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Supply Chain Management Practice and Its Impact on Performance of Humanitarian Relief Organization in Case of Gedeo Zone

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Abstract
Purpose: The purpose of this study was to see how supply chain management practices affected humanitarian relief organizations in the Gedeo zone.
Research methodology: The study used a mixed research approach, with respondents selected using a stratified proportionate technique from each organization's employees to disseminate a questionnaire and semi-structured interviews done using a purposeful sampling technique. Correlation and regression, as well as thematic analysis, were used in the analysis.
Results: The finding of the study reveals that supplier integration, information sharing, postponement, and outsourcing affect humanitarian relief organizations' performance positively in a statistically significant way.
Limitations: The main limitation is that the study focused only on humanitarian relief organizations operating in the Gedeo zone.
Contribution: Ethiopia experienced natural and human-made disasters such as (El Niño, flood, famine, war, communal conflict, etc) for decades. To reduce the threat of this, the Study suggests that supply chain management practice is a serious concern for many relief humanitarian organizations operating in the Gedeo zone.
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1. Introduction

Natural or man-made disasters are inevitable at any time such as famine, floods, earthquakes, tsunamis, wars, terrorism, hurricanes, HIV/AIDS, and extreme poverty are to be found somewhere in the world. Disasters disrupt lives through displacement, death, and disability. They destruct on livelihoods and erode years of economic profit and development.

According to Conille (2017), the humanitarian response system in Ethiopia has, over the last 3 years, coped with events (drought, floods, conflict) in which humanitarian partners have managed to save lives and mitigate suffering. Ethiopia has the highest number of conflict-related internally displaced persons worldwide. In 2018 after two decades of relative stability, the most significant displacement was the resumption of the conflict between the West Guji zone of Oromia and the Gedeo zone ethnic groups in April, Internal Displacement Monitoring Centre (IDMC, 2019).

In this regard supply, chain management practice (SCMP) is a serious concern for many relief humanitarian organizations operating in the Gedeo zone in their effort trying to ensure efficiency and effectiveness in responding to disasters. SCMP provides services that are critical and transforms the inputs into outputs for great performance. For that reason since relief humanitarian organizations

operate in a quiet uncertain environment where a disaster can occur at any time and place. These represent a set of processes or actions performed in a firm to enhance efficiency and effective management of the overall supply chain (Odira, 2018).

SCMP has the responsibility of ensuring that goods and services get to where they are required within the shortest time to save lives to achieve a high scale of performance. Many times the opposite of the above happens since it takes usually a long time to take humanitarian aid to some places.

Humanitarian Organizations (HOs) rely on logistics and supply chain management, which represents approximately 80% of total aid budgets (Overstreet, Hall, Hanna, & Rainer, 2011; Sukati, Sanyal, & Awaain, 2020). Therefore, knowledge management in healthy, logistics and supply chain operations is essential for the success of HO objectives. The operating cost of HOs Logistics and Supply Chain Management (HO-LSCM) is approximately 25% higher than that of competitive commercial supply chain management (Tatham & Spens, 2011). Reasons for this are complex and may include internal insecurity, limited use of local technology, manpower problems, and poor infrastructure (Antai, Mutshinda, & Owusu, 2015).

However, research of SCMP on humanitarian relief organizations (HRO) performance was important with the practices of supplier integration, information sharing, customer integration, postponement, and outsourcing to bring about cost reduction, efficiency, effectiveness, process standardization, and collaboration which will translate to higher organization flexibility and reliability in addition to being responsive and timely in service delivery (Dubey & Gunasekaran, 2016).

SCMP on HO is a comparatively fresh area and has attracted few researchers in recent years. Over the past decade, there have been numerous reviews on humanitarian logistics and supply chain management. Most of these reviews are broad-spectrum and widely covered the entire field (Odira, 2018; Heaslip & Barber, 2014; Leiras, de Brito Jr, Peres, Bertazzo, & Yoshizaki, 2014; Overstreet et al., 2011; Tatham & Spens, 2011).

Aboneh (2017) in his study on the effect of supply chain management practice on operational performance Supply chain practice is an initiative that influences the whole supply chain. Even though, this practice has a great influence on the operational performance of any organization it is affected by contextual factors such as type of industry, firm size, and length of the supply chain.

Odira (2018) did research about SCMP and the performance of relief humanitarian organizations in Kenya as well as the challenges which prevent the said firms from fully embracing SCP as part of their daily operation. Due to the minimal no of relief firms, the researcher distributed only forty questionnaires.

In addition, Heaslip and Barber (2014) in their study of an investigation of the service industry of supply chain management practice and organizational performance research findings show that supply chain management practice and organizational performance were significantly correlated. However, the above studies have not adequately addressed supply chain management practices in humanitarian relief organizations. And especially most of the studies focus on the logistics management part mostly the transportation and distribution system. Therefore, this research examined SCMP and its impact on the performance of humanitarian relief organizations in the Gedeo zone. In the past, these SCMP concepts have been studied and have a good relationship with organizations that want to increase their profitability and productivity. However, in this study, the researchers wanted to explore the role of SCMP in examining the role of human life-saving organizations in man-made and natural disasters rather than organizations that seek to increase profits and productivity.

