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From conflict to cohesion: the role of sports in transforming perceptions of cattle keepers in South Sudan

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We investigate how a sports event has shifted inter-ethnic relations and attitudes towards cattle keepers in post-conflict South Sudan. The country has faced post-independence ethnic tensions caused by political and resource-based frictions. The National Unity Day (NUD), a sports event inaugurated in 2016, was organised to promote peace and unity through sharing moments with young athletes from different backgrounds. Drawing on interviews and survey data from the NUD 5 and NUD 6 events, the article considers stereotypes of pastoralist wrestlers and how these stereotypes have changed among participants of NUD. The results indicate that large-scale sports are a vital space to challenge disinformation and further understanding and trust among long-separated ethnic groups. Statistical examination also shows apparent differences in social interaction, trust, and community values between wrestling and other sports members, and sport performs the function of connecting separated layers of society of the nation. While sports events such as NUD have been successful in peacebuilding, this study acknowledges the methodological limitations and calls for further studies to enhance our understanding of sport as a medium for social cohesion in South Sudan's intricate socio-political environment. The findings suggest that government-sponsored culturally specific sporting initiatives can contribute to conflict transformation by fostering dialogue, empathy building and cooperation toward a more united South Sudan.

KEYWORDS

social cohesion, cattle keeper, inter-ethnic understanding, peacebuilding, sport for development and peace

Introduction

South Sudan seceded from Sudan on 9 July 2011, but civil wars broke out in December 2013 and July 2016. These wars came as a result of the rivalry between presidential candidates and led to confrontations between the central government and anti-regime groups that then escalated into "ethnic" conflict. In the past, rival ethnic groups have fought over cattle rustling and disputes over water and land use. Land-related problems have been intensified by climate change, resulting in increased disputes between settled

farmers and nomads and consequently increased ethnic tensions and reduced community welfare. Reconciling ethnic grievances and promoting inter-communal understanding and social cohesion are imperatives to rebuilding the nation.

Against this, the National Unity Day (NUD) Sports Event was launched in January 2016 to promote peace and unity. NUD included men's football and athletics for men and women, with under age of 20 athletes from all regions arriving in Juba for a 9-day series of competitions and workshops themed around peace and unity. NUD has been held every year since its first introduction, and women's volleyball was incorporated into the third edition, while men's wrestling was included in the fifth edition. The 2021 edition was reduced due to the COVID-19 pandemic; the sixth edition was in Juba as before. After the fifth edition, wrestling was dropped from the competition. However, NUD remains an important avenue for peace and unity.

This article focuses on the portrayal of the nomads in South Sudan and on how the encounters between wrestlers and other athletes on correlative understanding and conflict perceptions. A nationwide survey would have been ideal; however, insecurity and official travel restrictions made fieldwork beyond Juba infeasible. As such, interviews were conducted with athletes during NUD5 and prior to choosing NUD6 in cooperation with Ministry of Culture, Youth and Sports (MOCYS) and Japan International Cooperation Agency (JICA), first to understand stereotypes about pastoralism and then to understand how these stereotypes had transformed during NUD. We considered all wrestlers as proxies for pastoralists and other male athletes as proxies for the general population in the study.

This article will explore South Sudan's socio-political context, the role of sports and intergroup contact in fostering social cohesion, and research methodology. It will then examine athletes' perceptions and attitudes through mixed methods, culminating in policy recommendations and limitations.

South Sudan's socio-political landscape

Crisis in the world's youngest nation, South Sudan, a country with a population of over 12 million people, is made up of 64 ethnic groups and has continued to face trouble since separating from Sudan in 2011. The country's first civil war broke out in December 2013, just two and a half years after it gained independence, and while a peace deal was agreed, fighting resumed in July 2016. These resumed hostilities were primarily motivated by political intra-fighting between President Kiir (a Dinka) and Vice President Machar (a Nuer) and their loyalists. This persistent violence has resulted in a highly precarious relationship between different ethnic communities and has had a profound impact on the social and political structure of the country (Kuol, 2020; Edward, 2016; Modi et al., 2019).

Beneath the cycle of violence rest ethnic animosities, which are in many cases stoked and exploited by political brokers in order to recruit youth along political lines, that culminated in violent behaviour centred around competition and revenge (Hutchinson and Pendle, 2015; Edward, 2016; Pendle, 2017). Although peacebuilding efforts, mainly based on liberal peace theories advocated by the international community and national elites, have attempted to promote reconciliation, there has been much frustration among major aid donors as a result of the recurring internal conflicts, which has subsequently generated alternative approaches that work outside formal government mechanisms (Furukawa and Deng, 2024). These non-participatory processes, cut off from the realities on the ground, have brought little long-term benefits to the people. Additionally, climate change has exacerbated existing conflicts among pastoralists arising due to shrinking resources and resources-based conflict related to pasture and water (see also Tiitmamer et al., 2018).

Secondly, the build-up of tensions and the intricate web of inter-ethnic dynamic factors stand in the way of peace and nation-building. It is crucial to rebuild lost confidence, especially within a security framework prohibiting regional exchanges and contacts. Creating tools to promote mutual understanding between ethnically different communities and facilitate the pastoralists' perspective is needed to address the root causes of the conflict and the development of social cohesion. Reducing psychological divides between people and social distances so that suspicion turns into cooperation becomes crucial for rebuilding social cohesion and underpinning sustainable development.

Social cohesion, social capital and unity action

In fragile nations such as South Sudan, ethnic rivalries obstruct development, stability and personal freedom. The intensity of social relationships through networks, shared values, trust, and attitudes develops a community of belonging through which conflict resolution and cooperation are cultivated (Markus and Kirpichenko, 2007). On the other hand, a low level of social integration may also result in social turmoil, moral degeneration, an increase in disparity, and poor community relations (Forrest and Kearns, 2001). In this context, social cohesion is considered a multi-faceted concept integrated with group trust, and ethnic diversity and income differences are frequently used as indicators of social cohesion levels (Easterly et al., 2006). There is also evidence that high levels of social cohesion promote economic growth to mitigate the underlying causes of conflict, including horizontal inequalities (Stewart, 2008). Therefore, social cohesion is crucial to developing a diverse, sustainable society.

