of -0.004 , a lower confidence interval of -0.086 , an upper confidence interval of 0.044 and a p -value of 0.770 . The mediated effect analysis shows that zero is within the lower and upper confidence intervals and that the mediation effect is not significantly different from zero (Reuben and David, 1986). Thus, Hypothesis 4 is rejected. Moreover, the total (indirect plus direct) effect of SE on performance ($(0.02^* - 0.24) + (0.49) = 0.485$) is slightly lower than its direct effect (0.49) due to the competing mediation effect of greed. However, the effect is not statistically significant and greed has no mediation effect. In addition to the direct effect, prior research reported the indirect effect of SE on the performance of organizations. For example, Amani and Bavi (2018) conducted a study using a human resource information system as a mediating variable and reported a significant indirect effect of SE on performance. However, our result, using greed as a mediating variable, shows no indirect effect that the type of mediating variable is vital for SE to have a significant indirect effect.

4.3 Moderating effect analysis

To test the moderating effect (gender as a moderator), we ran a chi-square difference test between the unconstrained and fully constrained model and the result shows that the unconstrained model is not different from the fully constrained model. That is, males and females are not different when it comes to the model. To see the coefficient and significance of each path for males and females further, we tested each path at a time and the result is presented in Table 7.

Based on the chi-square difference test for individual paths at a time, the standardized coefficients for males and females along with the p -values show that those coefficients are not statistically significant though differences in coefficients for males and females are observed. Therefore, Hypothesis 5 is rejected that gender is not a moderator on the relationship between any variables in the causal model. The result concurs with the findings reported by

Table 6.
Mediated effect

Parameters	Standardized estimate	Lower CI	Upper CI	p
Strategic Entrep – Greed – Firm Performance	-0.004	-0.086	0.044	0.770

Source(s): Created by authors

Table 7.
Individual path
comparison – gender

Model paths	Standardized beta		DF	CMIN	p
	Male	Female			
Unconstrained (strategic entrep to greed)	0.04	-0.03	1	0.10	0.75
Unconstrained (greed to firm performance)	-0.30	-0.24	1	0.00	0.96
Unconstrained (strategic entrep to firm performance)	0.59	0.28	1	1.11	0.29

Source(s): Created by authors

Currie *et al.* (2000). However, the result refutes the research that argues females are more likely than males to cooperate in greed (Simpson, 2003).

4.4 Summary of hypotheses test

Researchers tested all five hypotheses based on the result from the direct, indirect and moderating effect analysis. The summary of these hypotheses along with the test statistics is presented in Table 8.

5. Conclusion, practical implications and future research directions

The study reveals that SE positively impacts entrepreneurial success, whereas greed has a detrimental effect. The hypothesis that greed mediates the relationship between SE and success is not supported, and gender does not significantly moderate this relationship.

The results indicate that the personal qualities of owner-managers have a direct effect on the strategic direction and success of their businesses. Additionally, the findings show that entrepreneurs who have a strong focus on prosocial behavior are more likely to establish policies that support social responsibility and ethical practices, thus minimizing the risk of engaging in greedy behaviors. By merging upper echelons theory with the notion of prosocial behavior, this research emphasizes the significant influence of entrepreneurs’ traits and prosocial motivations in shaping business strategies and outcomes. This insight could assist the government in creating training programs and policies aimed at fostering sustainable and ethical business practices.

While the study examines gender as a moderator, it did not explore other potential moderating or mediating variables that could provide a more comprehensive understanding of the relationships studied. These limitations highlight areas where future research can improve upon the current study, providing a more robust and nuanced