This research looked into these issues to close the gap that exists. The goal of the study was to find out what effect supply chain management practices had on the performance of humanitarian relief organizations operating in the Gedeo zone.

As a result, this article addressed the following research objectives to fill the gap: to investigate SCMP and its impact on the performance of humanitarian relief organizations working in the Gedeo zone.

2. Literature Review

2.1 The effects of Supply Chain Management Practices on Organizational Performance

Although the articles on supply chain management functions and practices are described from different perspectives it serves as a common denominator to improve the efficiency, reliability, and performance of an organization. There are seven distinct SCMs that have been widely agreed upon by researchers and widely accepted in their review and reinforcement literature by various researchers, scholars, and consultants. These seven dimensions are supplier integration, customer integration, information sharing, outsourcing, postponement, and lean practice. The findings of the researchers suggest that supply chain management practices can strengthen customer engagement and streamline the quality of information sharing and communication in supply chain processes, including supplier integration, outsourcing, and postponement. In the past, it has been said that SCM systems can create realities to increase organizational performance.

In this section, the relevant SCM practices for this study are presented as independent variables and humanitarian relief organizational performance as dependent variables are clearly explained to show their relationship.

2.1.1 Supplier Integration (SI) and Organizational Performance (OP)

The integration of suppliers has a role to play in determining the long-term relationship between the supplier and the organization. The key to integrating suppliers and organizations is the long-term benefits of each participating organization using strategic and operational capabilities. Supplier integration develops a common understanding of long-term institutional partnerships and problem-solving efforts (Dubey & Gunasekaran, 2016).

Forozandeh (2021); Sukati et al. (2020) point out that, strategic partnerships are designed to encourage collaboration between organizations and share key strategic areas such as revenue, products, and technology, and improve organizational performance.

Odira (2018) Close relationships are said to be the key to effective governance in the global environment. Thus, supplier integration works not only for local suppliers but also for international suppliers. In addition, supplier integration not only buys goods and services from suppliers but also affects supply chain systems and operations that affect the overall supply chain performance.

Integration of suppliers encourages providers to participate in the success of organizational performance through ongoing improvement activities, information sharing, and problem-solving efforts (Alemu & Dachito, 2020; Ali, 2021; Dubey & Gunasekaran, 2016). In this regard, strategic partnership is considered an ideological organizational performance forecast

H1: *Supplier integration has a positive and significant effect on humanitarian relief organization performance*

2.1.2 Information Sharing (IS) and Organizational Performance (OP)

Ali (2021) and Odira (2018) pointed out that information sharing is related to the importance of co-ownership and ownership among supply chain partners. Customer information may vary by nature, especially in logistics. Data sharing includes information related to logistics, customer orders, forecasts, schedules, transactions, etc. In addition, sharing information so that you can monitor the management and ordering process involves accessing personal information between support partners in the supply chain system.

Zhou and Benton Jr (2007) recognize that information sharing is one of the most important SCM practices used to identify strong supply chain connections. Baihaqi and Sohal (2013) repeatedly

provided information, partners respond to market changes by understanding customer needs and working together. The flow of information in the hands of demand and commodities facilitates the efficient and systematic sharing of information. In addition, knowledge and information exchange members share information to facilitate a chain reaction to instability in the market. Organizations should also cooperate and exchange information with their suppliers (Frazier, Maltz, Antia, & Rindfleisch, 2009)

Therefore, any data sharing that contributes to the organization's performance provides the right information at the right time, in the right place, and for the right business partner.
H2: *Information sharing has a positive and significant effect on humanitarian relief organization performance*

2.1.3 Customer Integration (CI) and Organizational Performance (OP)
Customer Integration works in the supply chain to evaluate customer complaints, follow customer feedback, increase customer support and address key issues in customer relationships, increase customer engagement and increase customer satisfaction (Sukati et al., 2020). Customer engagement is reflected in the supply chain management practices to manage user complaints and improve user satisfaction to create better relationships with users.

In addition, Gunday, Ulusoy, Kilic, and Alpkan (2011) include customer service delivery and, if possible, customer support to sustain life, to provide the support needed to meet the needs of an organization and its victims.

Lai, Wong, and Lun (2014) said that consumers' regular help organizations know what gaps and shortcomings there are and also directly help users' complaints and requests. The contribution of the seekers will enable him to avoid various corrupt practices and to serve the victims faithfully. Communicating closely with users for results can help improve organizational performance.
H3: *Customer Integration has a positive and significant effect on humanitarian relief organization performance*

2.1.4 Postponement (PP) and Organizational Performance (OP)
Postponement refers to the ability to move back and forth between one or more operations or activities to a later point in the supply chain (Li, Ragu-Nathan, Ragu-Nathan, & Rao, 2006). One of the main reasons a company adopts deferred strategies is to maintain a competitive advantage over its competitors. Mohamed (2012) noted that keeping undisclosed and stored items in their warehouses for a long time, allow some companies to improve their customer response to improve customer demand and cost savings.

