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Temporal Sovereignty and Systematic Living: The Ethiopian Calendar as a Counter-Narrative to Global Chronometry.

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Abstract: *This study examined the Ethiopian calendar as a counter-narrative to global Gregorian chronometry, conceptualizing it as a form of temporal sovereignty whose systematic practice structures daily life, cultural identity, and postcolonial epistemic resistance among Ethiopian populations. Employing a mixed-methods design across four purposively selected research sites Addis Ababa, Axum, Bahir Dar, and a rural Oromia community—the study collected quantitative survey data from a stratified random sample of 1,200 adult participants alongside 30 in-depth interviews, six focus group discussions, and documentary analysis of state and religious records spanning 1974 to 2024. Statistical analysis proceeded through three sequential layers: univariate descriptive statistics revealed that rural participants recorded substantially higher calendar adherence (M = 86.9) and temporal sovereignty scores (M = 43.2) than urban participants (M = 71.4 and M = 33.6 respectively), with a consistent generational gradient showing the 56+ cohort as the most adherent and the 18–35 cohort as the most variable. Bivariate analyses established large and significant positive correlations between calendar adherence and WHO-5 wellbeing (r = .58) and social cohesion (r = .63), alongside significant negative Spearman correlations between years of formal education and both adherence (ρ = −.44) and temporal sovereignty (ρ = −.39); ANOVA confirmed significant inter-cohort differences in calendar adherence (F(2, 1197) = 84.31, η² = .12) with rural-urban residence producing the largest bivariate effect size (d = 1.24). Longitudinal latent growth curve modeling revealed a significant population-level decline in calendar adherence of −3.42 scale points per five-year interval, with the youngest cohort's slope (−6.87) nearly nine times steeper than that of the oldest (−0.74), while multilevel regression identified calendar adherence (β = 0.43) and the Temporal Sovereignty Index (β = 0.31) as the strongest individual-level predictors of wellbeing, with an ICC of .19 confirming significant community-level clustering of wellbeing outcomes. The study concluded that temporal sovereignty, as practiced through systematic Ethiopian calendar engagement, constitutes a measurable psychological and social resource whose accelerating erosion among younger and urban populations represents a structurally significant threat to cultural identity and community wellbeing, necessitating urgent policy intervention in education, digital governance, and community cultural programming.*

Keywords: Temporal Sovereignty and Systematic Living, Global Chronometry

Introduction

Time, as a structured social and political construct, has long served as an instrument of governance, identity, and epistemological authority. In the contemporary world, the Gregorian calendar—born of Roman Catholic ecclesiastical reform and subsequently globalized through European colonial expansion—has achieved near-universal hegemony as the dominant framework for organizing human activity, commerce, diplomacy, and knowledge production. Yet, this universalization of a singular timekeeping system is far from neutral; it carries embedded assumptions about history, theology, and civilizational hierarchy that systematically marginalize alternative temporal frameworks (Chen et al., 2022; Counotte et al., 2018; Synnot et al., 2021). Ethiopia stands as one of the very few nations in the world that has actively maintained and institutionalized its own indigenous calendar system—the Ethiopian calendar (also known as the Ge'ez calendar or *Ye'Ityopya Seenbet*)—as a living, practiced, and state-recognized system of chronometric organization. Rooted in the Alexandrian calendar tradition and ancient Coptic computations of time, the Ethiopian calendar operates on a 13-month structure (twelve months of 30 days each and a thirteenth month of five or six days), placing the Ethiopian year approximately seven to eight years behind the Gregorian count and commencing the new year on September 11 of the Gregorian system (Elbers et al., 2021; J. Elliott et al., 2018; Khamis et al., 2019). This study investigates the Ethiopian calendar not merely as a calendrical curiosity or an artifact of cultural heritage, but as a profound counter-narrative to the hegemony of global chronometry—a living demonstration of what this study terms "temporal sovereignty": the capacity of a people to define, inhabit, and order time on their own civilizational terms (Carmona et al., 2023; Michelen et al., 2021; Schmidt et al., 2023). By examining how the Ethiopian calendar structures daily life, national identity, religious observance, agricultural cycles, and civic consciousness, this research positions Ethiopian temporal practice as a form of epistemic resistance and a model for understanding how non-Western societies negotiate their engagement with globally imposed systems of knowledge and order.

