



## Innovation Management in Sport and Its Correlation with Leadership Styles at Colleges and Universities in Tigray, Ethiopia

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### Abstract

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Sport institutions must adapt, renew, and develop through innovative and novel ideas (Tjønndal, 2016). This study explored innovation management in sports and its correlation with selected leadership styles at colleges and universities in Tigray. A descriptive, cross-sectional research design was employed, with a sample of 147 sports management personnel from colleges and universities in Tigray. Data were collected using a standardized five point Likert scale questionnaire and structured interviews and analyzed using SPSS (version 20). Cross-tabulation, descriptive statistics, the Kruskal-Wallis test, and the Mann-Whitney test were used to analyze and compare the data collected on innovation management in sports. Furthermore, the Spearman rank-order correlation test was used to determine the association between innovation management and leadership style. The findings of the study showed that a significant proportion of respondents acknowledged weak innovation management in sports at universities (55.6%) and colleges (94.4%) in Tigray. Additionally, the results indicated a significant difference among the four universities and two colleges in Tigray regarding innovation management practices in sports ( $p = 0.001$ ,  $p < 0.01$ ). Furthermore, the findings showed a statistically significant positive association between innovation management in sports and democratic ( $r = 0.206$ ,  $p = 0.013$ ) and transactional ( $r = 0.231$ ,  $p = 0.005$ ) leadership styles. Conversely, the findings revealed no statistically significant correlation between innovation management practices in sports and laissez-faire ( $r = -0.146$ ,  $p = 0.078$ ), autocratic ( $r = -0.128$ ,  $p = 0.123$ ), and transformational ( $r = 0.143$ ,  $p = 0.085$ ) leadership styles. In conclusion, the universities and colleges in the Tigray region exhibited weak innovation management in sports. Additionally, innovation management in sports tends to improve as democratic and transactional leadership styles are increasingly practiced.



## Introduction

Sport based innovation is a dynamic process that influences various managerial tasks, including new sports development, product innovation, technological advancements, consistency in development, (Hemme et al., 2017). Leadership serves a crucial role in fostering innovation among employees (Abdolmaleki et al., 2013). It is the ability to influence, inspire, and allow others to contribute to the effectiveness and success of their organization (House et al., 2001). Leadership style is a critical element of management, impacting employee dedication and the accomplishment of organizational goals (Abasilim et al., 2018; House et al., 2001). Sports organizations continually adapt and develop through creative ideas. Innovation encompasses new structures or management processes, policies, plans or programs, production processes, or products and services produced within an enterprise (López-Nicolás & Meroño-Cerdán, 2011). Innovation management focuses on the structural forms, adaptability, and capabilities of organizations, emphasizing organizational atmosphere, participative management, and incentives as core requirements for leading innovation (Razavi & Attarnezhad, 2013). It involves a comprehensive set of practices that

observations, innovation management practices at colleges and universities in Tigray are lacking. Therefore, this study aims to investigate sport-related

analyze competition mechanisms, create innovative visions, align professional strategies, and respond to market trends and competitor actions (Razavi & Attarnezhad, 2013). The various innovation strategies employed by sports institutions have the potential to radically transform how we play, view, and organize sports (Shilbury, 2012). Key factors for effectiveness in the sports business embrace the social aspects of innovation, user contributions to products, effective network structures, and the ability to leverage external resources for innovation and entrepreneurship. Open innovation practices in the sports business can enhance resource efficiency and improve user experience through extensive outsourcing. The inclusion of sports based innovation is crucial for achieving efficiency in entrepreneur-based innovation, as many innovations are often hidden within existing sporting activities, awaiting discovery (Moghadam Bagha et al., 2020). Innovation is characterized by various organizational elements the knowledge existing within the workforce, outer networks, unambiguous knowledge management, contestant intelligence, reduced cycle time, talent in product development, and customer input (Sattler, 2011). Despite several studies on innovation management practices in sports, few clearly illustrate the role of managers in this context. Based on the researcher's innovation management practices and their correlation with leadership styles at colleges and universities in Tigray, Ethiopia.

