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EFFECT OF HUMANITARIAN SUPPLY CHAIN MANAGEMENT PRACTICES ON THE ORGANIZATIONAL PERFORMANCE: CASE OF NORWEGIAN REFUGEE COUNCIL IN WEST GUJI ZONE FIELD OFFICE

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Abstract

The general objective of this study was to examine the effect of Humanitarian supply chain management practices on organizational performance in case of Norwegian Refugee council West Guji Zone field office. The study employed descriptive and explanatory type of research design and qualitative and quantitative approach by using stratified sampling and simple random sampling. The target population was employees of NRC West Guji zone field office and both west Guji zone disaster risk management office and three woredas in the zone Disaster risk management office employees. Both primary and secondary data were collected for this study. Primary data were collected with questionnaires, semi-structured interview and secondary data were reviewed through literature review, internet and different articles. The collected data was analyzed using descriptive and inferential statistics by aid of SPSS version 26. The finding indicates that humanitarian supply chain management practices such as supplier information management system, coordination practice, Transportation management practice and distribution practice were moderately practiced in the organization and organization performance effort was also found at low level. The correlation result indicated that there was strong positive relationship between all independent variables (supplier information management system, coordination practice, and transportation and distribution practice) and the dependent variable (organization performance). The researcher recommends that, studied organization can be improved by effective coordination between all partners, through assign competent and professional person in the area, establishing transportation practice to deliveries of items to where it to be required effectively and efficiently manner, implement proper plan to control vehicle that internal in organization and outside rented vehicle and distribute relief aid to those who need it to satisfy beneficiaries.

Keywords: Humanitarian Supply Chain Management, Organizational Performance.

1 INTRODUCTION

This chapter consists of the back ground of the study, statement of the problem, research questions, and objectives of the study, significance of the study, scope of the study, limitation of the study, definition of terms and organization of the paper.

1.1 Background of the Study

The number of natural disasters and man-made has steadily been increasing since 1960(Pitanatri, 2022). This increasing frequency is accompanied by an increased severity in terms of individuals injured or killed as well as the scale of the financial impact of these events (Wolde-Georgis, 2022). According to Bogale & Erena (2022) which is the most comprehensive natural catastrophe loss database in the world, eight out of the top ten deadliest as well as costliest natural disasters that were recorded between 1980 and 2019 have happened since 2013. Furthermore, the world faces many structural problems like hunger, lack of proper sanitation and displacement (Tsegay et al., 2022). Therefore, the global demand for humanitarian assistance, especially with regard to disaster relief, is rising and will continue to rise (Ashine, 2022). Given the contributions of US\$24.5 billion that international humanitarian assistance received in the resultant procurement and logistical spend of around US\$19.5 billion provide an enormous potential for improvement and thus a substantial benefit to those affected by disasters (Balcha et al., 2022).

Humanitarian supply chain is the process used by not-for-profit or donor funded organizations to plan, implement, control the efficiency, cost effective flow and storage of goods and materials as well as related material, from the point of origin to the point of consumption for the purpose of alleviating the suffering of the most vulnerable and most at-risk people. The function encompasses a range of activities, including preparedness, planning, procurement, transporting, warehousing, tracking and tracing and custom clearance (Anjomshoe, 2022).

In addition, HSCM requires the process of effective and cost-efficient plans, implementations and controls for aid flows (i.e., materials, goods, services, financial resources, information) from the point of origin to the point of consumption with the intention of meeting the aid recipients' requirements (Dubey, 2022).the primary goal for HSCM is to minimize human suffering more specifically



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to prevent further loss of life and harm to humans, as well as provide immediate treatment to those with injuries and illness (Kant, S., Zegeye, Z., & Tesfaye, 2022). Now a day, this area attracted the attention of both academics and practitioners (Dubey et al., 2022).

Relating to HSCM in Ethiopian, the emergence & development programs are implemented the occurrence of the major food crises happened in 1950's which claims the life of many Ethiopians affected due to drought. Since, Ethiopia has been facing recurring drought and famine due to environmental, social and political factors which subject the large segment of the rural population to vulnerability and food insecurity to the country. To assist these droughts and displaced affected peoples, NRC has been working both emergency and development programs in different areas of the country. Hence, this is the main area of this study focusing effects of humanitarian supply chain on organizational performance of Norwegian Refugee council in West Guji Zone field office.