At the centre of social cohesion is the notion of social capital — the ties, norms, and trust conducive to cooperation within and among social groups (Putnam, 1993; Putnam, 1995; Putnam, 2000). South Sudan, where inter-tribal confidence has been eroded by years of war, is a case in point: In such places, the value of social capital is generally more evident. Putnam differentiates between bonding social capital—tight-knit connections with members of your group or community—and bridging social capital that forges links between different groups (Putnam, 2000). This framework offers a stepping stone to better understanding South Sudan's complex social order. Woolcock (1998) also stresses "linking" as in linking social capital, which refers to the connections between people and formal institutions, with good governance recognised as important for social inclusion.

However, social capital-building must be handled carefully, as there is a "dark side"— bonding social capital may lead to exclusion and prejudice in that it can strengthen in-group loyalty and identification to the detriment of those not in the in-group (Portes and Landolt, 2000). Bourdieu (1986) provides a nuanced view, pointing out that gathering social capital might take place unequally in relation to human and symbolic capital at people's disposal in varied social settings.

Finally, social capital promotes citizen interaction and reinforces community camaraderie, encouraging social control, poverty reduction, and collective responsibility (Khan and Muir, 2006; Chalip, 2006). Building social capital and unity is also of utmost importance in the case of South Sudan in terms of bridging gaps and integrating different ethnic groups through dialogue and communal experience. It is necessary to strengthen these social bonds to avoid social fragmentation, deepen mutual understanding and establish the basis for peace and order over the long term. The challenges of ethnic tensions call for collective action to build trust, reduce disparities, and ensure inclusive participation in social and political life. These representations are important for maintaining resilient social networks, which can survive renewed conflict and underpin sustainable nation-building.

In a nutshell, building social cohesion and social capital is vital in securing South Sudan's fragile political environment and instrumental in promoting development. Programmes that enhance dialogue, mutual understanding, and shared experience between ethnic groups could foster trust and underpin a harmonious and peaceful society. In the nation's reconciliation trajectory, rebuilding the social fabric based upon trust, collaboration, and solidarity is essential to turning the country's divisions into a bonded and durable society.

Sport, intergroup contact, and social cohesion in post-conflict South Sudan

Historically, sport has been embraced as a "soft" tool for social solidarity and coherence in segregated societies. In the 21st

century, there is a growing global concern about the use of sports as strategies for the resolution of global social problems, hence its incorporation into the United Nations (UN) Millennium Development Goals (MDGs) as a dimension of Sport for development and peace (SDP) (Kidd, 2008). However, the move from sport for development to sport for peace has not been smooth; there have been major difficulties in implementing peace-focused sports activities well (Schulenkorf and Sugden, 2016). However, participatory interventions like "Football for Peace" in Israel—which brings together Jewish, Arab, and Circassian communities around the game of football (Kartakoullis et al., 2016)—and the "Doves Olympic Movement" for Greek and Turkish children in Cyprus intent on fostering Greek and Turkish children's trust playing complementary sports to the Olympic (Schulenkorf and Sugden, 2016; Woodhouse, 2019) offer perspectives on how sport can serve as a vehicle for empowerment, reconciliation and social development. These cases are especially pertinent to South Sudan, which is both ethnically divided and in which national institutions, including the NUD, try to use sport to build trust among the youth.

Whereas these efforts have focused on particular mechanisms, the intergroup contact hypothesis (Allport, 1954) highlights the conditions under which members of conflicting groups interact positively with one another, thereby presenting a peacebuilding resource that complements such bids. Evidence of this process comes from settings such as South Africa, Northern Ireland, and ethnically mixed UK communities, demonstrating that positive intergroup contact can reduce prejudice, anxiety, and perceived threats and promote social integration (Pettigrew and Tropp, 2008). However, the role of sport as a medium of contact is virtually ignored. It is underappreciated just how much is being done in sports for development environments to promote intergroup relations, and contact theory is underused. Examples, such as Papua New Guinea's League Bilong Laif, illustrate how sport, if infused with cultural and recreational elements that encourage intergroup contact, has the ability to reconnect communities and foster dialogue and understanding in post-conflict contexts.

There is also a need for additional investigation of contact, emphasising distinctions between paths to and mediators of intergroup anxiety and empathy, as friendship and positive interracial/interreligious associations play critical roles as mediating factors in reconciliation. In South Sudan, a country with years of ethnic conflict and social cleavages, avenues of interaction through sport, similar to those at NUD, can play a vital role in bridging prejudices between groups, enabling direct communication, and enhancing social networks. These sports meetings represent a methodological answer based on the contact hypothesis and provide the possibility of an effective and habitual channel of communication and conflict resolution between the ethnic groups.

Exploring the various themes in South Sudan's socio-political dynamics, from ethnicity and cultural endurance to climate

effects, also unveils the complicated manner in which sport could intersect with issues of social cohesion. The perspectives of athletes such as wrestlers, pastoralists, and other competitors discussed here are likely diverse based on social roles, education, and cultural variation. For instance, many wrestlers lean towards conservative roles and tend to intermarry along ethnic lines, which may change attitudes vis-à-vis those of other athletes with different social statuses or educational compositions. In times like NUD, when athletes are in contact, relations between athletes may also affect perceptions of the other, and it is important to investigate how these perceptions change through contact to offer a deeper understanding of these social cohesion and reconciliation processes more generally in South Sudan.

This interaction analysis provides insight into how perceptions of group relations and stereotypes may shift as participants develop intergroup friendships during sporting competitions. From an empirical standpoint, participation in activities such as wrestling encourages mutual understanding and reduces stereotypes, as well as transformative dynamics conducive to trust and communal harmony. For example, athletes have described shared experiences, friendships and common “we” identities that span tribal boundaries. Such encounters illustrate the possibilities of sport as a space of competition and a tool for social change.

