

Empowering Youth Development and Mitigating Behavioural-Risk Indicators Through Sports Participation; A Case Study of Khyber Agency, Khyber Pakhtunkhwa

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Abstract

Background. Organized sport may provide tribal college students with structured opportunities for skill development, social connection, and constructive use of time. Developmental outcomes, however, may depend on the support surrounding participation. This study examined associations of sport participation and perceived social support with youth empowerment, substance-abuse risk, and delinquency risk. **Methods.** A cross-sectional questionnaire study was conducted among 272 male students from four government colleges in the Khyber Tribal Area of Khyber Pakhtunkhwa, Pakistan. Five-item measures assessed sport participation, youth empowerment, substance-abuse risk, delinquency risk, and social support. Pearson correlations, four simple linear regressions, independent-samples t tests, and one-way analyses of variance were reported. Internal-consistency coefficients ranged from $\alpha = .82$ to $.91$. **Results.** Sport participation correlated positively with empowerment ($r = .62$) and negatively with substance-abuse risk ($r = -.48$) and delinquency risk ($r = -.45$). Social support correlated positively with empowerment ($r = .67$) and negatively with substance-abuse risk ($r = -.42$) and delinquency risk ($r = -.46$), all $p < .01$. Sport participation explained 38.4% of empowerment variance, 23.0% of substance-risk variance, and 20.3% of delinquency-risk variance in separate simple regressions. Social support explained 44.9% of empowerment variance. Team-sport participants reported higher empowerment and support and lower risk scores than individual-sport participants. Construct means also differed across competition levels. **Conclusions.** Sport participation and social support were associated with stronger empowerment and lower behavioural-risk indicators in this sample. The findings support culturally responsive college sport programs that combine participation with mentorship, family and peer engagement, life-skills development, and risk-prevention services. Because the evidence is cross-sectional and self-reported, it does not establish that sport or support caused the observed outcomes.

Keywords: Sport Participation; Youth Empowerment; Delinquency Risk; Social Support and Tribals Youth

Introduction

Positive youth development reframes adolescence and emerging adulthood as periods of potential rather than merely periods of risk. Its central question is how environments provide opportunities, relationships, and resources that allow young people to develop competence, confidence, character, connection, and contribution (Lerner et al., 2005). Organized sport is relevant because it can combine demanding activity with teamwork, goal setting, feedback, leadership, and repeated interaction with peers and adults.

Sport participation does not automatically generate developmental benefit. The quality of coaching, inclusiveness, peer norms, adult relationships, access to resources, and opportunities to transfer learning beyond sport can shape the result (Fraser-Thomas et al., 2005; Holt et al., 2017). Sport can support discipline and belonging, but unsupportive or aggressive climates can reproduce exclusion, pressure, and harmful peer behaviour. Research should therefore study participation together with its social context.

These questions are particularly important for students in tribal and geographically marginalized communities. Educational transitions may occur alongside economic constraints, limited recreation infrastructure, uneven access to mentoring, and strong community and family relationships. Western or urban evidence cannot simply be assumed to generalize to the Khyber Tribal Area. Context-specific evidence can help colleges and community organizations decide how to design sport-based development programs.

The present study integrates a positive outcome—youth empowerment—with two behavioural-risk indicators: substance-abuse risk and delinquency risk. Studying both types of outcome avoids an exclusively deficit-based account and tests whether sport involvement is associated with strengths as well as lower vulnerability. Perceived social support is included as a second developmental resource representing support from family, peers, coaches, and significant others.

Theoretical framework

Positive Youth Development theory proposes that constructive activities can promote developmental assets when individual strengths are aligned with supportive contexts. Sport can provide mastery experiences, social responsibility, leadership, and opportunities for contribution. Social Cognitive Theory similarly emphasizes learning through observation, reinforcement, and self-efficacy (Bandura, 1986). Successful participation and credible feedback may strengthen students' beliefs that they can organize and execute valued actions.

Ecological systems theory locates development within interacting settings such as family, college, peer group, team, and community (Bronfenbrenner, 1979). From this perspective, a student's sport participation cannot be separated from the relationships and institutions surrounding it. Social support may provide encouragement, information, emotional security, practical assistance, and connections to constructive opportunities.

Social control and social development perspectives provide mechanisms relevant to behavioural risk. Strong bonds to conventional institutions, meaningful roles, supervised activity, and reinforcement of prosocial conduct may be associated with lower delinquency and substance-use vulnerability (Hirschi, 1969; Catalano & Hawkins, 1996). These frameworks do not imply that sport is uniformly protective. Peer cultures can normalize risk, and some sport environments expose participants to aggressive norms or substance-related practices. Program quality remains essential.

Study Aims

The article examines whether higher sport participation and perceived social support are associated with greater youth empowerment and lower substance-abuse and delinquency risk. It also evaluates group differences by age, sport format, and competition level. The study is observational; terms such as prediction refer to regression-based statistical prediction, not causal effect.