1.2 Statement of the Problem

The humanitarian environment is becoming increasingly complex, given the number and diversity of the different stakeholders involved and the environment in which they operate. There is the public sector with the government agencies, emergency relief mechanism and local authorities. There is the private sector with the corporations, service providers, goods suppliers and individuals. In between, there is the international community and the large and small aid agencies. Lastly, there is the society at large, which, regardless of their condition after the disaster, are exposed to unexpected changes (Wakjira, G. G., & Kant, S., 2022). Researches have been done in time on the subjected study in the intent to understand the humanitarian supply chain. Study results like Assessment of humanitarian logistics performance of the case of ERCS (Wata Dereso, C., & Kant, S., 2022) & Practice, challenges and performance of humanitarian logistics management in Plan International Ethiopia (Kant, S., Dabaso, A., & Adula, M., 2023). Their results were positive as HSCM is central to humanitarian aids. However, this study concludes that the result depends on procurement, inventory, warehouse and distribution by ignoring major practices like coordination and information system.

(Kant, S., Belay, B., & Dabaso, A., 2023) described in his findings in humanitarian logistics and disaster, every natural or man-made disaster's relief of aid differs from one to another depending on the level of damage done in the zone, but as he explains, there are two significant logistical problems generated in the last mile. The first one refers to the difficulties in transportation of emergency supplies due to damaged infrastructure and the second one refers to the deficiency on coordination among relief actors. Facing up a coordinating way to provide the in-kinds and the distribution of those in-kinds with a low transportation infrastructure, becomes a big challenge among all the actors involved on the chain. This study deal with the aspect of distribution practices of humanitarian supply chain, however it focused on last mile distribution which is difficult to generalize the entire problem is faced due to distribution challenge. According to Panigrahi et al., (2022) in his study concluded that specific factors influencing 4 operational efficiencies of humanitarian organizations are agility, adaptability and alignment. However, the study did not address the coordination, information and communication technology, transportation and distribution practice and organizational performance (responsiveness and reliability).

Relating to the above researched facts and the identified gaps regarding the specific research topic, this paper is thought very important in discerning the humanitarian supply chain with the organization's performance in the NRC organizations. In this study it is attempted to address those practices of HSCM and organization performance. Coming to the specific study area, this research therefore is believed that it was greatly helpful in closely studying and analyzing the facts regarding HSCM practice and their effects on Organizational Performance.

Most of the research related to humanitarian Supply chain management were carried out in different countries which are different topography, social, political, economic and types of disaster occur; based on this it is difficult to directly generalize and directly apply the same practice in Ethiopia. Additionally, related with humanitarian supply chain management are done abroad and in Ethiopia are rare particularly West Guji zone. This shows that there is research gap concerning geographical, timely and empirical of study.

1.3 Objectives

1. To examine effect of the supplier information Management system on organizational performance in Norwegian Refugee Council in West Guji zone field office
2. To analyze the effects of supply chain coordination practice on organizational performance in Case of Norwegian Refugee Council in West Guji zone field office
3. To assess effect of transportation Management practice on organizational performance in Case of Norwegian Refugee Council in West Guji zone field office



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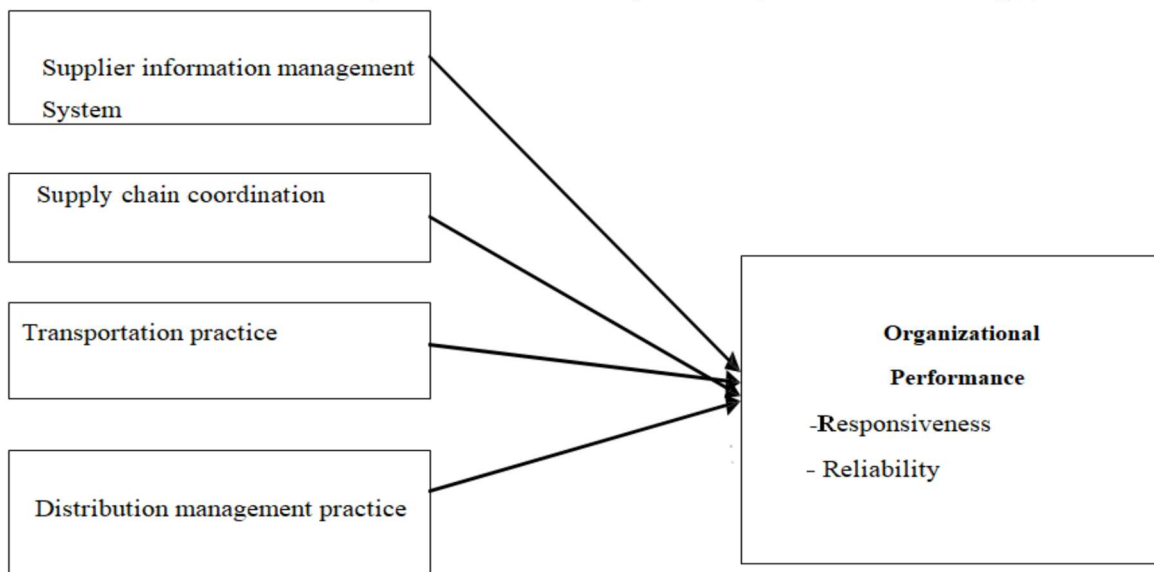
4. To examine the effect of Distribution Management practice on organizational performance in case of Norwegian refugee council in west Guji zone field office.