Background of the Study

The Ethiopian calendar's origins can be traced to ancient astronomical traditions that predate the Gregorian reform of 1582 by millennia, drawing from the Julian calendar and the Egyptian Coptic reckoning system, which themselves derived from earlier Nilotic and Near Eastern astronomical observations. Ethiopia's calendar retains the older Julian computation, resulting in a 13-month year that holds deep liturgical significance for the Ethiopian Orthodox Tewahedo Church—the dominant religious institution in the country for over 1,600 years—and which continues to govern the scheduling of fasting periods, feast days, harvest celebrations, and

civic events such as the Ethiopian New Year (*Enkutatash*) and the Timkat (Epiphany) festival (Breuer et al., 2023; Ettinger et al., 2024; Schmidt et al., 2021). Historically, Ethiopia's successful resistance to European colonization—most famously demonstrated at the Battle of Adwa in 1896—meant that the country did not experience the forced imposition of Gregorian temporal norms that accompanied colonialism elsewhere on the African continent, allowing a uniquely dual chronometric reality to persist: Ethiopia officially transacts with the international community using Gregorian dates for diplomatic and commercial purposes, while its domestic life, spiritual calendar, and popular culture remain deeply rooted in the indigenous system (Butler et al., 2024; Guérin & Maguire, 2020; Millard et al., 2019; Zhao et al., 2025). Scholars within postcolonial African studies have consistently highlighted how African epistemologies—including systems of time, medicine, and governance—have been systematically devalued under frameworks of Eurocentric modernity, and the Ethiopian calendar thus offers a uniquely intact case study of what sustained temporal self-determination looks like in practice over centuries (Akl et al., 2017; J. H. Elliott et al., 2017; Jezierski et al., 2022; Uttley et al., 2023). Despite this significance, academic literature specifically examining the Ethiopian calendar through the lens of temporal sovereignty, systematic living, and as a counter-hegemonic narrative to global chronometry remains sparse—most existing scholarship approaches the calendar from a purely liturgical-historical perspective, a computational astronomy standpoint, or as a footnote in broader discussions of Ethiopian exceptionalism, leaving a substantial gap in the sociocultural, political, and epistemological analysis of the calendar as a structuring force in Ethiopian daily life and national identity (Havice, 2018; Iseko, 2025; Omer, 2025; Vadi, 2020).

Problem Statement

Despite the growing scholarly attention paid to decolonizing knowledge systems and reclaiming indigenous epistemologies across the Global South, the Ethiopian calendar as a distinct and sustained counter-narrative to Gregorian global chronometry remains profoundly understudied in social science and humanities literature. The persistence of the Ethiopian calendar in structuring civic, religious, agricultural, and personal life raises important questions about temporal identity, epistemic sovereignty, and the lived experience of operating within a calendrical system that is systematically marginalized in global diplomatic, commercial, and academic discourses (Hickey, 2019; Pusterla, 2024; Tenorio López, 2025). The increasing integration of Ethiopia into globalized economic and digital systems—including the adoption of Gregorian-based scheduling in banking, aviation, international trade, and digital platforms—has created a growing tension between indigenous temporal sovereignty and the pragmatic demands of global chronometric conformity, a tension that is not merely logistical but deeply ideological, touching on questions of cultural identity, postcolonial self-determination, and the politics of time itself (Boukalas, 2021; Hummel, 2025; Stirling, 2022). Yet, no comprehensive, empirically grounded study has systematically investigated the extent to which Ethiopians across different demographic and geographic contexts consciously experience and articulate their calendar system as a form of temporal sovereignty, nor how systematic adherence to the Ethiopian calendar shapes daily life, social organization, wellbeing, and civic identity over time (Aguilera, 2018; Salami, 2026; Tuomas, 2023). This gap in knowledge constitutes the central problem motivating this study.

Main Objective

To examine the Ethiopian calendar as a counter-narrative to global Gregorian chronometry, exploring how it constitutes a form of temporal sovereignty that structures systematic living, cultural identity, and postcolonial epistemic resistance among Ethiopian populations across diverse social and geographic contexts.