Table 1 *Study hypotheses and evidential basis*

Domain	Expected relationship	Primary evidence
Empowerment	Positive associations with sport participation and social support	Correlations and reported regressions
Substance-abuse risk	Negative associations with sport participation and social support	Correlation; sport-participation regression
Delinquency risk	Negative associations with sport participation and social support	Correlation; sport-participation regression
Group variation	Differences by age, sport format, and competition level	ANOVA and independent-samples t tests

Methods

Design and Setting

A quantitative, descriptive, cross-sectional survey design was used. Participants were male students enrolled in four government colleges in the Khyber Tribal Area of Khyber Pakhtunkhwa, Pakistan: Government College of Management Sciences Jamrud, Government Degree College Jamrud, Government Post Graduate College Landi Kotal, and Government Degree College Kohi Sher Haider. The source population was reported as 922 students.

Sampling and Participants

The thesis calculated a target sample using Yamane's formula with a 5% margin of error and used stratification by college. Although some screening sections refer to 280 cases, the final sample distribution, descriptive tables, correlation matrix, and regression degrees of freedom consistently identify 272 valid cases. The article therefore treats $N = 272$ as the analytical sample. This decision should be confirmed against the original SPSS data before journal submission.

Table 2 *Final analytical sample by college*

College	Population	Final n
Government College of Management Sciences Jamrud	267	75
Government Degree College Jamrud	215	62
Government Post Graduate College Landi Kotal	254	71
Government Degree College Kohi Sher Haider	186	64
Total	922	272

Table 3 *Selected participant characteristics*

Characteristic	Category	n	%
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Age	18–20	96	35.3
	21–23	128	47.1
	24 and above	48	17.6
Academic level	Intermediate	86	31.6
	Undergraduate	158	58.1
	Graduate	28	10.3
Family income	Below PKR 50,000	102	37.5
	PKR 50,001–100,000	98	36.0
	PKR 100,001–150,000	48	17.6
	Above PKR 150,000	24	8.9

Measures

The self-administered questionnaire contained demographic questions and five study scales. Items were rated from 1 strongly disagree to 5 strongly agree. Measures were adapted from theory and prior instruments for the local educational and cultural context, reviewed by experts, and pilot tested with 30 students who were not included in the analytical sample.

Sport participation assessed frequency and level of involvement, competitive experience, duration, and engagement. Youth empowerment assessed self-confidence, life skills, leadership, social development, and related developmental capacities. Substance-abuse risk assessed attitudes, exposure, peer influence, and vulnerability indicators rather than confirmed clinical substance-use disorder. Delinquency risk assessed tendencies and contextual risk indicators related to aggression, negative peers, rule violation, and other delinquency-related behaviour. Social support assessed perceived support from family, peers, coaches, and significant others.

Table 4 *Reliability and measurement structure*

Construct	Items	α	ω	Interpretation
Sport participation	5	.86	.87	Good
Youth empowerment	5	.91	.92	Excellent
Substance-abuse risk	5	.84	.85	Good
Delinquency risk	5	.82	.83	Good
Social support	5	.89	.90	Good to excellent

Ethical Considerations

The thesis states that institutional permissions were obtained, participants were informed of the study purpose, participation was voluntary, informed consent was obtained, and confidentiality and anonymity were maintained. The available thesis text does not provide a clear ethics-committee name, approval number, or approval date. These details must be verified and added before journal submission; they should not be inferred.

Statistical Analysis

Descriptive statistics summarized distributions and participant characteristics. Pearson correlations assessed pairwise linear associations among the five constructs. Four simple linear regression models were reported: sport participation predicting empowerment, substance-abuse risk, and delinquency risk; and social support predicting empowerment. Standardized coefficients, unstandardized coefficients, confidence intervals, R^2 , and model tests were reported where available.

Independent-samples *t* tests compared individual- and team-sport participants. One-way analyses of variance compared age groups and competition levels, with selected post-hoc comparisons. Statistical significance was evaluated using the *p* values reported in the thesis. Because the models were separate and unadjusted, coefficients do not represent independent effects of sport and support when entered together.

Table 5 *Construct descriptive statistics*

Variable	M	SD	Minimum	Maximum	Skewness	Kurtosis
Sport participation	3.62	.58	2.10	4.90	-.21	-.18
Youth empowerment	3.74	.54	2.20	4.95	-.26	-.12
Substance-abuse risk	2.18	.61	1.00	4.10	.31	-.09
Delinquency risk	2.12	.57	1.00	3.90	.28	-.15
Social support	3.81	.52	2.30	4.90	-.29	-.21

Note. *N* = 272, based on the final descriptive and inferential results tables.

The source contains an earlier screening table with different means and *N* = 280. Those values are not mixed with the final analytical results. No multivariable model simultaneously including sport participation and social support was reported, and no regression of behavioural risks on social support was presented. The article preserves these analytical boundaries.