Overall, combining sport-based interventions and focused intergroup contact approaches offers healing and social unification potential in post-conflict South Sudan. These programs need to be culturally informed and open, with characteristics that facilitate positive interactions that counteract negative images and create lasting social bridges. These actions may have broader societal implications beyond individual perceptions, thus positioning sports as an important peacebuilding tool in South Sudan’s protracted internal challenges.

Building on this conceptual foundation, it is essential to consider how sport has been practically implemented through the NUD programme in South Sudan and what empirical findings previous studies have revealed.

Previous research on South Sudan’s NUD has examined how social capital—such as social networks and mutual trust—is fostered when young people from diverse ethnic groups across the nation participate in NUD. For instance, Furukawa (2023) demonstrated that NUD5, held amid unstable security conditions, created safe spaces for peaceful coexistence through inter-ethnic interaction. Furthermore, Furukawa (2024) analysed how NUD6 contributed to fostering trust and mitigating perceptions of conflict by employing both quantitative and qualitative approaches. Subsequently, Furukawa (2025) examined the impact of this national sporting event on the citizens of Juba, its host city, offering an urban perspective on peacebuilding initiatives. However, previous research has not sufficiently analysed these perspectives, despite the fact that wrestlers participating in NUD were cattle herders, and wrestlers are often viewed as symbolic figures within

pastoralist communities. Cattle herders have significantly influenced the conflict dynamics in South Sudan and are often perceived critically by the broader public. This paper therefore focuses on aspects not addressed by existing research: how non-wrestler athletes perceive wrestlers—who are cattle herders—and how these perceptions evolve through the NUD experience.

This study deepens the understanding of these dynamics by extending previous analyses and incorporating new qualitative testimonies that were not used in prior NUD research. Furthermore, while earlier studies employed Difference-in-Differences (DiD) analyses to examine trust-building effects, the present paper adopts a complementary approach using Welch’s t-tests to test new hypotheses concerning perceptual and social interactional changes toward wrestlers. This analytical shift broadens the methodological scope of NUD research and contributes to both the SDP literature and pastoralist studies. By linking changes in perceptions of cattle herders with inter-ethnic relations through both quantitative and qualitative evidence—focusing on wrestlers as symbolic pastoralist figures—this study fills a significant gap left by previous NUD research.

Materials and methods

In order to explore residents’ perceptions of cattle keepers, FGDs and KIIs were carried out in all 10 states of South Sudan among male and female athletes who met the NUD6 eligibility criteria. Because of the limitations of field research outside of Juba, the author developed questionnaires and had local consultants obtain data via JICA. Each state had one supervisor and six investigators in each team collecting the data. The data were collected in two periods: from March 5 to March 18 and from May 9 to May 21, 2022, predominantly in the state capitals to facilitate logistics. One hundred and forty responses were collected using simple random sampling. Each FGD lasted approximately 90 min, while each KII took about 45–60 min, depending on the participant’s availability and level of engagement. All interviews were conducted in English, Juba Arabic, or local languages with the support of trained translators. Detailed field notes were taken, and all discussions were audio-recorded with informed consent.

The qualitative data were transcribed verbatim and analysed using thematic content analysis, which involved open coding, categorization, and theme development. The validity of findings was reinforced through data triangulation between interview data and quantitative survey results. Compared with previous NUD studies (Furukawa, 2023; 2024), which primarily examined how participation enhanced social capital and inter-ethnic trust, the present study introduces a distinct analytical focus: it explores how athletes from non-wrestling disciplines perceived wrestlers (as proxies for pastoralist youth) and how these perceptions evolved through intergroup contact during NUD events.

Moreover, while prior analyses employed DiD techniques to assess trust-building effects, the present study draws conceptually on that framework but applies Welch's t-tests to examine attitude transformation and perceptual distance. This design offers a refined interpretation of contact theory within a post-conflict sport setting.

A survey was also carried out on 368 individuals from the 10 states and two administrative areas involved in NUD5 to ascertain the differences in perceptions between the wrestler (representative of cattle herders) and the athlete (representative of the public). Finally, 354 respondents completed semi-structured interviews due to logistical reasons. The questionnaire contained an introductory page, items which assessed: personal indicators (gender, age, level of education, ethnicity), conflict experiences, experiences at NUD, attitudes towards sports, and conflict-related factors regarding social capital.

The questioning was designed to elicit responses primarily coded with binary values "yes" or "no" and a five-ranked Likert scale (strongly agree, agree, neutral, disagree, and strongly disagree) in order to determine the extent of agreement, except for questions about age and education where "open" coding was used. For the Likert scale questions, positive statements were scored as follows: strongly agree = 1, agree = 0.5, neutral = 0, disagree = -0.5, and strongly disagree = -1. Questions that negatively scored phrased questions were reverse-coded: strongly agree = -1, agree = -0.5, neutral = 0, disagree = 0.5, strongly disagree = 1. This yielded scores from -1 to 1, and all scores of 0 or greater reflected positive agreement.

Quantitative data were analysed using Welch's t-tests to address unequal variances and unbalanced group sizes across sports disciplines. Variables were coded according to Likert-scale responses, ranging from 0 (strongly disagree) to 1 (strongly agree). Missing data were handled using pairwise deletion, and all tests were two-tailed. Qualitative transcripts from FGDs and KIIs were analysed using thematic content analysis. Two independent coders developed initial codes, compared interpretations, and reached consensus on emerging themes. Inter-coder reliability was confirmed through repeated discussion and triangulation with quantitative findings.

In addition to these data-collection activities, further FGDs and KIIs were conducted with athletes and coaches to undertake a qualitative study. Issues examined included athlete relationships, NUD experiences, and sports involvement.

Results

Perceptions of cattle keepers

First, let us establish the perception of cattle herders in South Sudan. This perception is multidimensional and involves cultural, economic, and social aspects. The FGDs and KIIs

included in this paper narrate this complex perception, anchored in the lived experience and historical context.