## Methods

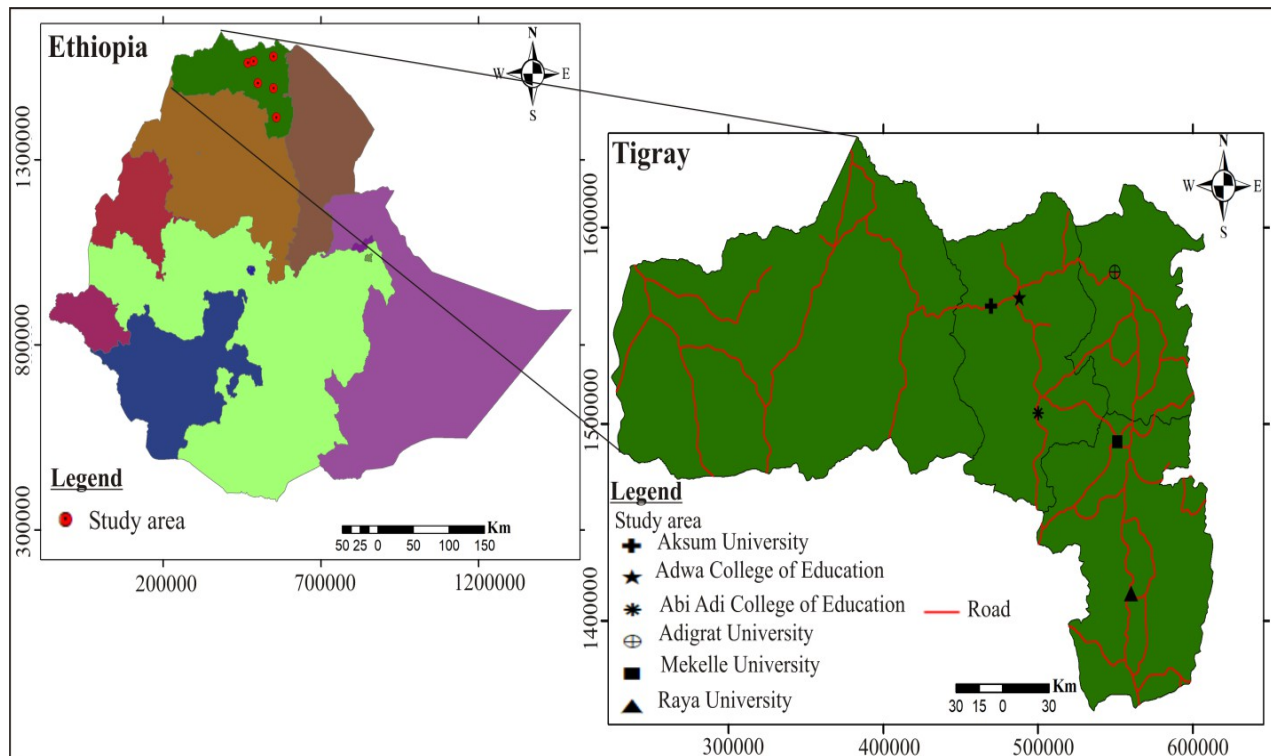


### Description of the Study Area

This research was carried out in the colleges and universities located in the Tigray region, the northernmost part of Ethiopia and the second most populous nation in Africa. Tigray is a landlocked region and share borders with, Sudan, Eritrea and the

Afar and Amhara regions of Ethiopia.

In Tigray, there are four universities and two colleges of education. The study specifically focused on Aksum University, Adwa College, Adigrat University, Abi-Adi College, Mekelle University, and Raya University (refer to Figure 1).





**Figure 1** Location Map of the Study area

Design of the study

In this investigation, the researcher employed a descriptive research design to gather information about the innovation management and leadership styles in sport among colleges and universities in the Tigray region. The goal was to describe "what exists" regarding this variable. Additionally, a cross-

sectional design was utilized to examine differences in the innovation management in sport among the four universities and two colleges in Tigray. Relevant data regarding the variables were collected from purposefully selected respondents using a five-point Likert scale questionnaire and structured interviews (Wang & Cheng, 2020).

Selection of subjects



In this study, the researcher selected a total of one hundred forty-seven (147) subjects: one hundred twenty nine (129) respondents from universities and eighteen (18) respondents from colleges in the Tigray region. The selection was conducted using a purposive sampling technique. The subjects included individuals who had both direct and indirect roles in the management of sports at the selected universities and colleges in the Tigray region.