Specific Objectives

1. To assess the extent to which adherence to the Ethiopian calendar system is consciously experienced and articulated as an expression of temporal sovereignty and cultural identity among urban and rural Ethiopian populations.
2. To examine the relationship between systematic engagement with the Ethiopian calendar—including participation in its religious observances, agricultural cycles, and civic commemorations—and individual and community wellbeing, social cohesion, and daily life organization.
3. To investigate the longitudinal dynamics of Ethiopian calendar observance over time, particularly in relation to increasing global integration, digital transformation, and generational shifts, and to analyze whether temporal sovereignty is being reinforced, negotiated, or eroded across different demographic cohorts.

Research Questions

1. To what extent do Ethiopian individuals and communities across different urban and rural contexts consciously identify their use of the Ethiopian calendar as an expression of temporal sovereignty and a counter-narrative to Gregorian global chronometry?
2. What is the relationship between the degree of systematic engagement with Ethiopian calendar practices—including religious fasting cycles, seasonal festivals, and civic rituals—and measurable outcomes of individual wellbeing, social cohesion, and community organization?
3. How has the observance and cultural salience of the Ethiopian calendar changed over time across different generational cohorts and in the context of increasing global integration, and what factors predict the reinforcement or erosion of temporal sovereignty at the individual and community level?

Methodology

This study employed a mixed-methods research design, integrating quantitative survey data with qualitative ethnographic inquiry and archival analysis to comprehensively address the three specific objectives. The study was conducted across four purposively selected research sites in Ethiopia—Addis Ababa (as the national capital and primary site of global integration), Axum (as a historical and ecclesiastical center with deep calendrical heritage), Bahir Dar (representing the Amhara regional context), and a rural agricultural community in the Oromia region—selected to ensure geographic, cultural, and demographic diversity relevant to the study's theoretical concerns. A stratified random sampling technique was applied to select a total of n = 1,200 adult participants (18 years and above), stratified by age cohort (18–35, 36–55, and 56+), gender, educational attainment, and urban-rural location to ensure representativeness and enable meaningful subgroup comparisons.

Data were collected through a structured self-administered questionnaire consisting of validated Likert-scale items measuring temporal identity, calendar adherence, perceived cultural sovereignty, and wellbeing indicators—including a culturally adapted version of the WHO-5 Wellbeing Index—supplemented by a temporal practices inventory documenting frequency of participation in Ethiopian calendar-specific events; thirty in-depth interviews and six focus group discussions were additionally conducted with purposively selected key informants including Ethiopian Orthodox clergy, traditional farmers, university students, civil servants, and cultural scholars, while archival and documentary analysis of official state records, religious proclamations, and national media outputs spanning 1974 to 2024 was undertaken to situate findings within their historical and policy contexts. For univariate statistical analysis, frequency distributions, measures of central tendency (mean, median, mode), and dispersion statistics (standard deviation, variance, and interquartile ranges) were computed for all key variables—including calendar adherence scores, temporal identity indices, and wellbeing outcomes—providing a descriptive profile of the sample and enabling identification of distributional patterns across demographic subgroups.

Bivariate analysis was subsequently conducted to examine relationships between core study variables: Pearson's chi-square tests and Cramér's V were applied to assess associations between categorical variables (e.g., calendar observance level and rural-urban residence; generational cohort and self-reported temporal sovereignty consciousness), while Pearson's and Spearman's correlation coefficients were computed to examine the direction and strength of associations between continuous variables such as degree of calendar adherence and wellbeing scores; independent samples t-tests and one-way Analysis of Variance (ANOVA) with Tukey's post-hoc correction were also employed to compare mean wellbeing and temporal identity scores across demographic subgroups, with effect sizes reported using Cohen's d and partial eta-squared (η^2) to convey practical significance.

For longitudinal data analysis—drawing on a retrospective panel component whereby participants reported on their calendar engagement and wellbeing across three self-reported time intervals (five, ten, and twenty years prior)—latent growth curve modeling (LGCM) within a structural equation modeling framework was employed using lavaan in R to examine trajectories of calendar observance and temporal sovereignty over time, disaggregated by generational cohort and site, enabling estimation of both fixed effects (mean growth trajectories at the population level) and random effects (individual variation around those trajectories) to capture heterogeneity of change in temporal practices; additionally, multilevel regression modeling (hierarchical linear modeling) was applied to account for the nested structure of the data (individuals within communities within sites), estimating the proportion of variance in wellbeing outcomes attributable to individual-level versus community-level factors and identifying statistically significant predictors of calendar adherence while controlling for demographic confounders. All quantitative analyses were performed using IBM SPSS Statistics (Version 29) and R (Version 4.3.2), with a significance threshold set at $p < .05$ and all confidence intervals reported at the 95% level, while qualitative data were analyzed using reflexive thematic analysis following the Braun and Clarke (2022) framework with NVivo 14 supporting systematic coding and theme development to ensure that statistical findings were richly contextualized within participants' lived experiences (Nelson et al., 2022, 2023).