This concept can be seen by researchers as delaying one or more tasks or activities as needed. If a serious problem arises or is expected to be more serious than the current situation, man-made or natural, it is possible to keep items stored in the supply chain in storage for a longer period to reduce future risks and demand.

The organization will be ready to determine the goods and delay the operation to meet the ever-changing demand for assistance. Because of the delay, it can reduce costs significantly. It will help him to cope with the demands of life. The delay will be delayed until further notice to determine the need and type of item needed for the problem (Odira, 2018). Delaying the basic needs of the informants until they are identified, and ultimately determining where appropriate support is most needed.
H4: *postponement has a positive and significant effect on humanitarian relief organization performance*

2.1.5 Outsourcing (OS) and Organizational Performance (OP)
The meaning of Outsourcing Service is different. Lankford and Parsa (1999) explain that the experience of transferring goods and services previously carried out by an outsider is outsourcing. Purchasing products or services from outside corporate sources is outsourcing.

Transferring responsibilities to a third-party organization generally involves outsourcing. Meanwhile, outsourcing is an integral part of corporate strategy. It also allows foreign trade to reduce expenditure, improve productivity and refocus the organization, refocus on organizational strategy, re-evaluate investment and improve the efficiency of the enterprise. Outsourcing activities have become a lucrative business as they bring significant benefits to the organization and improve organizational performance. Outsourcing is believed to increase the dynamics of the company's operations, enabling them to transmit operative threats to third parties (Heaslip & Barber, 2014; Naab & Bans-Akutey, 2021).

According to various researchers, outsourcing is the acquisition of products and services from a charitable organization that will help to improve organizational performance and provide immediate, reliable, and timely assistance to those who are struggling to save lives.
H5: *outsourcing has a positive and significant effect on humanitarian relief organization performance.*

2.2 The conceptual framework of the study
Figure 1 below illustrates the influence of supply chain management practices on humanitarian relief organizations' performance operating in the Gedeo zone.

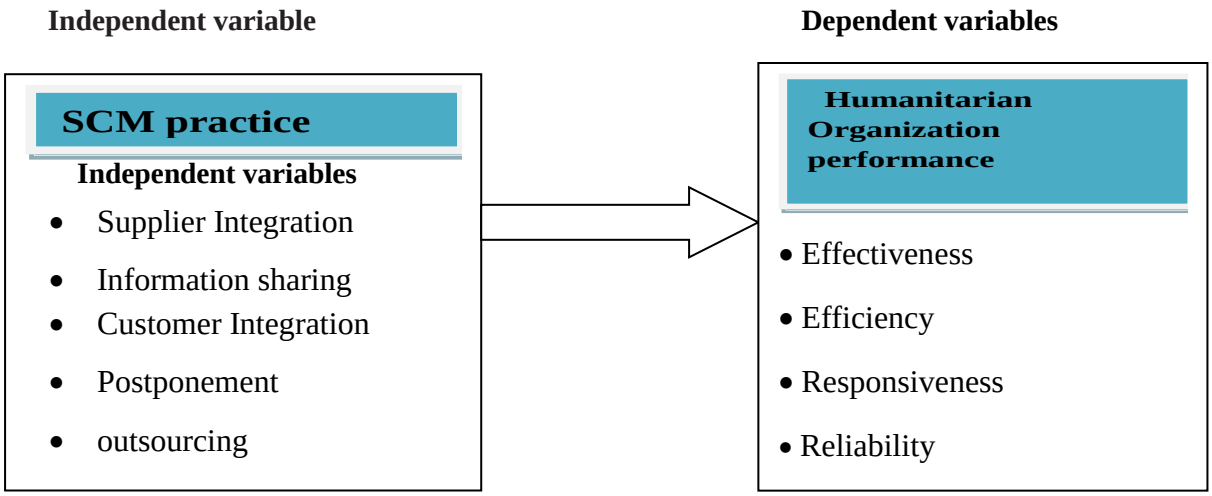

Figure 1. Conceptual Framework

3. Research Methodology
3.1 Target population
The population is the entire set of units for which the study data are to be used to make inferences target population defines those units from which the findings of the study are meant to be generalized. As per the information obtained from official sources, currently, there are 19 humanitarian organizations registered in the Gedeo zone to implement humanitarian relief assistance programs in various areas of the zone. Hence, Humanitarian organization employees functioning in the Gedeo zone during this research period were considered the target population of the present study.