1.4 Conceptual Framework

The framework proposes that humanitarian Supply Chain Management practice on Organizational performance **Supply chain Coordination practice**; It also needs proper planning and coordination between field program staffs with end use beneficiaries to minimize/avoid waiting time of the beneficiaries at distribution points. It also needs coordination between primary dispatching warehouse staffs with Woreda warehouse to know expecting arrival time the food at Woreda level and warehouse arrangement for food receiving.

In addition, it is also very important collaboration and coordination between Government actors, local communities with program staffs to facilitate the distribution process effectively and efficient. Further, the coordination within an NGO and outside with the other stakeholders is deemed pivotal for the success of humanitarian aid operations.

Supplier information management system; Information sharing has been essential part or foundation of supply chain collaboration and supply chain partners who exchange information regularly are able to work as a single entity and can understand the needs of the other partner better and, hence, can respond to any change quicker. In addition, simplified material flow, including streamlining and making highly visible all information flow throughout the chain, is the key to an integrated and effective supply chain.



Source: Based on literature reviewed mainly adapted and modified from (Lu et al., 2016)

Transportation Practice- is the means whereby supplies reach the locations where they are needed.

A humanitarian transport plan must not only take into account the means of transport but also the actual possibilities of getting supplies from point A to B, as well as alternatives for the prompt, safe delivery of relief assistance.

Distribution management Practices; In humanitarian Supply Chain relief operations is delivering aid to the people affected by a disaster, or at least to the agency entrusted with managing humanitarian emergency supplies, in a way that is proportional to existing needs, timely, reasonable, and properly controlled to prevent abuses or waste. The humanitarian emergency response agency must ensure that the relief items reach the victims of the disaster, instead of ending up in the wrong hands. Monitoring and control mechanisms must be in place at every stage of the handling of humanitarian emergency supplies, especially during their distribution.

2.1 RESEARCH METHODOLOGY

Explanatory design was used to study the effect of humanitarian supply chain management practices on organizational performance or to identify the relationship between humanitarian supply chain management practices and organization performances. The study was also used descriptive research design to assess the effect of humanitarian supply chain management practice using frequencies, mean and standard deviation. The researcher was used mixed research approaches; because it involves both qualitative



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and quantitative approach. Quantitative approach used for analysis of questionnaire and qualitative approach used for analysis of interview.

According to the NRC West Guji zone field office staff profile total population of the organizations were 45 employees and the total population of West Guji zone disaster risk management office and three woreda (Bule Hora, Galana and Abaya) are 43 employees; and 22 employees are at zone office. The total population of this study was 110 employees.

2.2 Sampling techniques and Sample size

Yamane's (1967) provides a simplified formula to calculate sample size.

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

$$n = 110 / 1 + 110 * (0.05)^2 \rightarrow n = 86$$

2.2.1 Reliability

Cronbach's alpha is a Coefficient of reliability that gives an unbiased estimate of data generalization (Zinbarg, 2005) Regarding the reliability, the researcher was test the reliability by Cronbach's alpha measurement. Cronbach's alpha result of 0.7) is acceptable.

