

The Impact of Internal and External Supply Chain Integration on Business Performance of the Banking Sector in Indonesia

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The aim of this study is to examine the impact of internal and external supply chain integration impact on the business performance of the banking sector of Indonesia. The data was collected from the 250 supply chain managers which yielded an 80 percent response rate. Structural Equation Modelling (SEM) of the data has shown that both supply chain integration indicators namely, internal and external supply chain integration have both a positive and significant association with the business performance of the banking industry of Indonesia. These findings have shown that banking sector of Indonesia has a great importance on supply chain integration to increase their firms performance. The findings of the study could also help supply chains to know about the importance of supply chain integration to increase their performance. The research limitations and future direction has also been discussed at the end of the study.

Key words: *Supply chain integration, business performance, Indonesia, Banking sector.*

Introduction

Organisations in 21st century find themselves working in a dynamic environment featured by high levels of competitiveness, global village, ever-increasing customer anticipations and demands. Further, the current century has also forced organisations to be socially responsible (Gheraia, Saadaoui, & Abdelli, 2019; Pakurár, Haddad, Popp, Khan, & Oláh, 2019; Zhao, Huo, Selen, & Yeung, 2011; Rapini et al., 2018) and also deal with issues regarding their

performance. Thus, in the presence of such environmental scenarios the conventional strategic choices and practices seem not to be productive anymore and do not offer an organisation competitiveness and value creation (Pakurár et al., 2019; Prajogo & Olhager, 2012). Therefore, the performance of an organisation is regarded as a problem for all firms. Furthermore, they are also looking to pinpoint the factors which potentially affect the performance in order to enhance performance. Accordingly, it is worthy to mention that organisations can have better performance through identification of hurdles and the creation of a positive business environment (Wong, Boon-Itt, & Wong, 2011; Maryanti et al., 2019).

It is imperative to measure the performance and for an organisation to have an assessment system because it serves to be a significant tool for the development of strategic planning and evaluation of the accomplishment of organisational goals. Conventionally performance of organisations is measured by using the cost accounting system however this system is not useful in current business settings because it does not focus on long-run scenarios. Additionally, the conventional performance assessment systems are not strongly aligned with firm objectives. These conventional systems tend to lack the operational details, relationships' quality and information regarding the loyalty of customers. Previously a study (Pakurár et al., 2019) has put forward that balanced scorecards can be used as a performance assessment tool. These cards offer both monetary and non-monetary measures to managers with more considerable and related information regarding the performance of an organisation. (Um, 2018) contended that supply chain integration has developed as an important source to scale up the performance of an organisation. It is inclusive of two dimensions namely: customer and internal integration which offers an organisation with competitiveness at market.

Various studies have been conducted in different countries and many have established that supply chain integration is linked with business performance (Jayaram & Tan, 2010; Wong et al., 2011; Santoso, 2020). Limited studies have been carried out to study the influence of supply chain integration and performance in banking sectors of developing economies, especially in the banking sector of Indonesia. Therefore, the purpose of the present research study is to examine the influence of supply chain integration on the business performance of the Indonesia banking sector. Thus, the study will address the following research question; what is the influence of SCI on the performance of a business, particularly one in the banking sector? Banking being a sector that plays a vital role in the creation and value addition to economies and societies. Therefore, the persistent improvement of the performance of an organisation of such a sector must always remain a priority. Further, greater importance is being placed on the measurement of the performance of an organisation from both the monetary and non-monetary perspective. Thus, limited attention has been given to such topics particularly from the balanced scorecard perspective.

Literature Review and Hypothesis Development

Supply Chain Integration

Supply chain management is intended to eradicate the hurdles in communication by ensuring the coordination, observation and controlling of the organisational processes. Accordingly, SCI aims to create interlinks between each partner in the supply chain in order to have better decision making and allow the other partners to be more flexible. These initiatives help to identify and pinpoint the hurdles in the supply chain (Pakurár et al., 2019; Prajogo & Olhager, 2012; Wiyati et al., 2019). Research scholars postulate that various types of interpersonal coordination assist in advancing both products and services (Droge, Vickery, & Jacobs, 2012). It is worthy to note that mostly integration is associated with procedural and communication advancement and combined planning. Further, the combination and interaction of the know-how, operations and associations between organisations are inherent in the abilities of an organisation and these are not easily replaceable (Bowersox, Closs, & Stank, 1999; Pakurár et al., 2019; Rai, Patnayakuni, & Seth, 2006). Identification of the issues and creation and exploitation of the choices happens as a coordinated action which creates a way in which organisations are allowed to learn and grow. Previously discussed schemes are regarded as the stimulus, which promotes organisational integration, which offers choices for combined employment of the latest knowledge (Mellat-Parast & Spillan, 2014; Santoso et al., 2020). Notably, integration is linked with improvement combined with enhancing the performance of firms (Flynn, Huo, & Zhao, 2010; Rai et al., 2006).