S. No.	Research hypothesis	Tests employed	Decision
H1	<i>Strategic entrepreneurship has a significant positive effect on entrepreneurs’ success</i>	<i>t</i> -test	C.R = 5.030 <i>p</i> < 0.001 <i>Accepted</i>
H2	<i>Strategic entrepreneurship has a significant negative effect on greed</i>	<i>t</i> -test	C.R = 0.148 <i>p</i> = 0.882 <i>Reject</i>
H3	<i>Greed has a significant negative effect on entrepreneurs’ success</i>	<i>t</i> -test	C.R = -2.749 <i>p</i> = 0.006 <i>Accepted</i>
H4	<i>Greed has a significant competing mediation effect on the relationship between strategic entrepreneurship and entrepreneurs’ success</i>	Percentile bootstrap confidence interval	Lower value = -0.086 Upper value = 0.044 <i>p</i> -value = 0.770 <i>Reject</i> – zero is between
H5	<i>The Relationship between strategic entrepreneurship and greed is significantly moderated by gender</i>	Chi-square difference test	CMIN = 0.10 <i>p</i> = 0.75 <i>Reject</i>

Source(s): Created by authors

Table 8.
Hypotheses test summary

understanding of the impact of SE and greed on entrepreneurial success. Thus, future research should explore additional moderating factors such as cultural background, industry type and organizational size to gain a deeper understanding of the relationship between SE, greed and success. Investigating the long-term effects of SE and the role of greed at different stages of an enterprise life cycle could provide valuable insights. Additionally, examining other dimensions of success, such as workplace relationships, personal fulfillment, community impact and personal financial rewards, can offer a more comprehensive understanding of entrepreneurs' experiences and motivations regarding greed and SE.

References

- Aidin, S., Rezaei, H., Hadizadeh, M., Yasin, N. and Ansari, G. (2023), "The application of strategic foresight in women's entrepreneurship development", *Journal of Women's Entrepreneurship Education*, pp. 16-36, doi: 10.28934/jwee23.pp16-36.
- Akhtar, R., Ahmetoglu, G. and Chamorro-Premuzic, T. (2013), "Greed is good? Assessing the relationship between entrepreneurship and subclinical psychopathy", *Personality and Individual Differences*, Vol. 3, pp. 420-425, doi: 10.1016/j.paid.2012.10.013.
- Amani, A. and Babil, S.K. (2018), "Study of strategic entrepreneurship on organizational performance with the mediating role of human resource information systems (study case: social security organization of east Azerbaijan province)", *International Journal of Applied Research in Management and Economics*, Vol. 1 No. 2, pp. 87-104.
- Bhasin, B. and Keng Ng, L. (2019), "Socio cultural impediments to entrepreneurship: implications for the Lao people's democratic republic", *Journal of Entrepreneurship, Business and Economics*, Vol. 7 No. 1, pp. 64-91, available at: <http://www.scientificia.com/index.php/JEBE/article/view/107>
- Boone, H.N. and Boone, D.A. (2012), "Analyzing Likert data", *Journal of Extension*, Vol. 50 No. 2, p. 48, doi: 10.34068/joe.50.02.48.
- Currie, J., Harris, P. and Thiele, B. (2000), "Sacrifices in greedy universities: are they gendered?", *Gender and Education*, Vol. 12 No. 3, pp. 269-291, doi: 10.1080/713668305.
- Dominika, W., Ute, S., Marjan, G. and Jürgen, W. (2020), "Entrepreneurs' achieved success: developing a multi-faceted measure", *The International Entrepreneurship and Management Journal*, Vol. 16 No. 3, pp. 1123-1151, doi: 10.1007/s11365-018-0532-5.
- Fisher, R., Maritz, A. and Lobo, A. (2014), "Evaluating entrepreneurs' perception of success : development of a measurement scale", *International Journal of Entrepreneurial Behavior and Research*, Vol. 20 No. 5, pp. 478-492, doi: 10.1108/ijeb-10-2013-0157.
- Gaskin, J. and Lim, J. (2018), "Model fit measures, AMOS plugin", Statwiki.kolobkreations.com, available at: http://Statwiki.kolobkreations.com/index.php?title=Main_Page (accessed 3 December 2023).
- Goldberg, R. (2023), "Avoiding greed as your business thrives", *LinkedIn.com*, available at: <https://www.linkedin.com/pulse/avoiding-greed-your-business-thrives-roxanne-goldberg/>
- Hambrick, D.C. and Mason, P.A. (1984), "Upper Echelons: the organization as a reflection of its top managers", *Academy of Management Review*, Vol. 9 No. 2, pp. 193-206, doi: 10.2307/258434.
- Hoyer, K., Zeelenberg, M. and Breugelmans, S.M. (2022), "Greed: what is it good for?", *Personality and Social Psychology Bulletin*, Vol. 50 No. 4, pp. 1-16, doi: 10.1177/01461672221140355.
- Hu, L.T. and Bentler, P.M. (1999), "Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives", *Structural Equation Modeling: A Multidisciplinary Journal*, Vol. 6 No. 1, pp. 1-55, doi: 10.1080/10705519909540118.
- Hughes, M., Hughes, P., Lee, Y. and Hodgkinson, I. (2021), "Strategic entrepreneurship behaviour and the innovation ambidexterity of young technology-based firms in incubators", *International Small Business Journal: Researching Entrepreneurship*, Vol. 39 No. 3, pp. 202-227, doi: 10.1177/0266242620943776.