Table 1: Cronbach's alpha result

Humanitarian supply chainmanagement practice	Items	ch's alpharesult
Supplier informationmanagement system	5	.892
Coordination practice	5	.887
Transportation managementpractice	5	.881
Distribution management practice	5	.922
Organizational performance	7	.862

Correlation Analysis

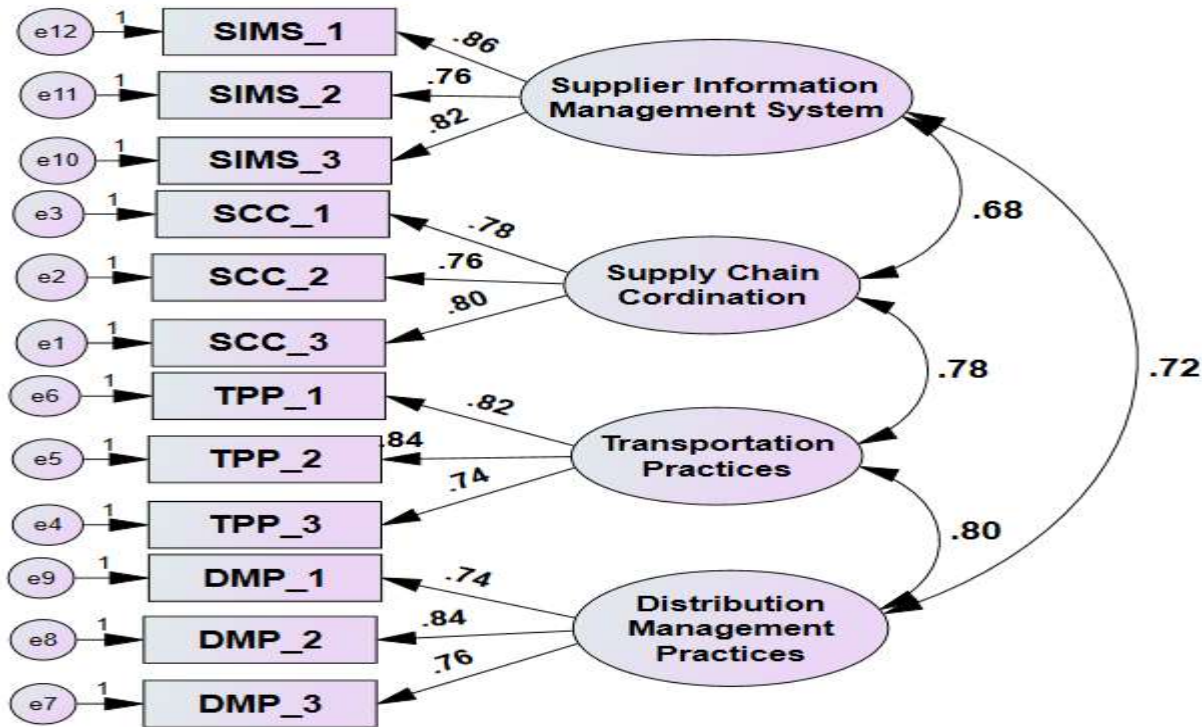
Table 2: Correlation Analysis Result

Correlations						
		IS	CP	TP	DP	OP
IS	Pearson Correlation	1	.682**	.690**	.455**	.814**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	82	82	82	82	82
CP	Pearson Correlation	.682**	1	.715**	.506**	.803**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	82	82	82	82	82
TP	Pearson Correlation	.690**	.715**	1	.604**	.784**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	82	82	82	82	82
DP	Pearson Correlation	.455**	.506**	.604**	1	.618**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	82	82	82	82	82
OP	Pearson Correlation	.814**	.803**	.784**	.618**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	82	82	82	82	82
**. Correlation is significant at the 0.01 level (2-tailed).						

As seen on the table 4.8 above, Information management has a positive and significance influence on organizational performance of NRC. $r(82) = .814, p \leq 0.01$. As stated by Evans (1996) this shows the extent of correlation, the relationship between the two variables is very strong. Coordination practice with a significance measure of $r(82) = .803, p \leq 0.01$ has a positive and significant relationship with the dependent variable which is the organizational performance. This finding according to Evans (1996) shows the



extent of correlation and the relationship between the two variables is strong. With a significance level of $r(82) = .784$, $p \leq 0.01$ Transportation practice has a positive and significant relationship with the organizational performance in this case the relationship between them is very strong. Finally, with a significance level of $r(82) = .618$ Distribution practice has a positive and significant relationship with organizational performance. The relationship between the two variables is considered strong.