Many respondents express a sentiment that cattle keepers value their livestock more than individuals. A male participant stated, "I think these people... take the animal as important than the person" (FGD, Central Equatoria, Juba, Football, Male). A female athlete also said, "Cattle keepers are actually human beings like us but they take cattle more important than human beings" (FGD, Eastern Equatoria, Torit, Volleyball, Female). Furthermore, a male footballer described, "When one cow gets lost, they can cry and even make a funeral, but if it is a person, they will just go and throw you away" (FGD, Central Equatoria, Juba, Football, Male). Such sentiments contribute to broader societal alienation.

Cattle herders are often seen as a fomenter of violence, and respondents attempted to paint the group as "killers" and "warmongers" who caused the killing of thousands of people through cattle raiding and stealing. One respondent remarked, "Cattle keepers do sometimes attack other cattle keepers just to raid them due to greediness" (FGD, Unity State Bentiu, Volleyball, Female), while another emphasised, "For them, they are not good people; they fight and cause most of the fight between the communities" (FGD, Jonglei/Bor Town, Football, Male). Some claim this is provoking instability and retaliation among rival factions. One respondent reflected, "Cattle keepers are warmongers known for rampant killing, cattle raiding, and destruction of property" (FGD, Lakes/Rumbek Town, Football, Male). This general view might neglect some subtle differences in the actual experiences in these pastoralist societies.

Not all people perceive the cattle keepers so negatively, and some feel that the cattle keepers are misunderstood. A participant said, "They are not that bad, just that people misperceive them" (KII, Jonglei/Bor Town, Volleyball, Female). One participant also stated, "To me, they are good, though most people have made bad perceptions about them" (KII, Jonglei/Bor Town, Football, Male). These admissions pave the way for beneficial discussion and encourage awareness to be converted into understanding, which then is transmuted into reconciliation.

In terms of economics, many respondents recognise that herders bring economic benefits to their local community. For example, they provide precious commodities such as meat, milk, and conventional crafts necessary to uphold local economies and customs. "Cattle keepers are our brothers because they are taking good care of our cattle" (FGD, Lakes/Rumbek Town, Football, Male). This means that they are part of the community. Furthermore, "Cattle keepers provide us with meat and milk" (FGD, WES - Yambio - Yambio Town, Football, Male). This statement shows the nuance they have had very well.

However, viewed against much more widely reported tensions between pastoralists and crop farmers, they reveal national rifts. Another participant said, "In the rainy season, when people are farming, they do bring their cows into the

TABLE 1 Demographic characteristics of NUD5 athletes.

Variable	Category	Frequency (n)	Percentage (%)
Total participants		354	100
Gender	Male	248	70.1
	Female	106	29.9
Sport discipline	Football (male)	170	48.0
	Volleyball (female)	66	18.6
	Track & field (male)	45	12.7
	Track & field (female)	40	11.3
	Wrestling (male)	33	9.3
Age range (years)	14–34 (mean = 24)		
Education level	None	31	8.7
	Primary	33	9.3
	Secondary	256	72.3
	University	34	9.6
Religious affiliation	Catholic	225	69.5
	Anglican	53	15.0
	Pentecostal	31	8.8
	Other	12	6.7
Major ethnic groups	Dinka	172	48.6
	Nuer	31	8.7
	Bari	20	5.6
	Others (24 groups)	131	37.0

farms" (FGD, WBG-Wau Municipality-Wau, Football, Male). Cows grazing and farmlands intersect, and with them grows the frustration of farmers whose crops are destroyed, resulting in serious conflicts. "The cattle keepers are supposed to take their cattle to areas where there are no farming activities" (KII, WBG, Wau, Athlete, Male), which can be collaborative.

Additionally, the distance between nomadic people and those who live in the cities is one in which many city dwellers develop their narrative of what it is to be a pastoralist without ever living among them. A participant shared, "I do not have anything to talk about because I don't have much information about them" (KII, Jonglei/Bor Town, Football, Male), reflecting a lack of engagement with cattle keepers.

In the end, the portrayal of pastoralists in South Sudan is nuanced and ambivalent, ranging between violent stereotypes and acknowledgement of their vital role in the communities. This vivid picture emphasises the necessity of frank discussions to help close some of the divides and to help make society stronger and more cohesive. Acknowledging pastoralism as a cultural identity and developing interventions that can enhance better dynamics

between pastoralists and cultivators, emphasising strength, avoiding misconceptions and promoting meaningful discourse to collaborate and respect one another.

One participant eloquently noted, "If they are shown the way of peace, they will be good in the future" (FGD, Warrap State-Kuajok, Football, Male). It is important to acknowledge the cultural value of pastoralism and incorporate interventions that promote empathy, collaboration, and, thus, South Sudan's stability and resilience.

Overview of athletes participating in NUD5

Table 1 summarises the demographic characteristics of the 354 athletes who participated in NUD5.

The participants represented a diverse mix of genders, sports disciplines, and ethnic groups, with footballers and track-and-field athletes forming the majority. About 70% of the athletes were male and 30% female, aged between 14 and 34 years.

TABLE 2 Demographic profile of wrestlers (pastoralist representatives).

Variable	Category	Frequency (n)	Percentage (%)
Total wrestlers		33	100
Age range (years)	14–34 (mean = 18)		
Marital status	Married	12	36.4
	Unmarried	21	63.6
Literacy	Literate	3	9.1
	Illiterate	30	90.9
Region of origin	Greater Jonglei	9	27.3
	Greater Lakes	10	30.3
	Greater Western Equatoria	2	6.1
	Greater central Equatoria	12	36.4
Ethnic composition	Dinka	19	57.6
	Mundari	11	33.3
	Atuot (reel)	2	6.1
	Nyanwara	1	3.0
Religion	Catholic	17	51.5
	Pentecostal	8	24.2
	Anglican	7	21.2
	Other	1	3.0

Respondents were generally more educated than the national average, with an overall literacy rate of 90%. The athletes came from 27 ethnic groups, with the Dinka being the most represented, followed by the Nuer and Bari. Catholicism was the dominant religion, followed by Anglican and Pentecostal denominations.

