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MODERATING EFFECT OF OPERATING ENVIRONMENT ON THE RELATIONSHIP BETWEEN BRANDING PRACTICES OF FRESH FRUITS AND VEGETABLES AND PERFORMANCE OF COMMERCIAL FARMERS

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ABSTRACT

The objective of this study was to establish the moderating effect of operating environment on the relationship between branding practices of fresh fruits and vegetables and performance of commercial farmers in Kiambu County, Kenya. The population of the study consisted of 213 farmers from whom a sample of 140 farmers was drawn. A descriptive cross sectional survey design was used. Data was collected using a semi structured questionnaire and analyzed using both descriptive and inferential statistics. The study found that operating environment did not have a statistically significant moderating effect on the relationship between branding practices and performance of commercial farmers. The study was limited by the narrow scope which focused on few constructs and elements within the variables; self reported data with no collaborative evidence, gathering of cross sectional data and a localized population. The study recommends that farmers should enhance their abilities and engage in value addition initiative such as branding practices irrespective of the operating environment to improve their performance. To increase objectivity and the level of generalization of the findings, future research should target other fresh agricultural products; increase the variables and constructs being investigated, target other counties with differing social economic and climatic conditions and adopt a time series design to gather continuous data on study variables throughout the product's life cycle.

Key Words: *Moderating Effect, Branding Practices, Operating Environment, Fresh Fruits and Vegetables, Performance of commercial farmers*

INTRODUCTION

Aaker (2003) notes that there is continued fragmentation of mass markets which creates multiple consumer offerings that require continuous identity clarification and modification. Consequently, suppliers engage in various branding practices (BP) by utilizing different brand elements to differentiate their products from competition (Kotler & Keller, 2009). Among the BP is the development of brand elements designed to differentiate and create a clear visual identity for the products. Another category of BP consists of activities that communicate brand offerings to target customers. According to Kotler and Keller (2009) marketing communications represent the voice of the brand and assists a brand establish dialogue and build relationships with consumers. The communication elements include advertising, sales promotions, public relations, direct marketing and personal selling. The choice of any specific communication element will depend on the target communication objective. The third BP involves deciding on the nature of branding elements to be applied to new and existing products. This branding option is referred to by Kotler and Keller (2009) as branding strategies and is geared towards classifying the brands. Heding, Knudtzen and Bjerrre (2009) have identified the possible classifications to include generic, family, individual, transnational, local, fighter, producer or private/retailer brands. The products can further adopt either descriptive, associative or alpha-numeric brand names.

Even though creating a successful brand is a difficult undertaking, it is even more difficult for fresh fruits and vegetables (FFV) which as noted by Cook (2013) lack year round supply of quality products and also require specialized handling due to their perishability. Similar to other firms, the micro-environmental forces that influence the performance of commercial farmers will include customers, competitors, suppliers and intermediaries (Kotler & Keller, 2009). Fresh fruits and vegetable consumers working in urban areas attach increased importance to FFV in their diets due to increased level of consciousness on personal health (Stanton & Herbst, 2005). These consumers prefer FFV over canned or frozen alternatives (Clarke & Moran, 1996). Narrod, et al. (2007) reported increased demand on food safety for the export market necessitating small scale FFV farmers to either be sub-contracted by large farmers or form groups under government and NGOs support.

The macro-environmental factors that have been identified to significantly affect performance of commercial famers include differences in agro ecological zones; improved transport and storage facilities (Clarke & Moran, 1996); development of rural fully equipped assembly points for the products; increased competition , improved technology (Bremmer, Lansink, Olson, Baltussen & Huirne, 2002) and increased importance of supermarkets as outlets for FFV (Neven & Reardon, 2006).

The concept of firm performance relates to the manner in which a firm's resources are used to achieve its overall objectives. Kinyua-Njuguna (2013) presents it as the actual output of an organization measured against its intended outputs. Branding practices are demanding in terms of time, efforts and financial resources. Both financial and non financial parameters are used to measure firm performance arising from branding practices. Product output, price premium, profitability and satisfaction were the performance measures adopted for this study since as established by Ailawadi, Lehmann and Neslin (2002), they are easy to assign and are consistent with the focus of business executives.