ASSUMPTIONS OF MULTIPLE LINEAR REGRESSION

Normality of the distribution

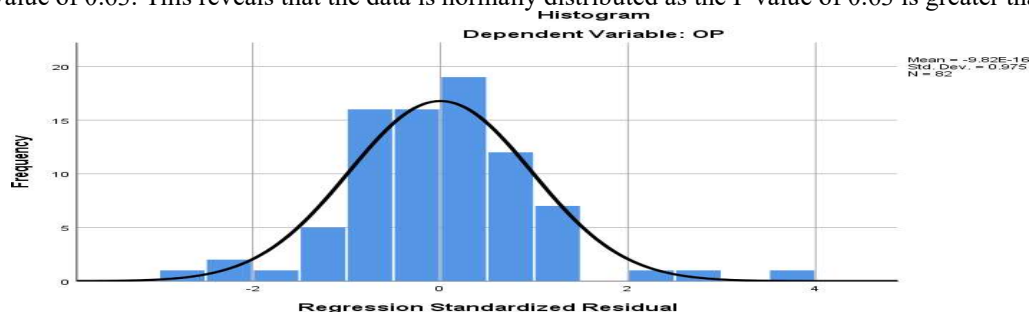
Table 3: Normality of distribution

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
OP. NORM AL	.096	81	.063	.983	81	.370

a. Lilliefors Significance Correction

Source: SPSS result 2022

According to Asghar Ghasem & Saleh Zahediasl (2012) concentration of a test having P-value greater than 0.05 indicates a normal distribution of data while a less than 0.05 indicates that data isn't normally distributed. In the above table 4.9 Kolmogorov-Smirnov which P-value of 0.63. This reveals that the data is normally distributed as the P value of 0.63 is greater than 0.05.





Linearity test

By visually looking at the Normal Probability plot produced by (SPSS), it was concluded that the relationship between each independent variable and the dependent variable is linear as shown in figure 4.2 below.

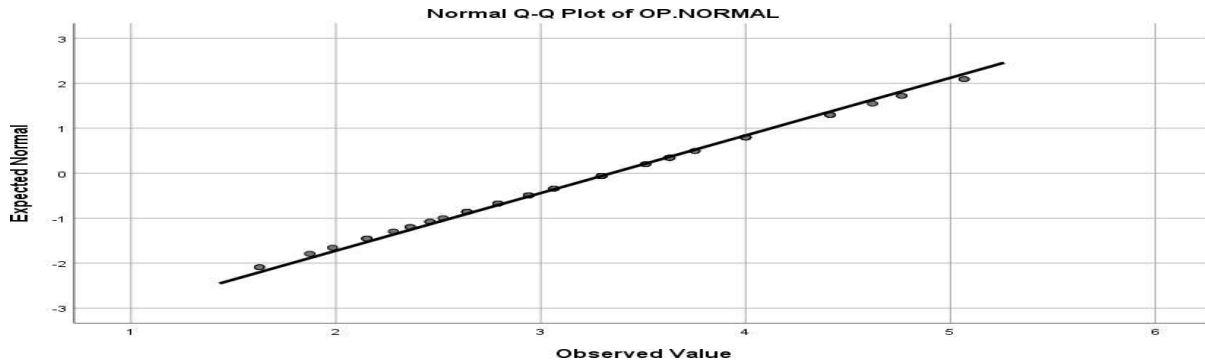
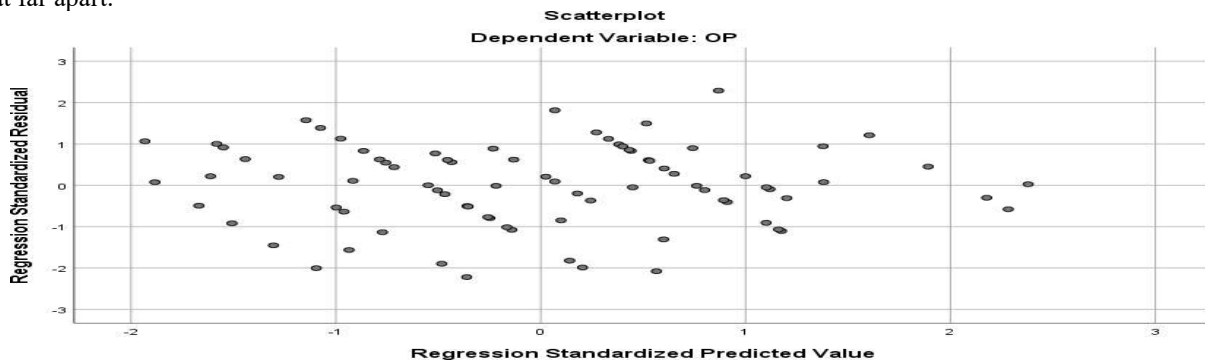