### **Selection of Variables and instruments**

Based on the experience and knowledge gained by the researcher from different sources, like articles and books, innovation management and leadership styles such as autocratic, democratic, laissez- faire, transformational, and transactional leadership styles were selected as variables in this study. In this study, ten (10) and twenty five (25) items of five points Likert scale questionnaire was used to gather data about innovation management and leadership styles in sport respectively in the selected study areas. Moreover, 8-items of innovation management and leadership styles in sport were used to collect triangulated data from the stakeholders. The questionnaires were self-made but standardized by experts and experienced persons in sports science, management, and language professionals to assure their validity. Further, the researcher used a pilot test and analyzed the collected data using SPSS version tabulation was applied to analyze and compare the

problem from the subjects. Additionally, the researcher conducted the Kruskal-Wallis Test to assess whether the differences in innovation management practices among four universities and two colleges in the Tigray region were statistically significant. The Mann-Whitney Test was then

20. The result of Cronbach's alpha for each variables were between 0.5 and 0.9, which indicates as the instruments are reliable. Additional data were also collected using a self-made, standardized structured interview designed to ensure the validity of the data collected through the questionnaire about the variables.

### **Data Collection Procedure**

In conducting this study, the researcher obtained a letter of cooperation from the Sport Science Department at Mekelle University to facilitate data access and inform potential respondents. Then, we received ethical clearance from the Institutional Review Board at Aksum University College of Health Science and Specialized Referral Hospital. Before distributing the questionnaire, the participants were informed about the study's purpose, and the researcher obtained written informed consent. Then, the questionnaire was distributed in a face to face manner. Finally, structured interviews were conducted with the deans of colleges and student deans at the selected institutions to gather additional insights.

### **Statistical Techniques**

Based on the nature of the data, the researcher employed the Statistical Package for Social Sciences (SPSS; version 20) for data analysis. Initially, descriptive statistics employing cross data collected regarding the identified

employed to pinpoint where the significant differences existed among the groups. Furthermore, the Spearman rank-order correlation test was carried out to examine the association between innovation management and various leadership styles, including autocratic, democratic, laissez-faire,



transformational, and transactional approaches. A p-value of less than 0.05 was deemed statistically significant.

Moreover, a qualitative analysis method was employed to examine the data collected through interviews. Ultimately, the researcher presented the findings of this study using tables, figures, and descriptive language to enhance clarity and understanding.

## **Results**

### **Findings on the Innovation Management in Sports and its Correlation with the selected Leadership Styles at Colleges and Universities in the Tigray region**

To investigate innovation management and determine any significant differences among the four universities and between the two colleges in the Tigray region, the researcher used Cross-Tabulation, Kruskal-Wallis Test, and Mann-Whitney Test. Spearman correlation test was

also used to determine the association between innovation management and autocratic, democratic, laissez-fair, transformational, and transactional leadership styles. The results are presented as follows:





Table 1

**Cross-Tabulation of innovation management in sport cross Universities and Colleges in Tigray**

Organization of the respondents		Presence of Good Innovation Management					Total
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
University	Aksum university	4 11.4%	11 31.4%	4 11.4%	15 42.9%	1 2.9%	35 100.0%
	Adigrat university	1 2.9%	25 73.5%	0 0.0%	8 23.5%	0 0.0%	34 100.0%
	Mekelle university	2 4.4%	21 46.7%	1 2.2%	18 40.0%	3 6.7%	45 100.0%
	Raya university	0 0.0%	9 60.0%	3 20.0%	2 13.3%	1 6.7%	15 100.0%
	Total	7 5.4%	66 51.2%	8 6.2%	43 33.3%	5 3.9%	129 100.0%
College	Adwa college	2 25.0%	6 75.0%		0 0.0%		8 100.0%
	Abyi-adi college	4 40.0%	5 50.0%		1 10.0%		10 100.0%
	Total	6 33.3%	11 61.1%		1 5.6%		18 100.0%
Total		13	77	8	44	5	147
		8.8%	52.4%	5.4%	29.9%	3.4%	100.0%



The above cross-tabulation table (1) shows as the innovation management in sport at universities and colleges of Tigray region was weak since most of the subjects, (51.2% and 5.4%, and 61.1% and 33.3%), respectively disagree and strongly disagree with the presence of good innovation management practice in sport at their institutions.