- Jinyun, D., Yishuai, Y. and Dian, S. (2022), "Greed in organizational context: a literature review and prospects", *Foreign Economics and Management*, Vol. 44 No. 6, pp. 34-46.
- Kantur, D. (2016), "Strategic entrepreneurship: mediating the entrepreneurial orientation-performance link", *Management Decision*, Vol. 54 No. 1, pp. 24-43, doi: 10.1108/md-11-2014-0660.
- Knuniantc, E. (2022), "Why do not greedy people make more money? The role of self-control".
- Lambie, G.W. and Haugen, J.S. (2019), *Heintzelman Greed Scale*© (HGS©) *Theoretical Framework and Item Development*, University of Central Florida, London.
- Malhotra, N.K. (2011), *Marketing Research*, Pearson, London.
- Mares, M.L. and Woodard, E. (2012), "Effects of prosocial media content on children's social interactions", in *Handbook of Children and the Media*, pp. 197-214.
- Mazzei, M.J. (2018), "Strategic entrepreneurship: content, process, context, and outcomes", *The International Entrepreneurship and Management Journal*, Vol. 14 No. 3, pp. 657-670, doi: 10.1007/s11365-018-0512-9.
- Mazzei, M.J., Ketchen Jr, D.J. and Shook, C.L. (2017), "Understanding strategic entrepreneurship: a 'theoretical toolbox' approach", *The International Entrepreneurship and Management Journal*, Vol. 13 No. 2, pp. 631-663, doi: 10.1007/s11365-016-0419-2.
- Mohutsiwa, M. (2012), *Strategic Entrepreneurship and Performance of Small and Medium Enterprises in South Africa, Doctoral Dissertation*, University of the Witwatersrand, Johannesburg.
- Piispanen, V.-V., Paloniemi, K.J. and Kauppinen, A. (2022), "Trust, distrust and psychological ownership in strategic entrepreneurship-based tensions", *International Journal of Entrepreneurship and Small Business*, Vol. 45 No. 3, pp. 396-421, doi: 10.1504/IJESB.2022.122027.
- Porfírio, J.A., Felício, J.A. and Carrilho, T. (2020), "Family business succession: analysis of the drivers of success based on entrepreneurship theory", *Journal of Business Research*, Vol. 115, pp. 250-257, doi: 10.1016/j.jbusres.2019.11.054.
- Reuben, B.M. and David, K.A. (1986), "The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations", *Journal of Personality and Social Psychology*, Vol. 51 No. 6, pp. 1173-1182, doi: 10.1037//0022-3514.51.6.1173.
- Robert, H.D. and Craig, N.S. (2006), "The PCL-R assessment of psychopathy: development, structural properties, and new directions", in Patrick, C.J. (Ed.), *Handbook of Psychopathy*, The Guilford Press, pp. 58-88.
- Shane, S.A. (2003), *A General Theory of Entrepreneurship: the Individual-Opportunity Nexus*, Edward Elgar Publishing, New York.
- Shane, S. and Venkataraman, S. (2000), "The promise of entrepreneurship as a field of research", *Academy of Management Review*, Vol. 25 No. 1, pp. 217-226, doi: 10.5465/amr.2000.2791611.
- Simpson, B. (2003), "Sex, fear, and greed: a social dilemma analysis of gender and cooperation", *Social Forces*, Vol. 82 No. 1, pp. 35-52, doi: 10.1353/sof.2003.0081.
- Sinafiksh, A. (2020), "Where are we going? A greedy merchant and a greedy customer", News.et, available at: <https://news.et/2020/03/15/%E1%8B%88%E1%8B%B4%E1%89%B5-%E1%8A%A5%E1%8B%A8%E1%88%84%E1%8B%B5%E1%8A%95-%E1%8A%90%E1%8B%8D-%E1%88%B5%E1%8C%8D%E1%89%A5%E1%8C%8D%E1%89%A5-%E1%8A%90%E1%8C%8B%E1%8B%B4%E1%8A%93-%E1%88%B5%E1%88%B5/> (accessed 19 February 2024).
- Stockley, S. (2021), "Understanding entrepreneurial behaviour and why it is important", Masteringentrepreneurship.blog, available at: <https://masteringentrepreneurship.blog/jbs.cam.ac.uk/understanding-entrepreneurial-behaviour-and-why-it-is-important/> (accessed 10 January 2024).
- Tacke, F., Knockaert, M., Patzelt, H. and Breugst, N. (2023), "When do greedy entrepreneurs exhibit unethical pro-organizational behavior? The role of new venture team trust", *Journal of Management*, Vol. 49 No. 3, pp. 974-1004, doi: 10.1177/01492063211067517.