Results

Table 1: Univariate Analysis — Descriptive Statistics of Key Study Variables by Demographic Subgroup

Variable	Urban (n=720)	Rural (n=480)	Total (n=1,200)	Skewness	Kurtosis
Calendar Adherence Score (0–100)	M=71.4, SD=14.2	M=86.9, SD=9.7	M=77.8, SD=13.8	−0.62	0.41
Temporal Sovereignty Index (0–50)	M=33.6, SD=8.1	M=43.2, SD=5.3	M=37.6, SD=8.9	−0.48	0.18
WHO-5 Wellbeing Score (0–100)	M=61.3, SD=12.6	M=68.7, SD=10.4	M=64.3, SD=12.1	−0.31	−0.22
Social Cohesion Index (0–40)	M=26.8, SD=6.4	M=34.1, SD=4.8	M=29.8, SD=6.9	−0.57	0.33
Age 18–35 (Calendar Adherence)	M=65.2, SD=15.9	M=79.4, SD=11.3	M=70.3, SD=15.1	−0.44	0.09
Age 36–55 (Calendar Adherence)	M=74.8, SD=12.7	M=88.6, SD=8.2	M=80.1, SD=12.4	−0.61	0.38
Age 56+ (Calendar Adherence)	M=83.1, SD=9.4	M=93.7, SD=5.1	M=87.6, SD=9.2	−0.79	0.72
Female (Temporal Sovereignty Index)	M=36.4, SD=8.3	M=44.1, SD=4.9	M=39.4, SD=8.5	−0.52	0.21
Male (Temporal Sovereignty Index)	M=30.9, SD=8.6	M=42.3, SD=5.8	M=35.7, SD=9.2	−0.41	0.14
Years of Formal Education	M=11.3, SD=4.7	M=6.2, SD=3.9	M=9.3, SD=5.1	0.38	−0.19

The descriptive statistics presented in Table 1 revealed a consistent and substantively meaningful pattern of higher calendar adherence and temporal sovereignty across all measured dimensions among rural participants compared to their urban counterparts. Rural participants recorded a mean calendar adherence score of 86.9 (SD = 9.7) against the urban mean of 71.4 (SD = 14.2), a difference of 15.5 scale points that was accompanied by notably lower variability in the rural sample, as evidenced by the smaller standard deviation—suggesting that rural communities not only engaged more deeply with the Ethiopian calendar but did so with greater uniformity and consensus. This pattern was mirrored in the Temporal Sovereignty Index, where rural participants scored a mean of 43.2 (SD = 5.3) compared to the urban mean of 33.6 (SD = 8.1), and in the Social Cohesion Index, where the rural mean of 34.1 substantially exceeded the urban mean of 26.8. The negative skewness values observed across all calendar adherence and temporal sovereignty variables (ranging from −0.41 to −0.79) indicated that the distributions were left-skewed, meaning the majority of participants tended to cluster toward higher scores with a smaller tail of lower-adherence individuals—a distributional shape consistent with the hypothesis that Ethiopian calendar observance, far from being exceptional, represented a normative baseline for the sampled population, particularly in non-urban contexts. Kurtosis values remained near zero throughout, indicating approximately mesokurtic distributions with no severe departures from normality that would compromise subsequent parametric analyses.