It must be noted that when a supply chain acts like a unit which is vertically integrated and ensures the exchange of information it improves organisational performance (Chang, Hung, Wong, & Lee, 2013; Pakurár et al., 2019). Accordingly, strategic integration of supply chains incorporate the information of the customers and suppliers into the firm by using cross business communication and internal organisation communication teams (Ayoub, Abdallah, & Suifan, 2017; Tsanos, Zografos, & Harrison, 2014). Customer demands are not only limited to each department. Individuals who are working in the companies which ask for multi-skilled employees are required to perform multiple job duties and are considered to be more successful at comprehending the customer perspective. Additionally, individuals developing cross-department association may actually be the first step towards the improvement of the link with external partners (Pati, Sundram, Chandran, & Bhatti, 2016). Individuals have numerous associations that can influence the external integration, and they are regarded as network members across several organisations.

SCI scales up the productivity by reducing the risk associated with supplier dealing and also enhance the productivity of managing the business (Afshan, 2013; Khan & Wisner, 2019; Lii & Kuo, 2016). Individuals who implement supply chain efficiency are often rewarded with

increased financial performance (RAHMAN & Afsar, 2008; Sessu et al., 2020). They also put efforts to reduce costs and increase customer awareness (Gharakhani, Mavi, & Hamidi, 2012). Accordingly, organisations with higher productivity tend to enhance their capability to handle the uncertain risks associated with SCI (Eriksson, 2019).

Resources both in tangible and intangible forms are required in case of external integration. It is inclusive of adoption of the latest technologies and active involvement of the SC partners in organisational innovations. Similarly, supply chain associates must dedicate their expertise via customers and companies (Pati et al., 2016; Wiengarten, Li, Singh, & Fynes, 2019). Therefore, the integration with the customer can be regarded as a way to collect and understand the needs of the customer and dividing mutual knowledge (Droge et al., 2012; Mbugua & Namada, 2019). In case the design efforts are not appropriate to customer's demand then teams within the organisation may design a product which looks to be appropriate but in reality is not productive from a customer perspective. Previously a study has found that customer integration is significantly associated with the monetary performance of an organisation, however, it is not sufficient for the development of superior business performance (Mbugua & Namada, 2019). Having good association with customers is necessary as it helps to know their needs. Additionally, when products and services are unable to meet customer anticipation, their positive association becomes limited. Notably, complex companies consist of various integrated parts. The complexity of these companies reduces their ability of individuals to pinpoint and take necessary action. Generally, narrow-mindedness is regarded as a possible contributor. Therefore, the managers are asked to resolve the issues arising due to the complex structures of the institutions and build the cooperation work environment (Yuen, Wang, Ma, Lee, & Li, 2019).

Organisations having a horizontal structure observe a smooth flow of information. This kind of structure enables them to develop the personal associations within an organisation which can prove to be supportive in resolving issues. Smooth relationships enhance the number of stakeholders, when the issues are mutually resolved individuals who are in leading positions in such situations can interact indirectly (Birasnav & Bienstock, 2019). Individuals who are trained and are experts are considered capable of being cooperative across departments. It becomes easy for managers to develop internal integration as employees are involved in various functions which smoothen internal integration. A manager who coordinates with various departments can resolve both internal and external issues more effectively (Robinson, 2014). Internal integration is considered a first step to accomplish the SCI (Panayides, 2017; Vanpoucke, Verecke, & Muylle, 2017). It has become very significant for managers to understand the aspects which influence the organisation (Hadebe, 2018). Therefore, it is also imperative for managers to understand the comprehensive meaning of the related activities and look for the integration of operations to comprehend and reflect the customer's voice (J. Yu et al., 2013).