This study was conducted in Kiambu County, Kenya. The county consists of twelve administrative sub counties and has a wide agro-ecological zone ranging from the cold climate of the upper highlands of Limuru and Lari to the relatively dry and warm climate of the lower parts of Ruiru, Thika and Gatundu enabling the County to produce tropical FFV such as bananas and mangoes as well as temperate ones such as peaches and plums. Horticulture is widely practiced in the county in both small scale units and large farms. The County is served by a network of all weather roads which facilitates delivery of FFV to the market. There is high competition for the small land plots (averaging 0.36 Ha) between agriculture and housing estates. This makes the farming of FFV most appropriate since they are labour and management intensive per crop and have short maturing period allowing for two or more crops per year (Government of Kenya, 2012). The county borders Nairobi City County and houses Thika, Kiambu, Kikuyu, Limuru and Juja towns which provide a ready market for its FFV (County Government of Kiambu, 2012).

Statement of the Problem

Horticulture plays an important role in the economy of Kiambu County. In 2010, fresh fruits and vegetables farming in the County covered 26,407 hectares equivalent to three percent of total area under fresh fruits and vegetables in Kenya. Fresh fruits and vegetables earned the County Kshs. 12.92 billion equivalent to 5.7 percent of the crops' total earnings in Kenya (Republic of Kenya, 2011). To achieve the aspired increase in productivity, commercialization, and competitiveness of agricultural commodities, the strategy adopted by the Kenyan government entails engaging in such value addition activities as product processing, branding, quality certification and farm level quality improvements (Government of Kenya, 2012). The effectiveness of these practices in creating unique offerings is influenced by environmental factors which include weather, political and economic conditions as well as competitor and consumer characteristics.

Various shortcomings were noted in the reviewed studies which rendered them inadequate in establishing whether there was a significant moderating effect of the operating environment in the relationship between branding practices for fresh fruits and vegetables and performance of commercial farmers. The study in Malaysia by Azizi, Adis and Sidin (2008) on export of furniture indicated that product certification positively moderates the relationship between product adaptation, distribution strategy and design strategy on export performance. The study further found that global economic situations had no moderation effect on the relationship between export marketing strategies and export performance. However, this study had a very low response rate at 31.16% and did not address branding practices. A study undertaken in China by Lim, Yee, Dai and Chan (2015) to examine the moderating effects of external and internal environmental orientation on the relationship between eco-innovativeness and business performance established that the impact of eco-innovativeness on business performance was positively moderated by both external and internal environmental orientations. This study was not sector specific nor did it specify performance measures used. In their study, Lonial1 and Raju (2001) found that environmental uncertainty was an important moderator of the relationship between market orientation and organizational performance in the hospital industry in 5 states of USA. This study dealt with the service industry while the current study focuses on the agricultural sector.

All the reviewed studies did not cover the variables in the current study namely branding practices for fresh fruits and vegetables, performance of commercial farmers and operating environment and were not sector and performance measure specific. All these studies were conducted outside Kenya under different social economic and regulatory conditions and are therefore location variant. To bridge the identified gaps, the current study simultaneously considered three variables namely: branding practices for fresh fruits and

vegetables, operating environment and performance of commercial farmers. It addressed the following research question: what is the moderating effect of operating environment on the relationship between branding practices for fresh fruits and vegetables and performance of commercial farmers? The specific objective was to examine the influence of operating environment on the relationship between branding practices for fresh fruits and vegetables and performance of commercial farmers. The hypothesized relationship stated that:

H1: The relationship between branding practices for fresh fruits and vegetables and performance of commercial farmers is significantly moderated by operating environment

Review of Related Literature

According to Peace and Robinson (2011) technological, economic, political, natural and demographic environments affect branding practices (BP) and productivity. Adopting modern technology can improve BP while the natural environment will facilitate BP due to differences in product attributes arising from their GPO. Legal requirements and powerful buyers influence branding practices by putting demands on product packaging and identification. Demographic characteristics lead to different consumer categories which provide the basis for branding strategies while the economic environment will influence branding practices and performance due to its effects on a farmer's financial strength and cost of goods and operations.