3.2 Sampling: Size and Techniques
Based on the population of the organization, the researcher determines the sample size based on Taro (Yamane, 1973) to determine required sample size simplified formula was applied in this study at 95% confidence level and allowable error = 0.05%, and employees who worked within the line of a humanitarian relief organization.

$$n = \frac{\mathrm{N}}{1 + \mathrm{N}(e)^2}$$

Where the sample size is 'n', the total number of employees in humanitarian relief organizations is 'N' and the level of precision is 'e'. Substitute numbers in the formula:

$$n = \frac{1045}{1 + 1045\ (0.05)^2} = 290$$

The study determined a total of 1045 respondents as a target population from all humanitarian relief organizations where 290 employees were considered as a sample of this study. In addition to this from the above sample size by using a purposeful sampling technique, 15 respondents were selected from managers and logistics or supply chain department units for conducting interview data. For the first part of quantitative data to collect data from respondents the researcher used a stratified sampling technique because it is used when it includes a large number of sub-groups. By preparing a sampling plan, which consists of a list of all the humanitarian relief organizations and from which a stratified proportional sampling technique was carried out to identify final study participants.

3.3 Source of Data and Type

To achieve the purpose of this study primary data were gathered particularly using a survey questionnaire and semi-structured interviews. For collecting quantitative primary data five-point Likert scale standardized survey questionnaire was administered to the employees of HRO. Following, to collect data we distributed 290 questionnaires to the employees of a humanitarian relief organization. Finally, after deducting 8 non-returned and 9 incorrectly filled questionnaires, we used 273 questionnaires to further the data analysis process. To collect the qualitative primary data, a semi-structured interview was carried out with HRO general managers and logistics and supply chain department heads.

3.4 Data Analysis

In this study, first, a quantitative technique was used in analyzing data collected through a questionnaire. The collected data were coded, entered into a computer, analyzed, and presented using SPSS version 23. Secondly, for the qualitative technique, thematic analysis was used for analyzing data gathered through a semi-structured interview technique. Then the codes, subcategories, categories, and themes were derived through the inductive process.

Regression is the determinant of a statistical relationship between two or a lot of variables. In multiple correlation analysis, we tend to match a predictive model to our data and use that model to predict values of the dependent variable from one or a lot of experimental variables (Field, 2009). Multivariate analysis is dispensed to check the impact of the experimental variable on the dependent variable.

Since the correlation result provides only the direction and significance of the relationship between variables, multiple regression analysis is done to examine the contribution of supply chain management practice to humanitarian relief organization performance and to assess the extent of the relationship between the independent and dependent variables of the study.

In this study, the equation of multiple regressions is generally constructed in two sets of variables: dependent variable (organization performance) and independent variable SCMP (SI, IS, CI, PP, and OS). The basic purpose of using the equation in this study is to make the researcher more effective by describing, understanding, and predicting the variables described.

The model to be used in the study takes the form below:
$Y = \alpha + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 5X5 + £i$
Where;
Y= the dependent variable (organizational performance)

α –is the intercept term-constant, which would be equal to the mean if all slope coefficients are 0.

B1, β2, β3, β4 and β5 - all are constants regression coefficients representing the condition of the independent variables to the dependent variable. X1- supplier integration, X2- information sharing, X3-customer integration, X4postponement, and X5 outsourcing £I (extraneous) error term.

4. Result and Discussions

4.1 Evaluation of Survey Constructs

Some statistical experiments were performed to evaluate the constructs of the survey, e.g. Reliability test, validity test, and correlation test. Cronbach's Alpha reliability test is used to test the internal consistency of the constructs. The reliability coefficients listed in table 1 show that all of the alpha coefficients above the 0.7 thresholds indicated by Peterson (1994), showed significant reliability.

Table 1. construct reliability

Construct	Alpha
Supplier integration	.888
Information sharing	.889
Customer integration	.793
Postponement	.903
Outsourcing	.888
Efficiency	.927
Effectiveness	.877
Responsiveness	.786
Reliability	.769

Source: Processed Data, 2021

The EFA (Exploratory Factor Analysis) were also conducted to test the validity of each item, items were first purified using Exploratory Factor Analysis (EFA) before they are used in the model analysis. The EFA was conducted to investigate whether each factor was imposed on the constructs. The result is that all items have high loads in their respective areas, with Eigenvalues of more than 1 (one) load, loading factors greater than 0.4, and the values of cumulative variance explained ranging from 24.742 to 73.812 present as shown in table 2. In addition, the KMO (Kaiser–Meyer–Olkin) measure was 0.825 which is above the recommended threshold value of 0.50 and represents the extent to which the observed variables are related to the underlying factors.

4.2 Correlation Analysis

Correlation analysis deals with relationships between variables and helps to understand the direction and strength of relationships between variables. According to Bryman & Cramer (2002) the result of a correlation coefficient is between -1 and +1. A correlation coefficient of -1 indicates absolute negative correlations while the +1 correlation indicates absolute positive correlations; a correlation coefficient of 0 does not represent any relationship. Thus, in this study Bivariate Pearson Coefficient (r) was used to examine the relationship between the five supply chain dimensions using a two-tailed test at a 95% significance level, $P < 0.05$.