Table 2 presents the demographic profile of the 33 wrestlers, who are considered representative of pastoralist communities. They were older on average (mean age = 24 years) and showed markedly lower literacy levels compared with other athletes. Most wrestlers originated from Greater Jonglei, Greater Lakes, and Greater Central Equatoria, and were predominantly Dinka and Mundari by ethnicity.

Because of South Sudan's patriarchal context, wrestlers were compared with male athletes from other sports to identify distinguishing social and perceptual characteristics.

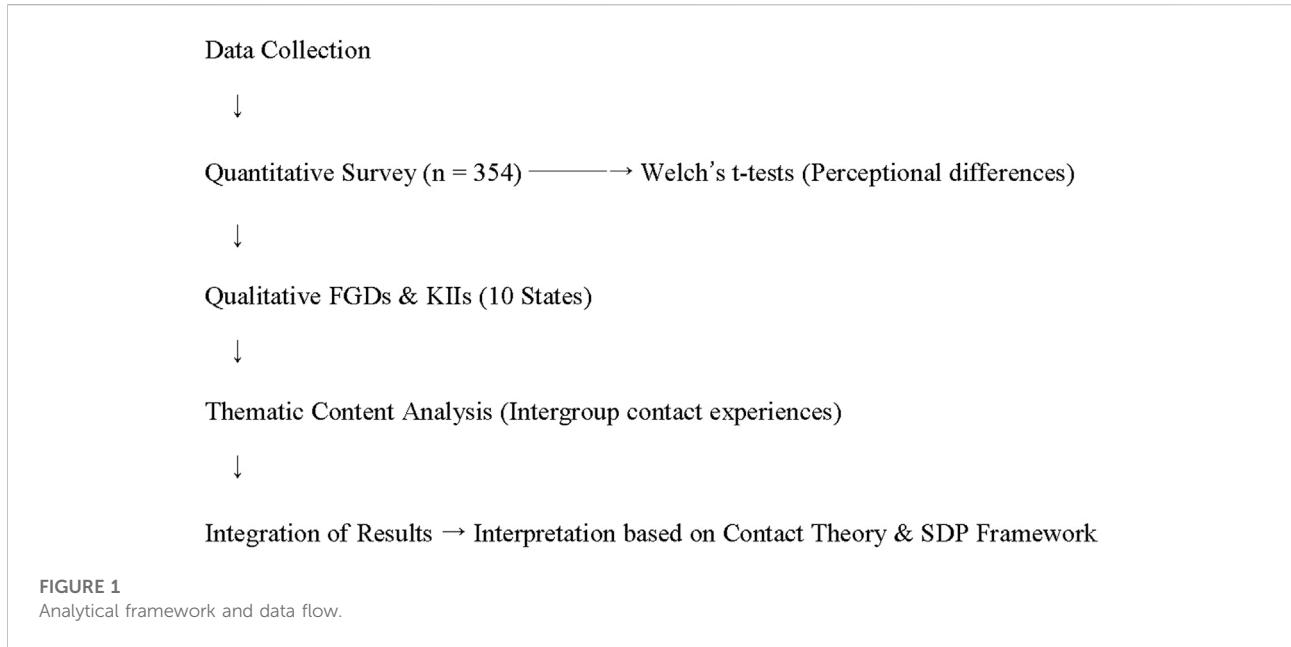
To clarify how quantitative and qualitative components were linked throughout the study, Figure 1 illustrates the analytical process from data collection to the integration of results. This schematic shows how both datasets were connected and interpreted within the theoretical framework of Contact Theory and the Sport for Development and Peace (SDP) perspective.

Figure 1 illustrates the mixed-methods analytical flow linking quantitative and qualitative data to interpret perceptual change through sport-based contact.

Perceptions of wrestlers and other male athletes: attributes and tendencies

This paper aims to investigate how others perceive pastoralists amid rising inter-ethnic tensions associated with domestic conflicts, such as livestock raiding and power struggles, and how these perceptions change from an outsider's viewpoint. To do this, we aim to understand the extent to which athletes wish to interact with others, whether wrestlers and other male athletes differ in tendencies to form friendships, and how athletes perceive challenges and trust in their relationships with surrounding actors as well as differences in conflict perception among these actors to create a reference point for comparison.

Initially, we asked athletes an either/or question to measure their preference for interaction: "Do you want or don't want to interact with people from other regions?" Secondly, during the NUD5 period, we used a Likert scale to ask, "What characteristics did the friends you made have?" to evaluate friendship-forming tendencies. This considers gender matches and mismatches, tribal or ethnic designations, linguistic commonalities, and religious beliefs. In addition, to identify the primary challenges athletes experience daily, "yes" or "no" questions targeted issues related to life opportunities in their regions, such as anxiety, lack of employment, gender or age

**FIGURE 1**

Analytical framework and data flow.

discrimination, nepotism, or lack of capital. These questions help reveal the concerns that resonate with most athletes and explain why these differences exist in building connections and trust.

Moreover, we conducted a survey using a Likert scale to assess the degree of trust athletes have in various social entities, including family, community members from different ethnic groups, same clans, other ethnic groups, and political levels such as local and central governments. Questions were also included to uncover perceived causes of conflict, like corruption, unequal order, and external influence. These questions focused on perceptions of conflicts with family, clans, different ethnicities, local government, and central government. Using this data, we compared the perceptions of wrestlers with those of other male athletes. As for the analysis, we used Welch's t-test to see if the two groups had statistically meaningful differences in perception. This methodological approach aims to enhance our understanding of intergroup relations following changes that NUD has brought along, supplementing quantitative analysis with qualitative findings that might otherwise be unreachable.