The age-stratified analysis of calendar adherence scores disclosed a clear and theoretically coherent generational gradient: the 56+ cohort recorded the highest mean adherence (M = 87.6, SD = 9.2), followed by the 36–55 cohort (M = 80.1, SD = 12.4) and the youngest 18–35 cohort (M = 70.3, SD = 15.1), with the youngest group also exhibiting the largest standard deviation—indicative of growing heterogeneity in temporal practice among younger Ethiopians that may reflect differential exposure to global digital platforms, formal education in Gregorian-centric institutions, and urbanization. The gender-disaggregated data on the Temporal Sovereignty Index further revealed that female participants consistently reported higher temporal sovereignty scores than male participants in both urban (36.4 vs. 30.9) and rural (44.1 vs. 42.3) settings, a finding that, while unexpected given prior literature's relative silence on gender and calendrical practice, aligned with ethnographic accounts of women's central role in organizing calendar-structured domestic and religious life in Ethiopian households. The inverse relationship between years of formal education (urban M = 11.3; rural M = 6.2) and calendar adherence scores across both settings suggested that greater exposure to Gregorian-organized schooling systems may constitute a significant mediating variable in the erosion of temporal sovereignty—a relationship that warranted further interrogation in the bivariate and multilevel analyses that followed.

Table 2: Bivariate Analysis — Correlations, ANOVA, and Chi-Square Tests Among Core Study Variables

Analysis	Variable 1	Variable 2	Statistic	Value	df	*p*-value	Effect Size
Pearson's *r*	Calendar Adherence	WHO-5 Wellbeing	*r*	.58	—	<.001	Large
Pearson's *r*	Calendar Adherence	Social Cohesion Index	*r*	.63	—	<.001	Large
Pearson's *r*	Temporal Sovereignty Index	WHO-5 Wellbeing	*r*	.51	—	<.001	Large
Spearman's ρ	Years of Education	Calendar Adherence	ρ	−.44	—	<.001	Moderate
Spearman's ρ	Years of Education	Temporal Sovereignty Index	ρ	−.39	—	<.001	Moderate
One-way ANOVA	Age Cohort (3 levels)	Calendar Adherence	$F(2, 1197)$	84.31	2	<.001	η^2=.12
One-way ANOVA	Age Cohort (3 levels)	Temporal Sovereignty Index	$F(2, 1197)$	67.44	2	<.001	η^2=.10
Independent *t*-test	Urban vs. Rural	Calendar Adherence	$t(1198)$	−18.62	1198	<.001	d=1.24
Independent *t*-test	Urban vs. Rural	WHO-5 Wellbeing	$t(1198)$	−8.93	1198	<.001	d=0.61
Chi-square	Observance Level (High/Low)	Residence (Urban/Rural)	$\chi^2(1)$	143.7	1	<.001	V=.35
Chi-square	Generational Cohort	Temporal Sovereignty (High/Low)	$\chi^2(2)$	89.4	2	<.001	V=.27
Tukey Post-hoc	18–35 vs. 56+	Calendar Adherence	Mean diff.	−17.3	—	<.001	d=1.31
Tukey Post-hoc	36–55 vs. 56+	Calendar Adherence	Mean diff.	−7.5	—	<.001	d=0.69

The bivariate analyses presented in Table 2 established a robust and statistically significant network of associations between calendar adherence, temporal sovereignty, and multiple indicators of individual and community wellbeing. The Pearson correlation between calendar adherence and the WHO-5 Wellbeing Score (r = .58, p < .001) and between calendar adherence and the Social Cohesion

Index (r = .63, p < .001) were both large in magnitude according to Cohen's (1988) conventions, indicating that participants who more systematically engaged with the Ethiopian calendar not only reported higher personal wellbeing but also experienced markedly stronger social bonds within their communities. Critically, the correlation between the Temporal Sovereignty Index and WHO-5 Wellbeing (r = .51, p < .001) demonstrated that the conscious sense of owning one's temporal framework—independent of mere habitual calendar use—was itself a significant predictor of psychological flourishing, suggesting that the affective and ideological dimensions of calendrical practice carried wellbeing implications beyond the mechanical act of scheduling. The negative Spearman correlations between years of formal education and both calendar adherence (ρ = −.44) and temporal sovereignty (ρ = −.39) reinforced the descriptive pattern observed in Table 1, providing statistically robust evidence that prolonged exposure to Gregorian-organized formal education systems was associated with a moderate but meaningful erosion of both behavioral engagement with and conscious identification with the Ethiopian calendar—a finding of considerable policy relevance for Ethiopian educational authorities seeking to balance global competitiveness with cultural sovereignty.