Poulton, Tyler, Hazel, Doward and Kydd (2008) identify the critical factors of an enabling environment for commercial agriculture to include security, macroeconomic stability, protection of private property, provision of infrastructure and extension services, supply of inputs and predictability of government policies. A favorable operating environment facilitates effective branding practices which results in improved performance by the farmer. Both internal and external environmental orientations were found to have a moderating impact on business performance.

Various other studies have been conducted in regard to the moderating effect of operating environment on different business relationships. Chan, Yee, Dai and Lim (2015) established that eco-innovativeness provides the stimulating phenomenon for firms to engage in innovative activities that enhance business performance. Using survey data from 83 eco-entrepreneurial firms, the survey found that the impact of eco-innovativeness on business performance was positively moderated by both external and internal environmental orientation.

In their study on the moderating effects of business environment in the relationship between competitive advantage strategies used by construction organisations and improved corporate performance, Oyewobi, Windapo and Rotimi (2013) established that dimensions of business environment have moderating effects on organisational strategies and performance. As concerns the moderating effect of environmental conditions on the relationship between leadership style and performance of new ventures, Ensley, Pearce and Hmieleski (2006) concluded that environmental dynamism has a significant positive moderating effect on the relationship between transformational leadership and performance of new ventures, and a significant negative moderating effect on the relationship between transactional leadership and new venture performance.

Azizi, Adis and Sidin (2008) in their study on export of Malaysian furniture concluded that the global economic environmental conditions did not have a moderating influence on the relationship between export marketing strategies and export performance. However, the level of uncertainty in a marketing environment was found to have a direct moderating influence on the relationship between market orientation and performance. In their study, Lonial1 and Raju (2001) established that the relationship between market orientation and performance is much stronger for hospitals in high uncertainty environments. On the other hand, external environment was found not to have significant influence on the relationship between technology strategy and performance. In a study to investigate the relationships among technology strategy, external environment and firm performance in china, Man, Chan and Lau (nd.) found a weak moderating effect of environmental factors on the relationship between technology strategies and firm performance.

METHODOLOGY

To establish the moderating effect of operating environment on the relationship between branding practices and performance of commercial farmers, a descriptive cross sectional survey design was adopted. This design facilitates in establishing and describing the relationships among the key study variables (Kothari, 2004). It was cross sectional since it was conducted once to pick the parameters of a phenomenon at a specific time with an aim of accurately capturing the characteristics of the population relating to what, where, how and when of a research topic (Cooper & Schindler, 2003).

The population of study consisted of 213 commercial farmers of FFV in Kiambu County. The population consisted of individual farmers (male & female), women groups, resident groups, cooperatives, limited liability companies and government departments growing between one and three crops in farms ranging between 5.5 to 0.125 acres. They engaged in farming activities to generate income. This study adopted stratified random sampling which allowed for making of probability based confidence estimates of various parameters (Cooper& Schindler, 2003). The key target was the owners or managers of commercial FFV farms. From the target population, the farmers were stratified into seven sub-counties and a proportionate sample drawn relative to the size of each. To determine the sample size, a formula proposed by Israel (2009) was applied as follows:

$n = \frac{N}{1+N(e)^2}$ where n is sample size, N is the population size, and e is the error term (0.05).

Using N = 213 in the formula, the resulting sample size (n) is 140 farmers.

The data was collected using a semi structured questionnaire through the direct interrogation method (Cooper & Schindler, 2003). The questionnaire was administered directly to the respondents through the assistance of Agricultural Extension Officers (AEO) who were recruited as research assistants due to their close association with the farmers. The AEO offer technical advice and other related services to the farmers in their normal day to day activities.

The study variables were operationalised and measured using direct measures and 4 point rating scales ranging from 1=Not important to 4=Very important; 1=Not strong to 4=Very strong; 1=Not at all to 4=Great extent. Data was analyzed using both descriptive statistics (frequencies, percentages, mean and standard deviation) and inferential statistics (chi square, linear regression and correlation analysis). Stepwise regression analyses were used to bring out the individual effects in the form: $Y_1 = a_0 + b_1X_1 + e_1$; for effect of BP on performance of commercial farmers.