Statistical analysis of social relations between wrestlers and male athletes

The statistical analysis used Welch's t-tests to address unequal variances and group sizes. The significance level was set at $p < 0.1$, following precedents in small-sample field studies from conflict-affected contexts (e.g., Furukawa, 2024; Schulenkorf and Sugden, 2016), where high data heterogeneity requires a more flexible threshold to capture meaningful

attitudinal trends. Table 3 presents the results of Welch's t-test, which identified significant differences. Regarding other variables not in the table, the two groups had no apparent discrepancies in perception.

The dummy variable for wrestlers allowed for comparing wrestlers with other athletes as a consequence of the variance analysis. A gender dummy variable was also inserted to limit the data to male athletes. Welch's t-test examined the average differences between the two groups to determine if they were statistically significant. Specifically, the following hypotheses were tested for comparison with Welch's t-test:

- Null Hypothesis (H0): There is no significant difference in the mean scores of male wrestlers and the other male athletes.
- Alternate Hypothesis (H1): The mean scores for male wrestlers differ significantly from those of other male athletes.

The p-value was compared with a pre-specified significance level (0.1) to determine whether to reject the null hypothesis. If the p-value was smaller than the significance level, the null hypothesis would be rejected, and there would be evidence of a statistical difference between the two groups. For the "interaction demand" variable, Welch's t-test showed that wrestlers reported lower mean scores than other male athletes (0.742 vs. 0.874; $t = 2.207$, $df = 43.49$, $p = 0.008$), indicating a statistically significant difference. Specifically, wrestlers reported lower interaction demand than other male athletes (0.742 vs. 0.874; see Table 3). The t-statistic for this comparison was 2.207 [43.49 degrees of freedom (df)], and the p-value was

TABLE 3 Comparison of variance among wrestlers and athletes of other sports where males are involved.

Variable	Observations (N)	Other male athletes Mean	Wrestlers Mean	t-statistic	Degrees of Freedom	p-value	Mean Difference	95% Conf. Interval
Interaction demand	248	0.874	0.742	2.765	43.49	0.008	0.1320	(0.035736, 0.2282527)
Same Gender Interactions	248	0.633	0.818	-2.451	48.31	0.018	-0.1856	(-0.3378621, -0.0333853)
Same Tribe Interactions	248	0.302	0.606	-3.305	40.91	0.002	-0.3037	(-0.4893547, -0.1181154)
Same Language Interactions	248	0.340	0.636	-3.262	41.81	0.002	-0.2968	(-0.4804795, -0.113178)
Same Religion Interactions	248	0.521	0.758	-2.848	46.04	0.007	-0.2366	(-0.4039104, -0.0693807)
Insecurity Perceptions	248	0.805	0.576	2.502	38.4	0.017	0.2289	(0.0437758, 0.4140114)
Lack of employment	248	0.935	0.758	2.285	35.24	0.029	0.1773	(0.0197845, 0.3348314)
Lack of capital	248	0.963	0.788	2.382	34.08	0.023	0.1749	(0.0257229, 0.3241009)
Trust in Family Diff	248	0.614	0.742	-2.433	63.54	0.018	-0.1285	(-0.2339533, -0.0229882)
Trust in Same Clan	248	0.551	0.742	-3.086	55.36	0.003	-0.1913	(-0.3154677, -0.0670552)
trust in central government	248	0.163	0.409	-2.247	48.84	0.029	-0.2463	(-0.4666125, -0.0259879)
Unfairness in same family	248	0.614	0.379	2.224	40.28	0.032	0.2352	(0.0214686, 0.4488627)
Unfairness in different family	248	0.533	0.348	1.797	41.27	0.080	0.1841	(-0.0227506, 0.3908972)
Greed in same family	248	0.740	0.500	2.347	38.64	0.024	0.2395	(0.0330665, 0.4460032)
Greed in Local Government	248	0.681	0.455	2.233	36.67	0.032	0.2268	(0.0209023, 0.4327975)

0.008, indicating strong statistical significance. The mean difference was estimated as 0.1320 (95% CI, 0.035736–0.2282527). It can be inferred from the finding that social contact tendencies were stronger when human contact other than family members was considered, apart from a wrestler, which represents that, other than wrestlers, male athletes were craving for people in different areas, suggesting a characteristic of the high demand for social interaction in comparison to ones demonstrate by wrestlers.

The variables significantly different among wrestlers and non-wrestlers include the demand for interactions and for making friends from the same gender, ethnicity, language, and religion. The average coefficient was greater for other male athletes concerning the interaction demand variable and less for wrestlers. For the coefficient associated with friendships with people of the same sex and ethnicity/language/religion, the

opposite result occurred. Also, other generic issues (anxiety, unemployment, and lack of capital) were presented for male athletes as much more of a challenge. Finally, in the area of trust in the community and the government authorities, wrestlers showed higher means of trust when compared to other male athletes. Regarding conflict perception, concepts like “unfairness” and “greed” were identified as causes of disputes involving the same or different family configurations within the community or local government. However, other male athletes had significantly higher averages on these variables.

Results indicate that wrestlers—who often represent pastoralist communities—showed lower interaction scores with individuals from other ethnic groups. During NUD, wrestlers tended to bond more closely with those sharing the same tribe, language, and religion compared with other male athletes. This suggests that athletes from pastoralist backgrounds

were generally less inclined to interact beyond familiar ethnic or linguistic groups. Due to the difficulties pastoralists face in making a living, substantial negative statistical differences were found for anxiety, unemployment, and financial deficiency; these concerns have been more significant problems for other male athletes than for the pastoralists. As a result, since the existence of pastoralists is based on livestock production, their financial situation is estimated to be more stable than that of other athletes. Further, significant differences in trust were found, with pastoralists having more trust in other families in the community and the central government than male athletes.

When the results were combined, there were no statistically significant differences other than those listed above. However, the difference is that pastoralist communities have a higher relationship with the community. Pastoralists were found to trust government agencies more when using statistical analysis. There was no significant difference concerning mistrust between pastoralists and other male athletes. However, the latter were more likely than the former to perceive unfairness and greed as the cause of the conflict between the same family and between different families in the community. This difference underscores divergences in the construction of social relations and conflict between pastoralists and non-pastoral male athletes.