Moreover, 100% of the interviewees from Aksum University and Mekelle University responded as there was a medium innovation management practice in sport at their university. However, 100% of the interviewees from Adigrat University, Raya University, Adwa College, and Abi-ady College responded as there was low innovation management practice in sport at their institutions.

Table 2

**Kruskal-Wallis Test Showing Significant Differences in Sport related Innovation Management Practice among Colleges and Universities in Tigray**

Ranks				Test Statistics <sup>a,b</sup>		
	Affiliation of the respondents	N	Mean Rank	Chi-Square	df	Asymp. Sig.
Presence of good innovation management in sport	Aksum university	35	83.73	19.947	5	0.001
	Adigrat university	34	66.79			
	Mekelle university	45	84.54			
	Raya university	15	75.83			
	Adwa college	8	40.75			
	Abiyadi college	10	40.85			
	Total	147				

Note. a. Kruskal Wallis Test

b. Grouping Variable: Affiliation of the respondents

The Kruskal-Wallis Test (Table 2) indicate a significant difference in innovation management practices in sports among the four universities and between the two colleges in the Tigray region, as evidenced by a P-value of 0.001, which is less than the significance level of 0.01. Compared to Adigrat University and Raya University; Mekelle University and Aksum University demonstrated a better innovation management practice in sports, with a mean rank of 84.54 and 83.73, which exceeds the mean ranks of 66.79 and 75.83, respectively. However, Adwa College and Abi-ady College shows similar practice. To determine where the significant differences lie among the groups, we utilized Mann-Whitney Tests as follows:





**Table 3**

**Mann-Whitney Test Showing Significant Differences in Sport related Innovation Management Practice among Colleges and Universities in Tigray**