The one-way ANOVA results confirmed highly significant differences in calendar adherence across the three age cohorts (F(2, 1197) = 84.31, p < .001, η^2 = .12) and in temporal sovereignty (F(2, 1197) = 67.44, p < .001, η^2 = .10), with partial eta-squared values indicating that age cohort alone accounted for approximately 12% and 10% of variance in calendar adherence and temporal sovereignty respectively—a substantial proportion in a multidimensional social phenomenon. Tukey's post-hoc tests revealed that the sharpest divergence in calendar adherence existed between the youngest (18–35) and oldest (56+) cohorts, with a mean difference of −17.3 points and a very large effect size of d = 1.31, confirming that generational change in temporal practice was not merely a statistical artifact but a practically significant sociocultural shift. The independent samples t-test comparing urban and rural participants produced the largest effect size in the entire bivariate battery (d = 1.24), establishing rural-urban residence as the single strongest binary predictor of calendar adherence in the study, while the chi-square analysis confirmed a strong and significant association between observance level and residence (χ^2(1) = 143.7, p < .001, V = .35). Taken together, these findings established a coherent empirical picture in which age, rurality, and limited formal schooling converged as protective factors for temporal sovereignty, while urbanization, youth, and Gregorian-centric education constituted the primary structural forces through which the Ethiopian calendar's hold on daily life was being systematically attenuated.

Table 3: Longitudinal Analysis — Latent Growth Curve Model Parameters and Multilevel Regression Predicting Wellbeing from Calendar Adherence Over Time

Model Component	Parameter	Estimate	SE	95% CI	*p*-value
LGC Model — Calendar Adherence Trajectories					
Fixed Effect: Intercept (baseline adherence)	All cohorts	78.31	1.14	[76.07, 80.55]	<.001
Fixed Effect: Linear Slope (change per 5-yr interval)	All cohorts	−3.42	0.38	[−4.17, −2.67]	<.001
Fixed Effect: Slope — 18–35 cohort	Youngest	−6.87	0.61	[−8.07, −5.67]	<.001
Fixed Effect: Slope — 36–55 cohort	Middle	−2.91	0.44	[−3.77, −2.05]	<.001
Fixed Effect: Slope — 56+ cohort	Oldest	−0.74	0.29	[−1.31, −0.17]	.011
Random Effect: Variance in Intercept	Individual	48.63	5.21	—	<.001
Random Effect: Variance in Slope	Individual	3.17	0.42	—	<.001
Model Fit: CFI	—	0.96	—	—	—
Model Fit: RMSEA	—	0.048	—	[0.039, 0.057]	—
Multilevel Regression — Wellbeing Outcome					
Level 1 (Individual): Calendar Adherence	β	0.43	0.04	[0.35, 0.51]	<.001
Level 1 (Individual): Temporal Sovereignty Index	β	0.31	0.05	[0.21, 0.41]	<.001
Level 1 (Individual): Years of Education	β	−0.18	0.04	[−0.26, −0.10]	<.001
Level 1 (Individual): Age	β	0.22	0.03	[0.16, 0.28]	<.001
Level 2 (Community): Rural Site Indicator	β	4.71	0.89	[2.97, 6.45]	<.001
Level 2 (Community): Community Cohesion	β	0.37	0.08	[0.21, 0.53]	<.001
ICC (Intraclass Correlation Coefficient)	—	.19	—	—	—
Variance Explained — Level 1 (R^2)	—	.41	—	—	—
Variance Explained — Level 2 (R^2)	—	.34	—	—	—

The latent growth curve model results presented in Table 3 offered the most analytically consequential findings of the study, revealing a statistically significant and practically meaningful decline in calendar adherence across the entire sample over time, with a population-level fixed slope estimate of −3.42 per five-year interval (SE = 0.38, p < .001, 95% CI [−4.17, −2.67]), meaning that on average, calendar adherence scores decreased by approximately 3.4 scale points every five years when assessed retrospectively across the three time intervals. However, this aggregate trajectory concealed profoundly important cohort-level heterogeneity: the youngest cohort (18–35) exhibited a decline slope nearly nine times steeper (β = −6.87, p < .001) than that of the oldest cohort (56+,

$\beta = -0.74$, $p = .011$), demonstrating that the erosion of temporal sovereignty was heavily concentrated among younger Ethiopians and was advancing at a rate that, if continued, would produce statistically projected adherence scores for this cohort comparable to low-adherence urban averages within two to three generational cycles. The high intercept variance (48.63) and slope variance (3.17) in the random effects confirmed that individual-level trajectories differed substantially around these population means, and the excellent model fit indices (CFI = 0.96; RMSEA = 0.048) affirmed that the latent growth curve specification adequately captured the temporal structure of the data without model misspecification.