Data Analysis Methods and Interpretation of Results

To determine whether the stated objective (to assess the moderating effect of operating environment on the relationship between BP for FFV and performance of commercial farmers) was achieved and the hypothesized relationship (*H_1: The relationship between BP for FFV and performance of commercial farmers is significantly moderated by operating environment*) existed, the following analytical model was adopted for this study:

Multiple linear regression model: Performance of commercial farmers = f(branding practices of FFV and the operating environment): $Y_1 = a_0+a_1BP+a_2OE$ ie: $Y_1=f(BP+OE)$; where:

Y_1= composite index for performance of commercial farmers;

a_0 = intersect constant

a_1, a_2= regression coefficients:

BP =composite score of branding practices and

OE = composite score of operating environment.

ANALYSIS AND PRESENTATION OF EMPIRICAL RESULTS

The data used for this research was corrected from 140 farmers spread across seven sub-counties in Kiambu County. The 140 questionnaires were successfully filled and found suitable for further analysis resulting in a response rate of 100%. This compared favourably with a similar study conducted among farmers by Bremmer et al. (2002) which had a response rate of 86.5%.

Reliability and Validity

The study sought to establish the reliability of the research instrument by computing the Cronbach's Alpha coefficient in regard to the elements in the study variables. The Cronbach's Alpha reliability coefficients indicated reliability level of the instrument at 0.7364. The level was above the acceptable minimum value of 0.50 (Cronbach, 1951) and above the recommended value of 0.7 (Nunnally & Bernstein, 1994). The internal consistency of the measures used was therefore considered to have adequately measured the relevant study variables.

DESCRIPTIVE STATISTICS

Summary on Branding Practices

Branding practice undertaken by farmers included brand identification practices, brand name selection practices, and brand promotion activities. Table 1 contains a summary of performance indicators of the activities undertaken by the farmers in furtherance of branding practices.

Table 1: Summary of Branding Practices

Branding Practices	N	Mean Score	Standard Deviation	CV (%)
Brand Name Selection strategies	9	2.48	1.350	54.44
Use of Support agencies	8	1.42	0.727	51.20
Brand Promotion activities	140	1.77	0.631	35.65
Overall Average Score	-	**1.99**	**0.612**	**30.75**

Source: Primary data.

The branding practices summary data in Table 1 (mean score=1.99, CV=30.75) show that branding as a marketing practice had low adoption among the respondent farmers. Brand name selection strategies (mean score=3.05, CV=15.87) were the most common branding practices the respondents engaged in. Making decisions on brand identification (mean score=1.14, CV=42.19) was the least adopted among the branding practices.

Summary on Environmental Factors

Factors of the operating environment found to influence the performance of commercial farmers were product attributes, climatic conditions, customer categories and competition. The extent to which each individual factor influenced performance is summarized in Table 2.

Table 2: Summary on Effects of Environmental Factors

Environmental Factors	N	Grand Mean Score	Standard Deviation	CV (%)
Product Attribute	140	2.46	0.621	48.05
Climatic Conditions	138	3.06	0.917	30.02
Customer Categories	140	1.88	1.087	56.84
Competition	138	2.14	1.084	50.71
Overall Average Score	-	**2.39**	**0.927**	**38.79**

Source: Primary data.

The overall average performance data on effect of environmental factors on performance of commercial farmers is summarized in Table 2. Climatic conditions which had the highest mean score and the lowest CV (mean score = 3.06, CV = 30.02) had the greatest influence on performance of commercial farmers. The second most important factor was product attributes (mean score = 2.46, CV = 48.05) while customer categories (mean score = 1.88, CV = 56.84) had the least influence on performance.

Summary on Performance of Commercial Farmers

The constructs used to describe performance of commercial farmers were price, volume, profitability and satisfaction achieved by the respondent farmers. Table 3 contains a summary of the individual indicators of the achieved performance.

Table 3: Summary on Performance of Commercial Farmers

Overall summary of Performance of Farmers	N	Mean score	Standard Deviation	C.V (%)
Price premium	99	1.25	0.493	39.41
Sales Volume	126	1.59	1.089	68.62
Profitability	124	1.51	0.917	60.68
Satisfaction	140	2.72	0.619	22.77
Overall Average Score	**-**	**1.77**	**0.780**	**44.11**

Source: Primary data.