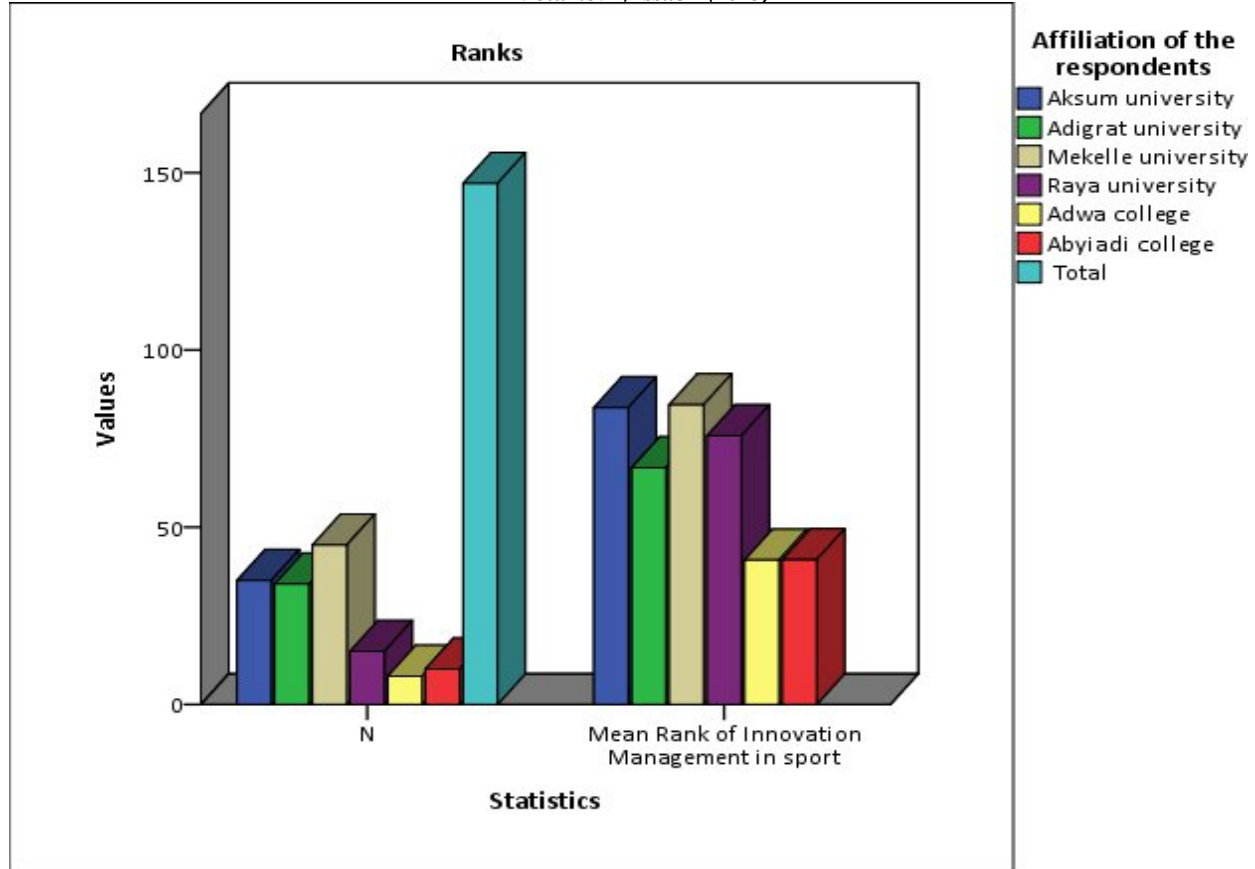
Ranks					Test Statistics a			
	Affiliation	N	Mean Rank	Sum of Ranks	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)
Presence of good innovation Management practice	Aksum university	35	39.10	1368.50	451.500	1046.500	-1.901	0.057
	Adigrat university	34	30.78	1046.50				
	Aksum university	35	40.11	1404.00	774.000	1404.000	-0.141	0.888
	Mekelle university	45	40.80	1836.00				
	Aksum university	35	26.60	931.00	224.000	344.000	-0.862	0.389
	Raya university	15	22.93	344.00				
	Adigrat university	34	34.49	1172.50	577.500	1172.500	-2.120	0.034
	Mekelle university	45	44.17	1987.50				
	Adigrat university	34	23.87	811.50	216.500	811.500	-1.030	0.303
	Raya university	15	27.57	413.50				
	Mekelle university	45	31.50	1417.50	292.500	412.500	-0.839	0.401
	Raya university	15	27.50	412.50				
	Adwa college	8	9.88	79.00	37.000	92.000	-.311	0.756
	Abyiadi college	10	9.20	92.00				
	University	129	78.63	10143.50	563.500	734.500	-3.879	0.001
	College	18	40.81	734.50				
	Total	147						

Note. a. Grouping Variable: Affiliation of the respondents

The results of the Mann-Whitney Test (Table 3) indicate a significant difference in innovation management practices in sports between Adigrat University and Mekelle University, as well as among the universities and colleges in the Tigray region. This is evidenced by their P-values (0.034 and 0.001, respectively), both of which are less than the 0.05 significance level.

Conversely, there was no significant difference observed between Aksum University and Adigrat University, Aksum University and Mekelle University, Aksum University and Raya University, Adigrat University and Raya University, Mekelle University and Raya University, and among the two colleges in the Tigray region, since their P-values (0.057, 0.888, 0.389, 0.303, 0.401, and 0.756, respectively) exceed the 0.05 significance level. For

a more comprehensive understanding, please refer to the bar chart presented below as Figure 2.



**Figure 2** Innovation management practices in sport mean rank of the Universities and Colleges in Tigray

**Table 4**

Spearman Correlation Test Showing the Association between Innovation Management Practice and Leadership Styles in Sport at Universities and Colleges of Tigray

Spearman's rho		Autocratic leadership style	Democratic leadership style	Laissez-faire leadership style	Transformational Leadership style	Transactional leadership style
Innovation Management	Correlation Coefficient	-.128	.206*	-.146	.143	.231**
	Sig. (2-tailed)	.123	.013	.078	.085	.005
	N	147	147	147	147	147

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

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

The Spearman Correlation Test (Table 3.1.4) indicates significant positive association between innovation management practice in sports and democratic and transactional leadership style. The correlation coefficients are 0.206 and 0.231, with

corresponding P-value of 0.013 and 0.005 which are less than 0.05 and 0.01, the level of significance. This indicates that as the practices of



transactional leadership styles increase, the innovation management practices in sports tend to increase as well.