Cohen and Holliday as cited by Bryman & Cramer (2002) the correlation coefficient is 0.19 and below = very low. From 0.20 to 0.39 = low; from 0.40 to 0.69 = moderate; 0.70 to 0.89 = high, and 0.90 to 1 = very high. In this study, the researchers simply used the boundary of the variables to easily classify the relationship strengths.

Table 3. Correlation Matrix Analyses

Correlations

		SI	IS	CI	PP	OS	PRFO
SI	Pearson Correlation	1					

	Sig. (2-tailed)						
	N	273					
IS	Pearson Correlation	.200**	1				
	Sig. (2-tailed)	.001					
	N	273	273				
CI	Pearson Correlation	-.105	-.159**	1			
	Sig. (2-tailed)	.084	.008				
	N	273	273	273			
PP	Pearson Correlation	.238**	.300**	-.240**	1		
	Sig. (2-tailed)	.000	.000	.000			
	N	273	273	273	273		
OS	Pearson Correlation	.108	.136*	-.154*	.336**	1	
	Sig. (2-tailed)	.074	.024	.011	.000		
	N	273	273	273	273	273	
PRFO	Pearson Correlation	.389**	.385**	-.219**	.575**	.480**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	273	273	273	273	273	273

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Source: Processed Data, 2021

The result of the correlation matrix between each construct and performance is analyzed as follows: as it is shown the table 3 supplier integration and information sharing are positively related to performance with a low Pearson correlation coefficient of (r= 0.389 and 0.385) significance level is less than 0.001 ($p<0.001$) respectively. Again the Pearson moment correlation coefficient of postponement and outsourcing with performance shows that there is a moderate positive relationship with a Pearson correlation coefficient of (r= 0.575 and 0.480) with a significance value of less than 0.001($p<0.001$). On the other hand, Karl Pearson's coefficients of correlation were also computed to test the relationship between customer integration and performance, the result stated in the above table is a negative relationship with a correlation coefficient of (r= -0.219) with a significance value of less than 0.001($p<0.001$).

The analysis implies that at a 1% level of significance it was discovered that postponement, outsourcing, supplier integration, and information sharing in the organization respectively play a significant role in determining the performance of humanitarian relief organizations in the case of the Gedeo zone. The highest correlation is signified by postponement (r= 0.575), followed by outsourcing (r=0.480), supplier integration (r=0.389), information sharing (r=0.385) and customer integration (r= - 0.219). From this, we can understand that as their value falls between -0.219 and 0.575, low to high positive correlations are found between the four independent variables (SI, IS, OS, and PP), and that of the dependent variable and negative correlations are found in one independent variable customer integration (CI) with the dependent variable.

4.3 Multiple Regression Analysis

Before undertaking a couple of easy regression evaluations, the researcher achieved primary hypotheses assumption assessments for the version. These have been the normality of the distribution, the dimensionality of the dating among the unbiased and established variables, and multicollinearity assessments. With the assistance of a couple of linear regression evaluations, version summaries, ANOVA and Beta coefficients have been decided and the regression version turned into developed. Accordingly, the relative impact of SCMP on humanitarian relief organizations' overall performance turned into identified.

4.4 Model Summary

In the following model summary (table 4), multiple correlation coefficients R show a very strong correlation of 0.720 among the general overall performance of humanitarian organizations and the five unbiased variables. R^2 = .519 shows that the model payments for 51. 9% of the general overall performance model of humanitarian organizations and is described through manner of a linear combination of all unbiased variables in supply chain manipulation practices.

Table 4. Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.720[a]	.519	.510	2.02785	2.113

a. IV: (Constant), OS, SI, CI, IS, PP
b. DV: Performance
Source: Processed Data, 2021

4.5. ANOVA Model Fit

The regression model's overall work is examined with the assistance of an analysis of variance. Consequently, table 5 shows the ANOVA results of the multiple regression analysis. The significance value of 0.000 indicates that the regression relationship is significant in predicting the effects of the five building blocks of the independent variables (supplier integration, information sharing, customer integration, outsourcing, and postponement) on humanitarian relief organization performance. The F-ratio in the *ANOVA* table tests whether the overall regression model is a good fit for the data. The F value shows F=57.624 which is greater than the F critical it shows the model is significant.

Table 5. ANOVA Model Fit

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1184.804	5	236.961	57.624	.000[b]
	Residual	1097.956	267	4.112		
	Total	2282.760	272			

a. Dependent Variable: PRFO
b. Predictors: (Constant), OS, SI, CI, IS, PP
Source: Processed Data, 2021

4.6 Beta Coefficient

4.6.1 Standardized Beta Coefficient

Coefficients that may justify the relative importance of explanatory variables are standardized coefficients. These coefficients had been received from multivariate analysis when the unbiased variables had been standardized.

As shown below, the standardized coefficient of postponement is highest after then outsourcing. Supplier integration, information sharing, and customer integration rank from three to five respectively. The larger the standardized ratio, the greater the relative influence of the factor on the performance of the humanitarian organization. As a result of the significance test among the 5 unbiased variables, 4 unbiased variables were found to be significant as p-values ($P<0.05$), the rest one variable (P-value > 0.05 ($P>\partial$)), and these factors were not statistically significant in predicting the performance of the humanitarian organization.