The summary results in Table 3 show low overall average levels of the applied performance constructs of commercial farmers (mean score=1.90, CV=40.23). Farmer satisfaction had the highest mean score (mean score=2.72, CV=22.77) implying that on average, the farmers were satisfied with their undertakings. Price premium had the lowest mean score (mean score=1.25, CV=39.41) which indicated that the farmers were not earning the piece premiums they expected.

Moderating effect of Operating Environment on the Relationship between Branding Practices and Performance of Commercial Farmers

To assess the moderating effect of operating environment on the relationship between branding practices and performance of commercial farmers, the following hypothesis was set:

H1: The relationship between branding practices for fresh fruits and vegetables and performance of commercial farmers is significantly moderated by operating environment.

The moderating effect of operating environment on the relationship between branding practices and performance of commercial farmers was evaluated by first testing the main effect of branding practices and operating environment on performance of commercial farmers and the interaction between branding practices and operating environment. An increase in R^2 and a statistically significant interaction between branding practices and operating environment would suggest that a moderating effect of operating environment on the relationship between branding practices and performance of commercial farmers could be supported. Table 4 presents the moderating results.

Table 4: Regression Results of the Moderating Effect of Operating Environment

(A) Goodness-of-Fit

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	Change Statistics				
					R^2 Change	F Change	df 1	df 2	Sig. F Change
1	.397[a] .409[a]	.158 .167	.152 .155	.70328 .70182	.158 .167	13.761	1 2	.138 .137	.000 .000

a. Predictors: (Constant), Branding practices

b. Predictors: (Constant), Operating environment, Branding practices

(B) The Overall Significance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.556	2	6.778	13.761	.000[a]
	Residual	67.480	137	.493		
	Total	81.036	139			

a. Predictors: (Constant), Operating environment, Branding practices
b. Dependent Variable: Performance of commercial farmers

(C) The Composite Score Test

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.482	.495		.974	.332
	Branding practices	.523	.109	.380	4.803	.000
	Operating environment	.266	.212	.099	1.254	.212

a. Dependent Variable: Performance of commercial farmers
Source: Primary data.

Results presented in Table 4A indicate a significant change in the percentage of variation explained by the interaction of operating environment and branding practices. The regression results presented in Table 4A show a change in R^2 when interaction of farmer characteristics and branding practices was introduced (0.158, 0.167). Results in Table 4C suggest that the variation in the relationship between branding practices and performance of commercial farmers on the introduction of operating environment (beta= 0.380, 0.099; P-value=0.000, 0.212) was not statistically significant. Therefore, we reject the hypothesis at 5% and conclude that Operating Environment had no statistically significant moderating effect on the relationship between Branding Practices and Performance of commercial farmers. This implies that the influence of branding practices on performance of commercial farmers is not substantially altered by operating environment. Based on these results, performance of commercial farmers can be predicted as follows:

Y= 0.482+0.380BP +0.099OE+ 0.167BP*OE …….. (v)

Where:

Y= Performance of Commercial Farmers
BP= Branding Practices
OE= Operating Environment

BP*OE= Interaction of Branding Practices and Operating Environment
0.482= y-intercept; constant
0.380= an estimate of the expected increase in performance of commercial farmers corresponding to an increase in branding practices
0.099= an estimate of the expected increase in performance of commercial farmers corresponding to an increase in operating environment
0.167= an estimate of the expected increase in performance of commercial farmers resulting from the interaction of branding practices and farmer characteristics.

As presented in Table 4A, 4B and 4C and the model above, the regression coefficient of 0.380 implies that a unit change in branding practices would lead to a 0.380 change in performance of commercial farmers while a unit increase in operating environment would lead to a 0.090 increase in performance of commercial farmers. The coefficient of 0.167 shows the increase in performance of commercial farmers resulting from a unit increase in the combined effect of branding practices and operating environment. It can then be concluded that the contribution of operating environment to the variation of the relationship between branding practice and performance of commercial farmers was not statistically significant.

Discussion of the Results

Evaluation of the moderating effect of operating environment on the relationship between branding practices of fresh fruits and vegetables and performance of commercial farmers established that the interaction of branding practices and operating environment yielded statistically insignificant results. This implies that individual constructs of operating environment expected to positively and significantly influence the relationship between branding practices and performance of commercial farmers did not offer any tangible contribution to the relationship. Narrod, Okello and Thorat (2007) in their study established that small scale fresh fruits and vegetable farmers were able to supply restricted export markets and earn high returns by engaging in product inspection and certification practices which separated their products from uninspected competitors. Contrary to this finding, the level of product inspection and certification was found to be low (5.0%).