Azhdari (2018) has stated that the microfinance firms are asked to enhance their financial stability which is generally backed by organisational aspects. Charged interest rate and presence in the market on the performance of financial microfinance institutions. Furthermore, credit unions and financial institutions show better performance as compared to their competitors. Therefore, a higher interest rate serves as a driver for the monetary sufficiency of an organisation. Organisations who want to eradicate customer defection must be proactive in switching cost associated to customer loyalty and performance. Accordingly, a study (Chadha, 2013; Flynn, Koufteros, & Lu, 2016) also reported a significant association between switching cost and loyalty.

Supply Chain in Banking

Banks can be regarded as a backbone of the supply chain in an economy as they provide both finance and financial services. Therefore, their integration is vital. Accordingly, (Govindan, Mangla, & Luthra, 2017) contended that the banks can significantly improve supply chain integration, and they can also facilitate SC partners for optimal physiological and monetary integration. Organisations which provide financial services are generally evident in all supply chains. Banks smoothen SCI by coordination with cooperation, sharing data and having high visibility of relevant information. Indonesia's banking system consists of three types of banks namely; commercial, Islamic and foreign banks. The Islamic banking system works in line with the Islamic principle which is termed as "Sharia". Therefore, it cannot facilitate businesses which are not in line with Sharia (Mbugua & Namada, 2019; Purnomo et al., 2020). From the banking perspective, internal integration is ensuring that there exists information flow between the banks. For instance, the banking top management consists of the board of directors which is supervised by the chairman and other committees for effective decision making (Mbugua & Namada, 2019) which consists of the following; credit, corporate strategy, nomination and remuneration. These are directly linked with the board and chairman. Furthermore, the CEO monitors all of the activities in all banking department. Such support is composed of the following departments: operational department, research and development department, real estate, purchasing, construction, human resources and finance. Aforementioned departments work closely for a mutually shared objective.

Business Performance

Huo (2012) put forward that the balanced scorecard can be used as a performance assessment technique which provides a realistic view about the performance from both a monetary and non-monetary perspective. It also offers an organisation with certain benefits in the creation of strategy and accomplishing organisational objectives. Further, it also offers a detailed overview about the tangible and intangible assets of a company. Traditionally used performance measures only offer financial information regarding a company, whereas the

BSC is also used as a performance management and strategic implementation process. It also facilitates the alignment of the performance assessment with the strategic orientation. Meanwhile, it also provides uninterrupted feedback to individuals regarding their involvement in the processes of the business which facilitate to develop an understanding regarding how organisational performance can be improved (Pakurár et al., 2019). Continuing on the balanced scorecard according to the previous study (Spena & De Chiara, 2018) it is stated that it offers a comprehensive structure which converts the organisational strategic orientation and vision into performance assessment measures (Spena & De Chiara, 2018). It is not only inclusive of the history of the performance assessment, but it also includes the leading indicators such as meeting the needs and expectations of the customers. It is considered a technique which offers managers with a comprehensive and precise view regarding the organisations' current state and its progress regarding goal accomplishment (Huo, 2012). Hence, it can be defined as set of measures which are carefully selected, and these measures are the result of organisational strategy (DE CHIARA & Russo Spena, 2013). Later on, these tools are used by leaders as a potential tool for communication. Notably, it ranges from different areas, namely; finance, consumer support, operations and abilities (Chang et al., 2013).