Table 6. Beta Coefficient

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	10.498	2.108		4.981	.000
	SI	.466	.089	.231	5.225	.000
	IS	.285	.070	.185	4.102	.000
	CI	-.071	.093	-.033	-.757	.450
	PP	.681	.093	.354	7.348	.000
	OS	.808	.120	.306	6.760	.000

a. Dependent Variable: PRFO

Source: Processed Data, 2021

Unstandardized Beta Coefficient β

The unnormalized coefficients (β1 to β5) are the coefficients of the anticipated regression version. So, such as the error £i, the performance version may be written as:

$Y= \alpha +\beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 5X5+£i$

$Y= -10.498 +.466X1 + .285X2 + .681X4 + .808X5+2.02785$

The intersection (α) is the factor at the vertical axis in which the regression line intersects the y-axis. The cost of α is 10.498, and because of this that the predicted performance of all 5 variables is 0.

The results show that setting all explanatory variables to zero and then increasing supplier integration units increases humanitarian organization performance by 0.466, whereas increasing information-sharing units increases humanitarian organization performance by 0.285. At the same zero value, one unit increase in postponement and outsourcing increases performance by 0.681 and 0.808, respectively. This shows that postponement has the greatest impact on humanitarian aid delivery. At the 5% significance level, outsourcing, postponement, supplier integration, and communication are important in determining the relationship between supply chain management practices and the effectiveness of humanitarian response because their respective p-values are less than 0.05. This indicates that the hypothesis is correct and should be accepted. At the same level of importance, customer integration has nothing to do with describing the relationship between supply chain management practices and performance. The Hypothesis was rejected.

4.7 Hypothesis testing and discussion of the results

The study results show that almost all SCM practices have a significant positive relationship with humanitarian relief organization performance with exception of customer integration which has a negative relationship but is significant. These results are consistent with previous studies by Li et al., (2006); Mohamed (2012); Mutuerandu and Iravo (2014); Odira (2018) show a positive and significant relationship between supplier integration, information sharing, customer integration, postponement, and outsourcing, and humanitarian relief organization performance. Based on the standardized coefficient of beta and p-value, the hypothesis of the study was tested and presented as follows;

1. *Supplier integration has a significant positive effect on HRO performance*

Based on generated data, Supplier integration has a positive and significant effect on the humanitarian relief organization performance in the Gedeo zone, where the t- statistic value was calculated to be 5.225 at a p-value < 0.05. The value of the coefficient of supplier integration was also found to be 0.466 which means that, keeping other things constant, a unit change in supplier integration causes a 46.6% increase in humanitarian relief organization performance.

This finding is in line with Li et al. (2006) and Mutuerandu and Iravo (2014), who argue that supplier integration is important activity in the organization, especially strong relationships with major suppliers.

Strong collaboration with the supplier will result in the company's performance. As Li et al. (2006) describe, superb partnership with suppliers can be an indispensable issue to guide the fantastic operational overall performance of businesses in the supply chain.

According to Huo, Zhao, and Zhou (2014) supplier integration refers to the transfer of any necessary information and resources needed to bring about a mutual benefit in the process between the company and the suppliers. They play an important role in the efficiency of any business provider and are considered essential for the success of organizations. Integration with suppliers requires a strategic, tactical, and operational approach to collaboration and information sharing.

From the above arguments and the research finding, we can understand that regularly solve problems in cooperation with suppliers, involve key providers in planning and goal-setting activities, the organization regularly measures supplier's contribution to achieving organizational goals, suppliers understand how their decisions/actions affect the supplier relationship management process, strong strategic partnership with the major supplier will result in an improvement of humanitarian relief organization performance. Hence, the first hypothesis is accepted.

2. Information sharing has a significant positive effect on HRO performance

The coefficient of Information sharing was 0.285, which means a unit change in this variable increases humanitarian relief organization performance by 28.5%, keeping other variables constant. The t-statistic value of Information sharing was 4.102 significant at a p-value < 0.05, which makes the Information sharing and humanitarian relief organization performance have a positive and statistically significant relationship.

Some previous studies such as Fawcett, Osterhaus, Magnan, Brau, and McCarter (2007) and Huo et al. (2014) show how important information and property rights are connected to the company's supply chain partners in the supply chain network. Sharing important information between supply chain partners can reduce savings and production costs, better understand customer needs and lead to faster response to market changes. Strong information sharing between supply chain partners can affect the organization's performance.

According to Baihaqi and Sohal (2013), sharing information is critical to organizational, strategic decision-making, and routine activities. Researchers have identified information sharing (IS) as organizational capital, which reflects the flow of information between the organization and its participants. The timely use of information between stakeholders and participants allows the company to make timely and quality decisions and is also important in the dissemination of information.