Collectively, these findings illustrate the complicated nature of social relations, trust and assumed conflict in the domains of interethnic relations and ways of making a living among wrestlers and other male athletes. Differences found with communication needs, trust in the community, and responses to livelihood changes suggest nuanced differences in perceptions among these groups. This analysis helps us understand how identity and socioeconomic status shape interpersonal and public life (interactions) at the local level in South Sudan. Therefore, it may be helpful in dialogue initiatives working to improve coordination between different communities. Indeed, tackling specific challenges met by different ethnic groups may highlight the necessity for targeted interventions to promote cross-ethnic relationships and trust-building activities.

While these statistical results reveal important patterns of social difference, they do not fully capture the processes through which athletes' perceptions actually changed during the NUD experience. To address this, the following section integrates the quantitative findings with qualitative insights. Integrating the quantitative and qualitative findings provides a more comprehensive understanding of how athletes' perceptions evolved through the NUD experience. Lower interaction and empathy scores among wrestlers in the quantitative results correspond with interview narratives describing initial social distance and limited intergroup contact. However, the qualitative testimonies reveal that shared accommodations,

meals, and competitions gradually fostered trust and empathy between wrestlers and athletes from other disciplines. This convergence of evidence demonstrates that both data strands support the same conclusion: intergroup contact during NUD fostered attitudinal transformation and strengthened mutual understanding across ethnic lines.

Shift in perceptions through contact

Intergroup contacts through NUD5 reveal the profound transformations among the participating athletes. Crucially, the interactions between the wrestlers and male athletes show how these interactions can break down long-held fears and distrust, which can be a cause of South Sudan's tribal conflicts.

A wrestler from Jonglei described this new dynamic: "We have never slept with Mundari in one place, but today we slept (sleep) in one place for the first (time)" (KII, Athlete, Wrestling, Male, Jonglei). This statement reflects a newfound intimacy, not only of bodies but of deeper understanding. These moments of collective identity are critical when the weight of history and tribal memory can obscure what is shared. The wrestler went on to reflect on how good relations between different ethnic groups have positively affected him: "I talk with people from Yirol, I interact with Mundari, and I interact with people from [inaudible] state and chat together and eat together." His words imply that wrestling is more than a sport; it serves as a medium for education, mutual understanding, and fostering a sense of national identity. He also said that "peaceful coexistence among people is important and precious and expensive thing." This expression highlights a growing awareness of the importance of living together and moving beyond historical animosities. In the above, the wrestler symbolises the capacity for sports to reshape personal perceptions and collective narratives about identity and unity.

Building on this, a wrestler from Terekeka observed that NUD has an integrating effect on tribal relations: "we are now coming together, we've been put in one room staying together; Jonglei, Terekeka, Eastern Lakes, so we're actually sharing ideas, we become one youth, one people, in one country; so we love each other so this is why (how) we find it here it is very nice for us" (KII, Athlete, Wrestling, Male, Terekeka). His testimony describes a friendship born out of the common sports challenges. Then, he explained the transition from suspicion-driven isolation to dedication through respect: "If I travel to Jonglei, I can get my brothers here and those who are now staying together we come to share the same peace; that we were here means we are here so we respect ourselves, we join living together, dancing together and so on." In ways that lionise the letting go of stigma and bias, he is unashamed to admit a complex reality: "peace and unity which means we leave whatever we

cannot fight." This statement turns previously divisive conflicts into shared responsibilities and collective duty.

These transformations extend not only to the wrestlers themselves but also influence the perceptions of other male athletes. For instance, a male athlete noted: "For example, these people who are wrestlers, the first few days, if we encountered them on the road, we were scared to approach and interact with them" (FGD, Athletes, Football, Male, Juba). This reflects the tribal differences and divisions between communities in South Sudan. However, as participants from different regions came to take part in NUD5, they started recognising each other as participants. A coach said, "What I have come to realise is that when you bring these youth together, they interact, learn about each other, and try to clear off misconceptions" (FGD, Coach, Volleyball, Male, Juba). This emphasises how such interactions accumulate throughout the event. NUD5 thus becomes more than a competition; it becomes a space for dialogue, communication, and forging friendships.

These young people grasped the cultural significance of wrestling and its ability to unify divided communities. One male athlete said, "I admire the way they wrestle, because it is too much courage. The cultural activities are reminding the people that they should not forget their cultural activities" (KII, Athlete, Football, Male, Rumbek). He pointed out that understanding other cultures helps counter stereotypes and fosters cultural awareness. These moments serve as mutual introductions, leading to meaningful change. A female athlete shared her experience: "I have introduced myself to one that is [Name] from Yambio. The first time I met her, I asked her name and I told her my name and we talked..." (FGD, Athlete, Athletics, Female, Juba). This illustrates how simple gestures can overcome barriers. Similarly, another female athlete expressed: "I love the fact that we have been gathered here because in the past I did not know many people, but I came to know other people..." (FGD, Athlete, Athletics, Female, Juba). This interaction highlights the transformative power of shared experiences in building friendships among athletes.

As these shared experiences foster unity, athletes embraced a collective "we" above tribal loyalties. One athlete stated, "Now we have unification and have understood togetherness. We are now, I feel that I'm really South Sudanese because I get a lot of my brothers and sisters from different places" (KII, Athlete, Football, Male, Rumbek). This marks a significant shift—from rigid tribal identities to a broader sense of national belonging. This transition illustrates that in an environment of heightened sense of ethnic tensions, the diversity of South Sudan can be a source of unity, not division.