Supply Chain Integration and Business Performance

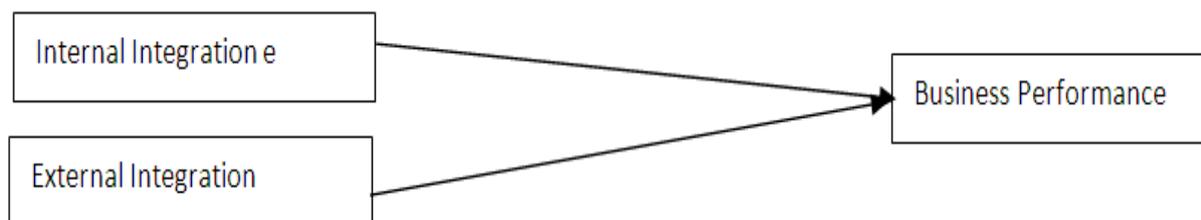
Managers dealing with the supply chain always seek relevant activities and look forward to the improvement by integrating the processes for customer satisfaction (Huo, 2012; Xu, Huo, & Sun, 2014). Notably, the performance of an organisation increases with the increase in supply chain integration (Huo, 2012). Such integration results in various advantages for SC partners which ultimately improves the overall chain (Shahbaz, Rasi, Ahmad, & Sohu, 2018). At this point, it is worthy of mentioning the results of the previous study (Bagchi, Ha, Skjoett-Larsen, & Soerensen, 2005) which hold that competitiveness is accomplished by enhancing organisational supply chain productivity. Previously a study (Huo, 2012) has put forward the different stages for measurement of the SCI. Further, the study findings also postulated that customer focused integration is diverse in nature. (Tayyab, Awan, & Bukhari, 2020) in their study reported that the widest level arc of integration is strongly associated with the organisations performance. Integration can be considered as attitudes of members which is internally and externally associated with the performance of an organisation (Ataseven & Nair, 2017; Teixeira, Jabbour, de Sousa Jabbour, Latan, & De Oliveira, 2016). From the above discussion, the research hypothesises that;

H1: Internal Integration has a positive and significant relationship with the business performance of the banking industry of Indonesia.

H2: External Integration has a positive and significant relationship with the business performance of the banking industry of Indonesia.

The above discussion on supply chain integration and business performance has become the source of development of the research framework. The framework consists of two types of variables. The independent variables of the study are internal and external supply chain integration. While, business performance is the dependent variable of the study. All of these variables are depicted in the following Fig.1 below.

Figure 1. Research framework of the study



Research Methodology

The current study has used the quantitative research approach and cross-sectional research design to investigate the current research framework and proposed hypothesis. This techniques in the primary study are considered an important practical approach for providing the data which could be used for the wider generalisation of the study (Zikmund, 2003).

Target Population and Sampling Techniques

The population has shown all the elements that have shown the researcher specification area (Laulu, 2015; Nachmias & Peres, 2008; Sekran & Bougie, 2013). In the present study, the target population is the supply managers which shows the individual unit of analysis. The study is based on a self-administered questionnaire by using a convenient sampling technique. The total of 250 questionnaires were distributed among supply chain managers . 200 questionnaires were returned back which were valid for the analysis. The current response rate is the 80 per cent which is considered to besufficient for analysis (Zikmund 2003).

Research Instrument

The theoretical model of this study consists of three variables, and all these variables were adopted from prior studies. These items were measured using a five-point Likert scale. In the Likert scale is an answer is used that has a range within 1 (strongly disagree) to 5 (strongly agree). The supply chain integration was measured by two dimensions, namely, internal

integration, and external integration. Eight items measured the internal integration and nine items measured external integrations. These items were adopted from the study of (Osei & Kagnicioglu, 2018). In addition, the business performance was measured by ten items which were adopted from the previous study conducted by (Sharabati, Naji, & Bontis, 2010).

Data Analysis and Discussion

To test the model, the structural equation modelling (SEM) technique as used specifically, using the partial least squares (PLS) with Smart PLS 3.0 (Hair Jr, Hult, Ringle, & Sarstedt, 2016) software. This software is called a second-generation software that could be used to test the complex model along with the latent variables. Table 1 shows the results which were obtained through the measurement model. Based on the Table 2, it could be clearly seen that all of the loadings are above the 0.05 that is called the threshold value that is suggested by (Hair, Sarstedt, Hopkins, & Kuppelwieser, 2014). The AVE (Average Variance extracted) of all the constructs which are exceeding the value 0.5 (Bagozzi & Yi, 1988). As is it is explained by that minimum value of composite reliability (CR) should be 0.70 (Hair Jr et al., 2016). So, we can conclude that convergent validity has been achieved. Table 2 and 3 further shown the discriminant validity results. Hence, it is explored by Fornell, Johnson, Anderson, Cha, and Bryant (1994) and Fornell and Larcker (1981) that minimum value of AVE in the measurement model should be higher than the cross-loading. As it is shown in the Table 3 and Table 4 all values meet the criteria of discriminant validity. Each construct AVE should always be higher than the correlation between all of these. It is clearly shown in the following Table 2 and 3 that all the constructs fulfil the criteria for discriminant validity. Accordingly, it is suggested by (Lii & Kuo, 2016) that measured variable loading should always be higher than the cross-loading by at least 0.1 that is considered sufficient for the discriminant validity. As such, we can conclude that discriminant validity is achieved.