So from the above finding and previous studies, it can be understood that by informing supply chain partners in advance of changing needs, free sharing of correct data across members of a chain, sharing of data between supply chain actors regularly, the organization uses information system to track and trace relief items, information exchange between supply chain partner is reliable can result in a humanitarian relief organization performance for all parties involved. Hence, upon research findings and literature arguments, the second hypothesis was also accepted.

3. Customer integration has a significant positive effect on HRO performance

The other specific objective of the study was to analyze the effect of customer integration on humanitarian relief organization performance. Based on the result of the regression analysis of the above model stipulated customer integration has a negative, but insignificant effect on humanitarian relief organization performance with (b= -0. 071; p>0.05). This value indicates that as the degree of customer integration decreases by one unit, humanitarian relief organization performance increases by 0.071 units. This means that every additional reduction in customer integration is associated with an extra 7.1% increment in humanitarian relief organization performance. But since the p-value of this variable is insignificant, this result is rejected. This interpretation is true only if the effects of all other variables are held constant.

As pointed out by Huo et al. (2014), customer relation plays a vital role to enhance the overall operational performance of the organization which enables it to be competitive and responsive. The research finding contradicts some previous studies from Lai et al. (2014); Danese, Romano, and Formentini (2013). Collaborations between corporations and their customers can control and improve client service, measure customer satisfaction, determine customer expectations, facilitate customer support, and consider important relationships with customers.

Sukati et al. (2020) and Huo et al. (2014) state that maintaining good customer integration approves companies to be extra responsive to client needs, thereby creating greater customer loyalty, repurchasing purchases, and willingness to pay top-class prices, high fantastic products, customer loyalty, and consumer satisfaction are the foremost goals of SCM.

Therefore from the above findings, one can understand that by closely examining the whole supply chain, the organization has developed (CRM) process team, frequent interaction with customers to set reliability, responsiveness, and different standards, regularly measure and consider customers' satisfaction, observe up with principal purchaser for feedback, organization contains out an assessment after a catastrophe strikes to bridge the gap between supply and demand will have a suitable possibility to enhance the result in a humanitarian relief organization performance. But as the result of the current study is insignificant, the third hypothesis is rejected.

4. The postponement has a significant positive effect on HRO performance

It is also found that postponement has a positive and significant influence on the humanitarian relief organization's performance, where the t-statistic value was calculated to be 7.348 is significant at a p-value < 0.05. The value of the coefficient of postponement was also found to be 0.681 which means that, keeping other things constant, a unit change in postponement causes a 68.1% increase in humanitarian relief organization performance.

Different studies also support this finding, for instance, Odira (2018); Sukati et al. (2020); Li et al. (2006) indicate that postponement approves an organization to be bendy in growing exceptional versions of merchandise to meet changing client needs, and to become aware of merchandise of improve demand. Keeping materials as long as possible increases the organization's flexibilty to respond to changes in customer needs.

In addition, according to Nair (n.d.), an organization can reduce the cost of the supply chain by storing untapped items. The Postponement must match the product types, the market needs of the company, and the structure or restrictions in the manufacturing and logistics system. In general, postponement is ideal if innovative products have excessive economic density, excessive specialization, and long-distance products. A market characterized by long lead times, low delivery frequencies, and an excessive reputation for instability. And the production or logistics structure no longer requires a small amount of savings and expertise.

The above arguments lead us to an understanding that supply chain postponement like an organization is flexible in providing a variety of product versions to meet the changing needs of customers, the organization can buy particular relief items available at any time, supplies are deployed according to the changing needs of end-users, application of demand-led inventory management through the principle of postponement, forward movement of one or more operations or activities to a much later point in the supply chain will lead to humanitarian relief organization performance. Hence, on the above arguments, the 4th hypothesis is accepted.

5. Outsourcing has a significant positive effect on HRO performance

Outsourcing has also a positive and significant influence on the humanitarian relief organization performance, where the t-statistic value was calculated to be 6.760 significant at p-value < 0.05. the value of the coefficient of Outsourcing was also found to be 0.808 which means that, keeping other

things constant, a unit change in Outsourcing causes an 80.8% increase in humanitarian relief organization performance.

Previous studies such as Mohamed (2012); Nyamu (2012); Sukati et al. (2020) suggested that outsourcing practice brings huge profits to the organization and brings organizational performance. Kotabe and Mol (2009) outsourcing transfer risks to third parties are believed to increase the flexibility of the organization's operations as much as possible. In addition, outsourcing is considered necessary for an organization to reap as many benefits as possible.

From these findings, one will acknowledge that observance mechanism for pleasant of outsourced offerings by means of the organization, the existence of associate degree outsourcing policy that the organization adheres to, and Services that are not core to the organization are outsourced area units the foremost vital problems to be thought-about in making humanitarian relief organization performance. Hence on the above arguments, the last hypothesis is also accepted.

In general, the survey result showed that there is an extensive and wonderful relationship between independent variables of supply chain practices and the humanitarian relief organization performance.