Figure 4. 2 linearity test

Homoscedasticity Test

Homoscedasticity can be checked by visual examination of a plot of the standardized residuals by the regression standardized predicted value. As seen in the below figure, though the residuals are scattered we can say that there is consistency since the residuals are not that far apart.



Multi Collinearity Test

As values of table show, all the values of tolerance of the four independent variables are greater than 0.2. This tells that the four variables do not influence one another ensuring the appropriateness of performing the regression analysis. Accordingly, the value of all variable's VIF value is less than 10. It can be concluded as the problem of multi-collinearity is not a concern in the model.

Table 4: Multi Collinearity Test result

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	IS	.451	2.218
	CP	.356	2.808
	TP	.623	1.604
	DP	.451	2.409

Source: SPSS output survey, 2022

MULTIPLE REGRESSION

Following the above assumptions, the study carried out a multiple regression analysis to show if the variables in the independent variable explain a statistically significant amount of variance in the dependent variable



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Table 5: Model Summary

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.907 ^a	.823	.814	.35461	2.023
a. Predictors: (Constant), DP, IS, CP, TP					
b. Dependent Variable: OP					

Source: own survey of 2022

As shown in the model summary table (table 4.11), the "R" column represents the value of R, the multiple correlation coefficient. R value of 0.907 indicates very strong correlation between operational performance and the four independent variables and that shows a good level of prediction. The "R Square" column denotes the R² value, known as the coefficient of determination, which is the proportion of variance in the dependent variable that can be explained by the independent variables. As presented in the table above, R² value of 0.823 indicates that 82.3% of the variance in the model could be predicted using the independent variables or in simple words 82.3% of the variation on the organization performance was explained by the humanitarian supply chain management practices (independent variables included in the model). However, the remaining 17.7% changes on organization performance in Norwegian Refugee council West Guji.Zone are caused by other factors that are not included in the model. Therefore, the four humanitarian supply chain management practices of the organization are good explanatory variables to predicting organization performance of NRC west Guji Zone field office.

Table 6: ANOVA

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	45.135	4	11.284	89.733	.000 ^b
	Residual	9.683	77	.126		
	Total	54.818	81			
a. Dependent Variable: OP						
b. Predictors: (Constant), DP, IS, CP, TP						

Source: own survey of 2022

The table shows that Sig. value 0.05 is greater than the calculated sig. value of 0.000. This shows that statistically significant relationships exist between the two variables. In other words, this indicates that the independent variables statistically significantly predict the dependent variable. F = 89.733, calculated sig. value of 0.000 < sig. value 0.05. Therefore, the regression model is a good fit of the data at 5 percent level of significance.

REGRESSION COEFFICIENTS

A standardized beta coefficient helps to compare the strength of the effect of each individual variable in the independent variable to the dependent variable. The higher the absolute value of the beta coefficient, the stronger the effect.

Table 7: Regression Coefficients.

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.189	.200		-.945	.347
	IS	.393	.071	.393	5.515	.000
	CP	.329	.077	.318	4.282	.000
	TP	.194	.084	.185	2.305	.024
	DP	.180	.066	.166	2.739	.008
a. Dependent Variable: OP						