Table 1: Measurement Model of the study

Measurement Scale	Items	Loadings	Cronbach's Alpha	AVE	CR
Internal integration	INT1	0.777	0.81	0.66	0.854
	INT2	0.523			
	INT 3	0.921			
	INT 4	0.731			
	INT5	0.729			
	INT6	0.511			
	INT7	0.796			
	INT8	0.856			
External integration	ENT1	0.764	0.77	0.50	0.833
	ENT2	0.654			
	ENT 3	0.885			
	ENT 4	0.948			
	ENT5	0.717			
	ENT6	0.884			
	ENT7	0.757			
	ENT8	0.836			
	EINT9	0.854			
Business performance	BP1	0.655	0.83	0.64	0.86
	BP2	0.768			
	BP3	0.637			
	BP4	0.910			
	BP5	0.780			
	BP6	0.850			
	BP7	0.880			

Note: “INT-internal integration, ENT-external integration, BP-business performance”.

Table 2: HTMT Discriminant

	INT	ENT	BP
INT			
ENT	0.334		
BP	0.168	0.724	

Note: “INT-internal integration, ENT-external integration, BP-business performance”.

Table 3: Fornier Lacker Discriminant Validity

	INT	ENT	BP
INT	0.870		
ENT	0.334	0.750	
BP	0.168	0.500	0.879

Note: “INT-internal integration, ENT-external integration, BP-business performance”.

Structural Model

After testing the measurement model of the study, the next step is to test the hypothesised relationship between the exogenous and endogenous variable. The model explanatory power was resolved through inspecting how well the observed data fit the hypothesised relationship among the constructs. Following, (Frohlich, 2002), bootstrap the re-sampling approach has been hired to test all the significance of each coefficient. As recommended by (Green Jr, Inman, Birou, & Whitten, 2014), five thousand duplications using the randomly selected subsamples were performed to test all the hypothesised relationships. Table 5 depicts the beta coefficients and t-values for the first 3 direct hypotheses. As depicted, this study found support for eight out of 3 hypotheses tested.”