Qualitative data analysis

This study was conducted in humanitarian relief organizations operating in the Gedeo zone. Regarding qualitative data analysis, the study conducted semi-structured interviews in the participant's offices or a meeting room at their offices in humanitarian organizations. The participant was selected based on a purposeful sampling technique a total of 15 participants were selected. Managers and supply chain or logistics unit department heads of the organization are respondents to the study. The interview questions were reviewed and approved by the researcher several times, after each interview, the researcher took notes along with the data during the interview was considered. Interviews reach saturation in the 15 interviews and data collection was stopped at this stage.

Thematic analysis was used for analyzing data gathered through a semi-structured interview technique. Then the codes, subcategories categories, and themes were derived through the inductive process. Based on this the following data analysis was done.

Concerning the central objective of the humanitarian organization supply chain, most humanitarian organizations are mainly focused on the availability of items at the proper time in the proper place, price, quality, proper information for suitable planning of activities with respecting the principle of a humanitarian organization like; humanity, impartiality, neutrality, independence, voluntary, service, team spirit, and universality.

Regarding supplier integration, as mentioned by managers and department heads the foundation for building better relationships with suppliers is communication, respect, openness, fairness, trust, and flexibility. Its contribution to the performance of the humanitarian organization in the following way; reduction of cost and risk, working in ways that maximize the interests of both suppliers and buyers and it helps to build mutually beneficial arrangements, good supplier relationships also afford greater efficiency. In addition to this, it could ensure that an individual receives the right services at the right time.

For information sharing as stated by managers and department heads sharing relevant, adequate, accurate, timely, and secure information has contributed to humanitarian organization performance. The contribution allows others or supply chain partners to do tasks effectively and make sound decisions. Furthermore, sharing information ensure that it can be understood and relied upon, real-time data is particularly useful where fast action is needed. Also, it helps to reduce the risk of errors, brings greater productivity to the organization, and reduces administrative costs for the organization.

With customer integration, the response obtained from managers and department heads shows that most organization does not have customer relationship management but the organization follows up with their customers in a fragmented way, for instance, by contacting their customers or beneficiaries when after the disaster happens and make a need assessment what the beneficiaries need to save their lives. In addition to this after the relevant materials have been delivered to the beneficiaries, the assigned staff made a follow-up on whether the material is delivered to the right beneficiaries.

In connection with supply chain postponement of the organization as per managers and department heads, the practice of postponement has contributed to their organization's performance. It helps to reduce lead time to the end-user, increased customer satisfaction, and reduced transportation costs. As well as that it helps to reduce inventory, saves costs, and adds value to the supply chain by eliminating obsolete inventory and providing the product to the beneficiaries. More postponement reduces the uncertainty and risks coupled with product variety and it can react quickly to customer demand more effectively (Leiras et al., 2014).

Along with outsourcing supply chain activities as stated by managers and department heads outsourcing some activities will help you focus on their core competencies and it helps to reduce their overhead costs and risks. Apart from this, outsourcing the supply chain gives efficiency and increases its capabilities, and extends its resources. In the same way, it helps them to make it easier, faster, and cheaper to get their products where they need to be. As well as ensure meeting customer demand and increases the flexibility and adaptability of the humanitarian organization. In short outsourcing, some activities in the organization can help to gain performance improvement (Mutuerandu & Iravo, 2014)

In general, based on the discussion of the qualitative data, the study found the following analysis. Almost the whole supply chain management practices have contributed to the performance of humanitarian relief organizations except for one supply chain management practice which is customer satisfaction. The rest supply chain management practice such as supplier integration, information sharing, postponement, and outsourcing has contributed to the performance of humanitarian relief organization.

5. Conclusion

Based on the findings, different SCM practices such as supplier integration, information sharing, postponement, and outsourcing affect the performance of humanitarian relief organizations operating in the Gedeo zone. A result of a hypothesis test indicates that there is a statistically significant relationship between humanitarian relief organization performance and four factors.

The research revealed that the following analysis is based on the discussion of qualitative data. Except for one supply chain management practice, customer satisfaction, almost all supply chain management practices contribute to the performance of humanitarian relief organizations. The rest of the supply chain management practices, such as supplier integration, information sharing, postponement, and outsourcing, help humanitarian assistance organizations work better.

The humanitarian relief organization must improve supplier integration by building better relationships with suppliers. Postponement and outsourcing must improve to ensure greater efficiency, and flexibility and to reduce disaster response time. Demand-led inventory management and outsourced activities will help the organization focus on its core competencies.

5.1 Limitations and Recommendations for Study

The researcher believes that this study meets its objective but some limitations should be mentioned. The important trouble encountered through the study used to be the unwillingness of some respondents to provide some information. This collectively with the reality that the organization has very few supply chain officers the respondents who had been required to fill in some information, led to the acquisition of limited information. The study was also confined in scope solely to targeted humanitarian relief

organizations operating in the Gedeo zone. Ideally in a study of this kind, one would wish to conduct a survey of many humanitarian organizations at the national or regional head office level.

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