Source: own survey of 2022



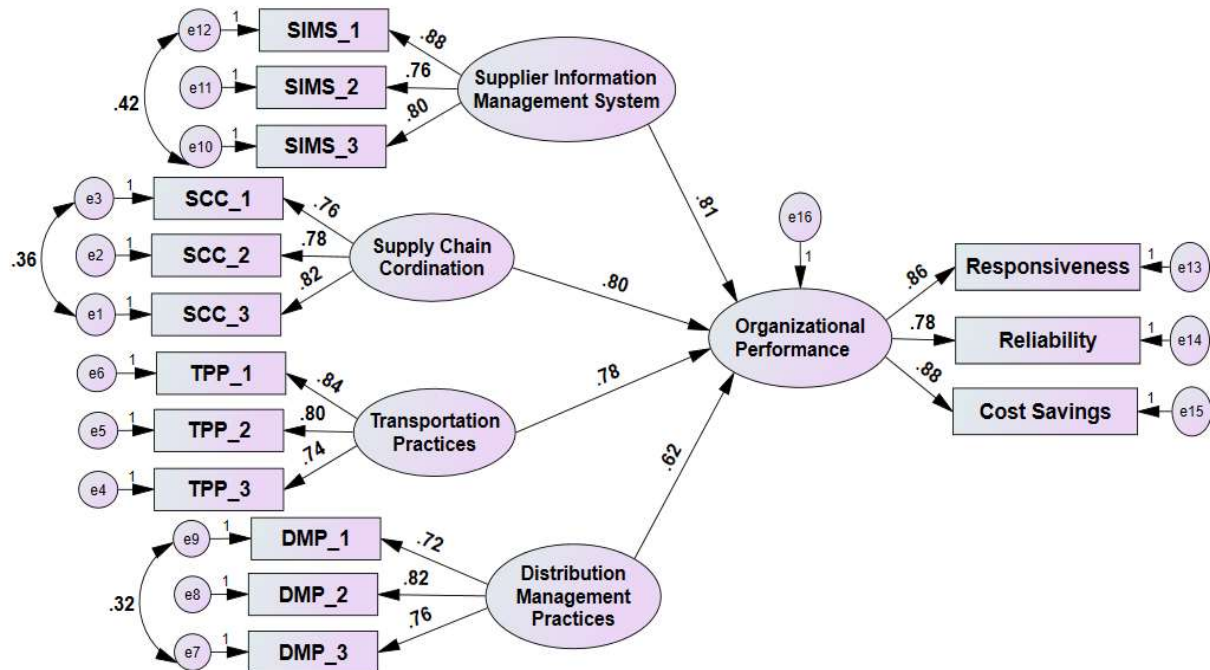
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As per the above table checking at the column for significance, all independent variables are significant with p- value less than 0.05. Fixing the regression equation.

As shown in the above table above the standardized coefficient for each variable are calculated. The highest value is .393 for information management system which it affects organizational performance highly by followed coordination, transportation and distribution.

As the table regression coefficient shown above, the predictor variables of information management system, coordination practices, transportation management practices and distribution management practices of the organization are statistically significant in predicting organizational performance. Because all their sig. values (p-values) is less than alpha level of 0.05.



HYPOTHESIS TESTING

Table 8: Summary of Hypothesis Testing Result

Hypothesis	Result
H1a- supplier information management practices has significant and positive effect on organizational performance	Accepted
H2a- supply chain coordination practices has significant and positive effect on organizational performance	Accepted
H3a Transportation management practices has significant and positive effect on operational performance	Accepted
H4a- Distribution management practices has significant and positive effect on operational performance	Accepted

Source: own survey 2022

Conclusions

Based on the findings and data analysis of the research, the following conclusions were drawn on the humanitarian supply chain management on organizational performance. The quantitative analysis of the supplier information management practice, coordination practice, transportation practice, and distribution practice average mean is moderate. All factors in the independent variables affect organizational performance. The study results in general have confirmed that there is a strong positive relationship between HSCM practices and organizational performance.



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Based on data collected through questionnaire and interview the researcher concludes that the supplier information management system of the organization was moderate. As per data collected by interview and questionnaire the researcher concludes that the coordination practice of the organization was moderate. As per data collected by interview and questionnaire the researcher concludes that organization is not clearly use mode of transportation of items and peoples, outsourced the requested items to the area of emergencies happened, pre-list of transportations and Emergency aid supplies are not effectively and efficiently supplied to places where they are requested. It concluded that transportation management practice of the organization was moderate.

According to data collected through questionnaire and interview the researcher concludes that the distribution practice of the organization was moderate. According to data collected through questionnaire and interview the researcher concludes that the extent of organization performance was low because of; the organization not achieve time delivery disaster relief, low coordination, response was not justified per plan and not provide response rapidly. Finally, from the study concluded, that there was a relationship between the Humanitarian supply chain management practices (independent variables) and organization performance (dependent variable); the correlation result shows there where a strong and positive correlation with all factors.

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