However, there were no statistically significant correlation between innovation management practices in sports and autocratic, laissez-faire, and transformational Leadership styles since the correlation coefficient (-0.128, -.146, and 0.143) with the p-values (0.123, 0.078, and 0.085) are superior than 0.05, the level of significance.

### Discussion

In this study, we aimed to explore innovation management in sports and its correlation with leadership styles at colleges and universities in Tigray, Ethiopia. The findings indicated that innovation management practices at these institutions were weak. Notably, significant differences in innovation management practices were observed between Adigrat University and Mekelle University, as well as among the universities and colleges in Tigray. However, no significant differences emerged among the remaining universities and between the two colleges.

Supporting our findings, (Sanderson & Siegfried, 2003) suggested that innovation is the solution to long lasting challenges in modern sports. Similarly, (Tjønndal, 2016) noted that advancements in new technologies, sporting equipment, and products play a vital role in enhancing modern sports. Yet, our study highlights that the production of new sports services, equipment, and products at the universities and colleges in the Tigray region is lacking.

According to (Anand & Saraswati, 2014), innovation leadership includes various leadership styles to motivate employees to generate creative

ideas and solutions. (Crocì, 2004) emphasized that sports organizations must innovate structurally to collaborate effectively with external partners. Similarly, (Atalay et al., 2013) found that innovation strategies not only broaden the scope of sports clubs but also foster a proactive structure to fulfill their responsibilities. (Naraine, 2019) asserted the undeniable role of innovation in the ongoing success of sports organizations. (Ringuet-Riot et al., 2013) stated that innovation in organizational systems can improve performance and address issues that hinder impactful projects.

Our study revealed a statistically significant positive association between innovation management in sports and both democratic and transactional leadership styles. This suggests that as the practices of these leadership styles increase, so do innovation management practices in sports. This finding aligns with (Jones & Spamer, 2011), who observed that democratic leadership is predominantly employed by governing bodies in sports management. Similarly, (Malkoc & Dal, 2021) reported that both democratic and paternalistic management styles positively influence trainers' job motivation. Supporting our findings, (Supriadi et al., 2020) indicated that transactional leadership positively impacts teachers' innovation abilities, while (Zhao & Sun, 2024) noted a direct positive association between transactional leadership and innovative work behavior.

Conversely, our study indicated a negative but statistically insignificant correlation between innovation management practices in sports and both autocratic and laissez-faire leadership styles. This finding is consistent with (Costa et al., 2023), who stated that autocratic leadership negatively affects



innovation. (Iqbal et al., 2020) also found that autocratic leadership significantly adversely impacts organizational outcomes. However, (Kayhalak & Kurtipek, 2024) reported a low-level positive relationship between autocratic leadership and entrepreneurship. (Kostiainen, 2023) bolstered our study's findings by concluding that the laissez-faire leadership style should be combined with other styles to motivate employees and mitigate its weaknesses.

We found a statistically insignificant positive association between innovation management in sports and the transformational leadership style. This observation aligns with (Novitasari et al., 2021), who reported that transformational leadership positively impacts innovation performance among lecturers. (Putra et al., 2020) found a significant positive influence of transformational leadership on lecturers' innovation capabilities. Supporting our findings, (Sirin et al., 2018) discovered that physical

education teachers view transformational leadership positively, while, (Gündoğdu & Sunay, 2018) noted that top-level sports managers predominantly exhibit transformational leadership.



## Conclusion

Based on the above results and findings, the researchers reached the following conclusions:

1. Innovation is the lifeblood of sports organizations.
2. Universities and colleges in the Tigray region exhibit weak innovation management practices in sports.
3. Aksum University and Mekelle University demonstrate slightly better innovation management practices in sports than other institutions in Tigray.
4. The practices of democratic and transactional leadership styles had significantly positively impact on the innovation management practices in sports at these universities and colleges.

Finally, we recommend that universities and colleges improve their innovation management practices in sports by adopting democratic and transactional leadership styles. Moreover, individuals in sports managerial roles such as sports science professionals, sport and recreation officers and stakeholders should receive training on sports-related innovations.

**Research Limitations:** The group of people in this study was small and only from Tigray, so the results may not apply to other places. Future studies should use bigger and more diverse groups and include real, objective measures to be more accurate.

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