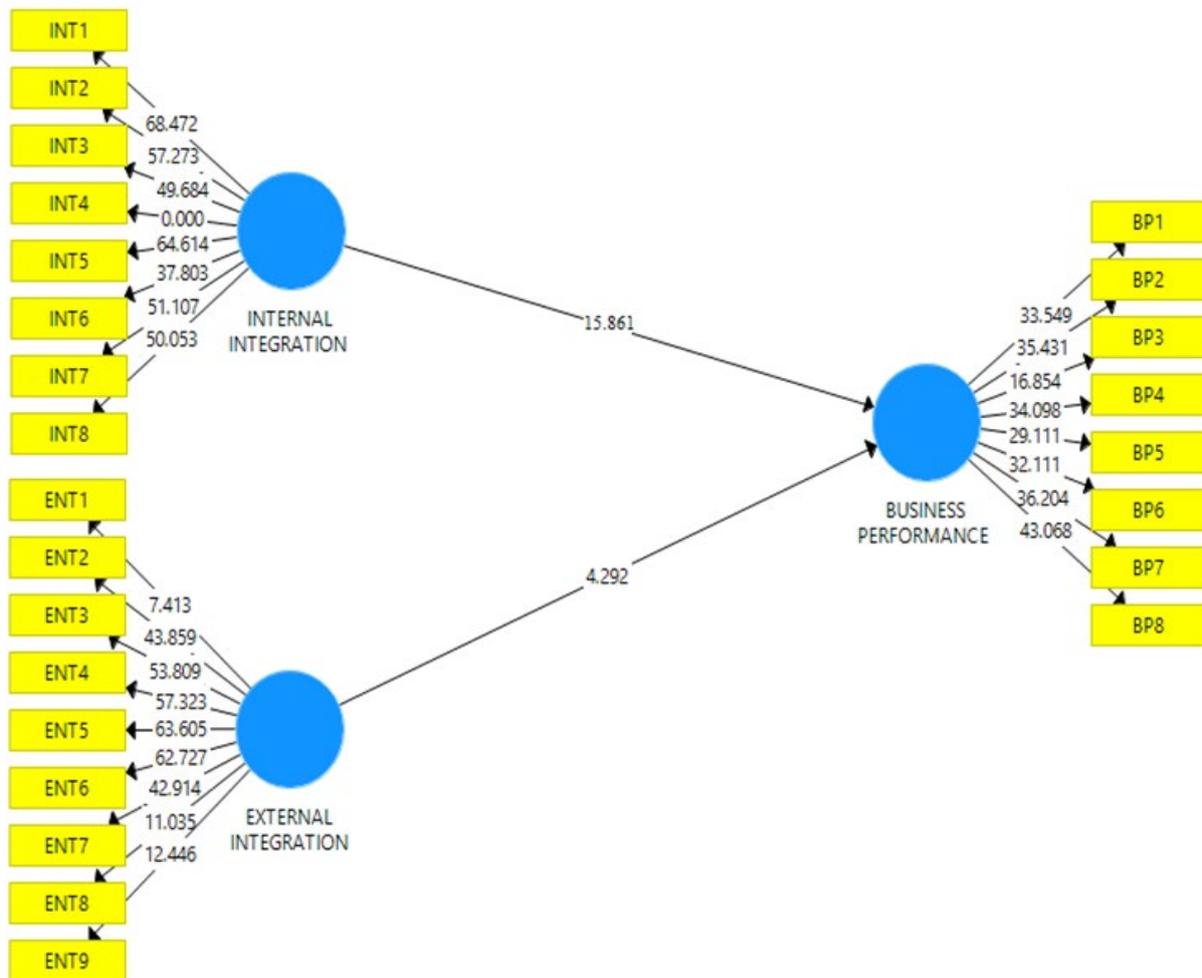
Table 4 presents the results of PLS bootstrap algorithms that confirms the positive and significant direct relationship internal integration (INT) and business performance (BP) ($\beta = 0.66$, t value = 15.86, p value = 0.00). The findings also revealed the significant and positive association of external integration (ENT) and business performance (BP) ($\beta = 0.0.433$, t value = 4.292, p value = 0.000). All of the findings have shown that the banking sector in Indonesia must pay greater attention on supply chain integration (SCI) to increase the performance of the organisation. Therefore, it could be explained that SCI is considered to be a significant predictor in increasing the performance of the organisation.

Table 4: Structural Model Effect

Hypothesis	Beta	Standard deviation	T statistics	P Value	Results
INT -> BP	0.660	0.042	15.861	0.0000	Supported
ENT -> BP	0.423	0.099	4.292	0.0000	Supported

Note: “INT-internal integration, ENT-external integration, BP-business performance”.

Figure 2. Structural Model of the study



Conclusion

The current study aimed to examine the impact of internal and external supply chain integration on business performance of the banking sector of Indonesia. For this purpose, the research hypothesis was formulated. To test the hypothesis data was collected from supply chain managers by using a self-administered questionnaire. The key findings of the study have shown that there is a positive and significant association between internal integration and business performance. In the same vein, the key findings also show that external integration has a positive and significant association with business performance. These findings are consistent along with the previous studies (Droge et al., 2012; Flynn et al., 2010; Gimenez, van der Vaart, & van Donk, 2012; Huo, 2012; Huo, Qi, Wang, & Zhao, 2014; Kim, Cavusgil, & Calantone, 2006; Maiga, 2016; Rai et al., 2006; Ralston, Blackhurst, Cantor, & Crum, 2015; Vickery, Koufteros, & Droge, 2013; W. Yu, 2015) who had similar findings. These findings have shown that the banking sector of Indonesia must pay greater attention on the internal and external integration to improve business performance. The current study has



added practical and theoretical contributions. The current study could provide help to the supply chain managers and policy makers to gain knowledge about the importance of supply chain integrations to increase their business performance. The current study could also provide help to take a collaboration between the researcher and organisation which could help future research in this area. The current study also added a body of knowledge which could help to conduct research in future. Based on the findings, the current study also has some limitations which could become a new area of research in future. Firstly, the current research is limited on direct effects, there are however many other variables which could affect their relationship, In this regards, future research could be established along with further enquiry into the moderating or mediating variable. Secondly, the current study has used the cross-sectional research design in which collection of data is based in one timefram in which generalisability is limited. Therefore, future research is required on the longitudinal nature base. Thirdly, the current study is quantitative in nature, hence future research could be established on a mixed-method basis.

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