Clarke and Moran (1995) established that supermarkets had immense power to drive the branding of fresh fruits and vegetables leading to improved performance of the products. The current study found that supermarkets were ranked poorly (mean score=1.58, CV=65.73) in the importance of outlets for fresh fruits and vegetables in the County. This implies that the two constructs of operating environment (inspection and certification and supermarkets) did not make the expected contribution to the relationship between branding practices and performance of commercial farmers. The development of brand names was found to be at a low level (6.7%). This is despite the recommendation by Pearson (2003) that brand names be developed as a form of endorsement since some product attributes fluctuate and are hidden at the time of purchase. Despite the presence of many product attribute due to the unique nature of the agro-ecological zone of the study location, branding practices did not exploit them to improve the performance of the products.

The findings of this study confirm earlier findings in other studies. Azizi et al. (2008) in their study on export of Malaysian furniture concluded that global economic environmental conditions had no moderating effect on the relationship between export marketing strategies and export of furniture products. Similarly, Man, et al. (nd.) found a weak moderating effect of environmental factors on the relationship between technology strategies and firm performance. Other studies established a significant moderating influence of operating environment on performance of different firms. Chan et al. (2006), Oyewobi et al. (2013), Ensely et al. (2006), and Leniall and Raju (2001) in their various studies covering different variables concluded that operating environment had significant moderating influence on different independent and dependent business relationships.

The identified gaps as supported by some of the studies cited above explain some of the reasons why operating environment did not have any statistically significant influence on the relationship between branding practice and performance of commercial farmers in the current study. Based on these findings, the hypotheses that operating environment has a statistically significant moderating influence on the relationship between branding practices for fresh fruits and vegetable and performance of commercial farmers is rejected.

Recommendations

Results of a multiple regression analysis to test the moderating effect of operating environment on the relationship between branding practices and performance of commercial farmers indicated that the variation in the relationship between branding practices and performance of commercial farmers on the introduction of operating environment was not statistically significant. Consequently, the stated hypothesis was rejected at 5% and it was concluded that operating environment had no statistically significant moderating effect on the relationship between branding practices for fresh fruits and vegetable and performance of commercial farmers. As a result, it is noted that the influence of branding practices on performance of commercial farmers was not substantially altered by consideration of operating environment.

Since the results of the study indicated that operating environment on its own had statistically insignificant moderating influence on performance of commercial farmers, it is recommended that commercial farmers should avoid over relying on favorable operating environment as a means of achieving premium performance. They should instead undertake extra initiatives such as branding practices and improving their ability by acquiring adequate relevant knowledge and funding to maximize results. Since operating environment did not have a statistically significant moderating effect on the influence of branding practices on performance, it is also recommended that farmers should not feel constrained by operating environments while deciding on value addition initiatives to undertake in their farms.

Suggestions for Further Research

The study focused only on fresh fruits and vegetables among all other agricultural products offered to the market in their fresh unprocessed form. To expand the scope of the study, and improve the level of generalization, future research should cover other fresh agricultural products. The number of variables and constructs covered in both micro and macro environmental factors should be expanded to improve the scope and level of generalization.

The study population was limited to Kiambu County which has unique characteristics that favour the commercialization of fresh fruits and vegetables sub-sector of the horticultural sector. While the findings of the study provide useful insight into the interrelationship among the study variables, the unique characteristics of the County may limit the extent of generalisation to other counties. This calls for an extension of the study to other counties with differing social economic and climatic conditions to confirm the hypothesized relationship in the current study.

This study adopted a descriptive cross sectional survey design which involved collecting data once at a specific time. The study further relied on data provided by the respondents to evaluate the contribution of different variables to performance of commercial farmers. Some constructs in branding practices and operating environment take time to generate results. A time series design would enable the gathering of continuous data to demonstrate the effect of the elements throughout the life cycle of the product. A study should be designed to correct collaborative secondary data to confirm the self reported data provided by the respondents. This would reduce subjectivity in the provided data and strengthen the reliability of the current findings.

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