By recognising this potential, sports figures emphasise the role of sport in building bridges and promoting pro-social interaction across identities. One coach puts it this way: "What I appreciated about this year's NUD is how freely people interacted and communicated with one another" (KII, Coach, Volleyball, Male, Juba). Such interactions cultivate

warmth, camaraderie, and the possibility that entrenched walls of suspicion may be overcome. Beyond sports, there were many accounts of growing awareness regarding mutual support in intercultural encounters. For instance, another male athlete noted, "We support each other even if we are on different teams. This interaction demonstrates peace" (FGD, Athlete, Athletics, Male, Juba). This highlights an essential truth: peace and brotherhood, rather than rivalry, are necessary to heal and unite a torn nation.

Finally, through emphasising the friendships created across ethnicities, the event fosters long-term relationships that challenge preconceptions and build lasting bonds. In the end, NUD5 is more than sport – It is a catalyst for social change. This transformation highlights the broader role that sports can play in peacebuilding. The participants are peace ambassadors, showing that competition can be combined with cooperation and respect for each other. They prove how common objectives and collective endeavours can contribute to peace even in regions seriously affected by internal conflicts. Through their interactions and newfound friendships, these athletes embody the possibility of a united South Sudan, where diversity not only drives division but also is seen as a source of shared strength.

Consequently, we may reasonably conclude that NUD5 is not just a sports event but a platform for social transformation. It paves the way for long-term peace and reconciliation by enabling intercultural interaction, increasing understanding, and supporting a common identity. Their experiences also show that individual perceptions can be changed and contact and shared experiences can reshape them. As South Sudan treks through its path to unity, these saccades of connection and insight point to optimism that sport can be that force to bridge us all and to help nations achieve peaceful, inclusive futures.

Discussion

In addition to two conflicts since independence, South Sudan has seen intensified disputes over livestock, water, and land use exacerbated by climate change. This has led to increased conflicts between sedentary farmers and nomadic pastoralists and heightened ethnic tensions. In such a context, this paper attempts to gain insight into the complex processes underlying ethnic bonds within the nation through a nuanced understanding of pastoralist wrestlers and other athletes who participated in the NUD.

Building on this foundation, the study began by examining perceptions of cattle herders. As a result, it was found that cattle herders are viewed as people who value cattle more than people, as well as being aggressive and, in some cases, described as 'killers' and 'warmongers.' Furthermore, they are seen as a negative presence in society due to cattle raids and disputes over water and land. On the other hand, many believe that cattle herders are misunderstood, and some highly value them as a

source of economic benefits for the community. Furthermore, there were also opinions that cattle herders are not well understood. In this way, it became clear that there are negative and positive aspects to cattle herders, as well as aspects that are not well understood. Maintaining such stereotypes about pastoralists can be a major factor in causing people within the community to dislike or fear them. Furthermore, in a situation where ethnic tensions are high, these stereotypes could further exacerbate ethnic tensions and expand the causes of conflict.

Nevertheless, the results of this study show that, despite these difficult obstacles, the NUD programme continues to be an important tool for challenging stereotypes and building substantive social bonds between people from diverse backgrounds. For example, the NUD programme has brought together young people from different ethnic groups and fostered trust between them. Second, although data showed that the perceptions of pastoralist wrestlers differed significantly from those of non-pastoralist young athletes, particularly in terms of the level of social interaction, trust, and recognition of shared identity, NUD was found to promote solidarity among athletes and foster a common identity that transcends ethnicity. Furthermore, it found that sports exchanges between organised groups are successful as a tool for establishing social integration. Additionally, initiatives like NUD are significant for mitigating tribalism, which hinders peacebuilding efforts in South Sudan, and have the potential to foster harmony between nomadic groups such as cattle herders and those who may come into conflict with them. It was recognised that empathy and a culture of cooperation can develop social cohesion through such interactions.

From the findings, there are some policy implications of these insights. First, governments are pivotal in supporting inter-ethnic programmes utilising sport as a dialogue and reconciliation vehicle. Programs like NUD allow young people of different ethnicities to make cultural connections. Partnerships with local schools to provide sports could also generate points of contact for young people. Sports programming included in peacebuilding frameworks can categorise sport as a potential norm. There is also a need for more local sports projects to help build community spirit among a mix of ethnic groups. National social unity has lasting benefits at the grassroots. Such programmes can be implemented in culturally appropriate and socially acceptable settings.

What is more, general education has assisted with debunking the myths and stereotypes that communities had held against pastoralists, contributing to community comprehension and changing perception. To maximise the impact of such programs, they must be culturally sensitive, responsive to specific residents' needs and facilitate valuable connections for peacebuilding by establishing mutually beneficial relationships with local leaders, NGOs and youth groups. Like this, sports can also be a tool to support nation-building and peace. These recommendations could lead to reconciliation dialogues and

positively impact regional developments. Efforts to build conversations, friendships and cooperation between ethnic groupings could be instrumental in working towards a more peaceful and united South Sudan.

Finally, the limitations of the study are discussed. First, the complexity of inter-ethnic relations and the prevalence of social desirability response style can lead to bias and reduce the precision of the data. Second, findings from elite athletes are not necessarily generalisable to the rest of the population, which may experience different social, ecological, and psychological conditions than those who do not participate in sports. Location and geography also add challenges, as data from urban areas provides a limited understanding of rural people who may come from various cultures, backgrounds, and experiences. Moreover, the interviews provide a momentary glimpse of NUD and may not reflect changes in the attitude as a result of changes in the social (or political) context. Methodological limitations might have prevented an in-depth investigation into complex variables like trust and sociality. It also means that generalizability in the context of qualitative data must be used judiciously because of sample size constraints. The identified limitations of the study help to highlight the value of further research to consider the potential contribution that sports can make to integration and social cohesion in South Sudan's multi-ethnic and politically fragile society. Overcoming such problems is a prerequisite for new research directions.

Data availability statement

The datasets presented in this article are not readily available because Access is restricted to researchers affiliated with accredited institutions. Requests to access the datasets should be directed to mitufuru37@yahoo.co.jp.

Ethics statement

Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

Author contributions

The author confirms being the sole contributor of this work and has approved it for publication.

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