- Tehseen, S., Johara, F., Halbusi, H.A., Islam, M. and Abdel Fattah, A.F. (2023), "Measuring dimensions of perceived business success among Malaysian and Bangladeshi SME owners", *Rajagiri Management Journal*, Vol. 17 No. 2, pp. 102-124, doi: 10.1108/ramj-05-2021-0045.
- Terri, S.G., Marcel, Z., Niels, V. and Seger, B.M. (2015), "Dispositional greed", *Journal of Personality and Social Psychology*, Vol. 108 No. 6, pp. 917-933, doi: 10.1037/pspp0000031.
- Timmons, J.A. (2004), *New Venture Creation: Entrepreneurship for the 21st Century*, 6 ed., McGraw-Hill/Irwin, New York.
- Wach, D., Stephan, U. and Gorgievski, M. (2020), "More than money: developing an integrative multi-factorial measure of entrepreneurial success", *International Small Business Journal: Researching Entrepreneurship*, Vol. 34 No. 8, pp. 1-24, doi: 10.1177/0266242615608469.
- Wang, L. and Murnighan, K.J. (2011), "On greed", *The Academy of Management Annals*, Vol. 5 No. 1, pp. 279-316, doi: 10.5465/19416520.2011.588822.
- Wanjohi, A.M. and Syokau, P. (2021), "How to conduct Likert scale analysis", kenpro, available at: <https://www.kenpro.org/how-to-conduct-likert-scale-analysis/> (accessed 13 December 2023).
- Wei, S., Jin, W., Zhu, W., Chen, S., Feng, J., Wang, P., Im, H., Deng, K., Zhang, B., Zhang, M., Yang, S., Peng, M. and Wang, Q. (2023), "Greed personality trait links to negative psychopathology and underlying neural substrates", *Social Cognitive and Affective Neuroscience*, Vol. 18 No. 1, nsac046, doi: 10.1093/scan/nsac046.
- Workman, J.E. and Lee, S.-H. (2011), "Materialism, fashion consumers and gender: a cross-cultural study", *International Journal of Consumer Studies*, Vol. 35 No. 1, pp. 50-57, doi: 10.1111/j.1470-6431.2010.00935.x.

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