The multilevel regression model decomposed the wellbeing outcome across both individual and community levels with considerable explanatory power, accounting for 41% of individual-level variance ($R^2 = .41$) and 34% of community-level variance ($R^2 = .34$). At the individual level, calendar adherence emerged as the strongest predictor of WHO-5 wellbeing ($\beta = 0.43$, $p < .001$), followed by the Temporal Sovereignty Index ($\beta = 0.31$, $p < .001$), confirming that both the behavioral practice of and the conscious ideological identification with the Ethiopian calendar independently and significantly contributed to psychological wellbeing over and above demographic controls. The negative coefficient for years of formal education ($\beta = -0.18$, $p < .001$) persisted as a significant suppressor of wellbeing at the individual level even after controlling for calendar adherence and temporal sovereignty, suggesting that its effect was not fully mediated through reduced calendrical engagement but also carried direct wellbeing implications—possibly through the internalization of epistemological frameworks that devalue indigenous knowledge systems. At the community level, the rural site indicator was the strongest predictor ($\beta = 4.71$, $p < .001$), and the intraclass correlation coefficient (ICC = .19) revealed that 19% of the total variance in wellbeing outcomes was attributable to community-level factors rather than individual characteristics—a proportion large enough to confirm that temporal sovereignty was not only a personal psychological resource but a genuinely collective, community-embedded phenomenon whose protective effects operated at the level of shared social practice and cultural environment.

Conclusion

This study provided comprehensive empirical evidence that the Ethiopian calendar constitutes a living and consequential form of temporal sovereignty whose systematic practice was significantly and positively associated with individual wellbeing, social cohesion, and cultural identity among Ethiopian populations across diverse geographic and demographic contexts. The findings demonstrated that calendar adherence and conscious identification with the Ethiopian temporal framework were not passive cultural inheritances but active epistemic resources that individuals and communities mobilized in ways that measurably enhanced psychological flourishing and social solidarity, thereby substantiating the study's central theoretical proposition that the Ethiopian calendar functions as a counter-narrative to Gregorian global chronometry rather than merely a parallel administrative convenience. However, the longitudinal analyses sounded a sobering cautionary note: a statistically significant and practically substantial erosion of calendar adherence was underway across the population, concentrated most acutely among the youngest generation and in urban settings, driven by the compounding forces of formal Gregorian-centric education, digital platform integration, and urbanization—forces whose trajectories, if uninterrupted, portend a gradual but structurally deep attenuation of Ethiopia's most distinctive epistemic inheritance, with consequences not only for cultural identity but for the community wellbeing and social cohesion that were shown to be empirically anchored in its practice.

Recommendations

Integration of the Ethiopian Calendar into National Educational Curricula. Given the statistically significant negative relationship between years of formal education and both calendar adherence and temporal sovereignty, the Ethiopian Ministry of Education should develop and mandate age-appropriate, academically rigorous modules on the Ethiopian calendar's history, computational logic, and cultural significance across primary and secondary schooling levels, ensuring that formal education functions as a site of temporal sovereignty reinforcement rather than its erosion.

Digital Localization and Temporal Sovereignty in Technology Policy. In light of the longitudinal findings demonstrating accelerated calendar adherence decline among the youngest, most digitally integrated cohort, the Ethiopian government and technology regulatory bodies should institute policies requiring all domestically operating digital platforms—including social media, banking applications, and public service portals—to offer full Ethiopian calendar functionality as a default or equal-status option alongside the Gregorian system, thereby embedding temporal sovereignty into the architecture of everyday digital life.

Community-Level Cultural Preservation Programs Anchored in Rural Best Practices. Given that community-level factors accounted for 19% of wellbeing variance and that rural communities demonstrated significantly higher and more uniform calendar adherence with correspondingly stronger wellbeing and social cohesion outcomes, national and regional cultural authorities should design community-based temporal sovereignty programs that document, institutionalize, and disseminate rural calendrical practices—including agricultural, liturgical, and civic ritual cycles—as transferable models for urban communities experiencing accelerated calendrical disengagement.

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