Construct Validity and Analytical Model

Exploratory principal component analysis retained five components with eigenvalues from 2.27 to 9.15. The components explained 26.91%, 17.12%, 12.06%, 9.06%, and 6.68% of variance, respectively, for a cumulative 71.82%. Reported rotated loadings ranged from .728 to .853 with no substantial cross-loadings after coefficients below .30 were suppressed. These findings support an interpretable structure, but use of principal components and same-sample item retention does not replace independent confirmatory validation.

Table 6 *Exploratory component solution*

Component	Eigenvalue	Variance	Cumulative
1	9.15	26.91%	26.91%
2	5.82	17.12%	44.03%
3	4.10	12.06%	56.09%
4	3.08	9.06%	65.15%
5	2.27	6.68%	71.82%

The empirical model is best represented as a set of pairwise associations and separate simple regressions. Sport participation and social support were not entered into a joint regression, so the study cannot determine whether each explains unique outcome variance beyond the other. Likewise, mediation and moderation were not tested. A future structural equation model could test direct, indirect, and measurement relationships, but those effects must not be retrofitted to the current data without reanalysis.

Reporting Principles

Results are described as associations, group differences, and statistical predictions. “Protective” is used only as a theoretical interpretation, not as proof of prevention. Substance-abuse risk and delinquency risk are questionnaire scores and should not be equated with diagnosed disorder, criminal offending, or official records.

Results

Correlations

Sport participation was positively correlated with youth empowerment, $r = .62$, and social support was positively correlated with empowerment, $r = .67$. Both sport participation and social support were negatively associated with substance-abuse and delinquency risk. The two risk measures were positively correlated, $r = .64$. All reported correlations were significant at $p < .01$.

Table 7 Descriptive statistics and Pearson correlations

Variable	M	SD	1	2	3	4	5
1 Sport participation	3.62	.58	1				
2 Youth empowerment	3.74	.54	.62**	1			
3 Substance-abuse risk	2.18	.61	-.48**	-.51**	1		
4 Delinquency risk	2.12	.57	-.45**	-.49**	.64**	1	
5 Social support	3.81	.52	.58**	.67**	-.42**	-.46**	1

Note. $N = 272$. ** $p < .01$, two-tailed.

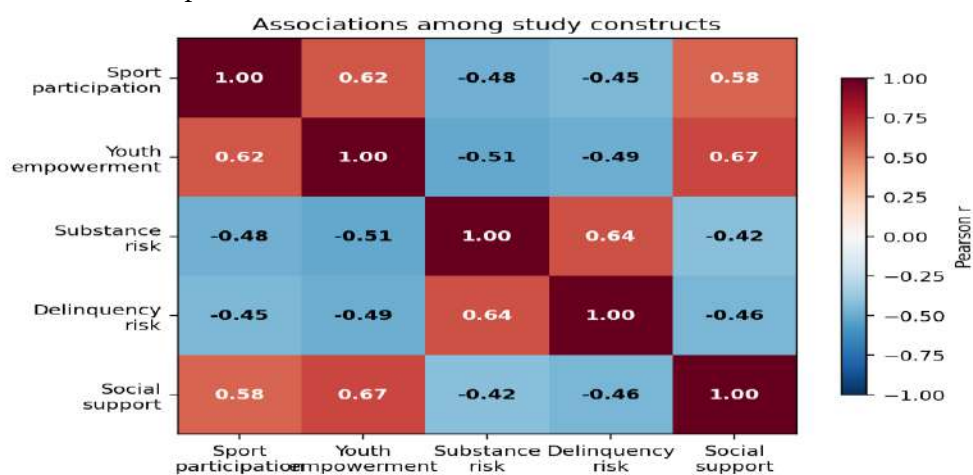


Figure 1 Correlation heatmap for the five study constructs. Red represents positive and blue represents negative association.

Regression Models

In separate simple regressions, sport participation explained 38.4% of variance in empowerment, 23.0% in substance-abuse risk, and 20.3% in delinquency risk. Social support explained 44.9% of empowerment variance. Each model was statistically significant at $p < .001$. The strongest standardized association was between social support and empowerment ($\beta = .670$), followed by sport participation and empowerment ($\beta = .620$).

Table 8 *Reported simple regression coefficients*

Predictor	Outcome	B	SE	β	t	95% CI	R ²
Sport participation	Youth empowerment	.624	.047	.620	13.40	[.53, .72]	.384
Sport participation	Substance-abuse risk	-.508	.057	-.480	-8.87	[-.62, -.39]	.230
Sport participation	Delinquency risk	-.442	.060	-.450	-7.89	[-.55, -.33]	.203
Social support	Youth empowerment	.661	.043	.670	15.45	[.58, .75]	.449

Note. All coefficients $p < .001$. Models are separate simple regressions; they are not mutually adjusted.

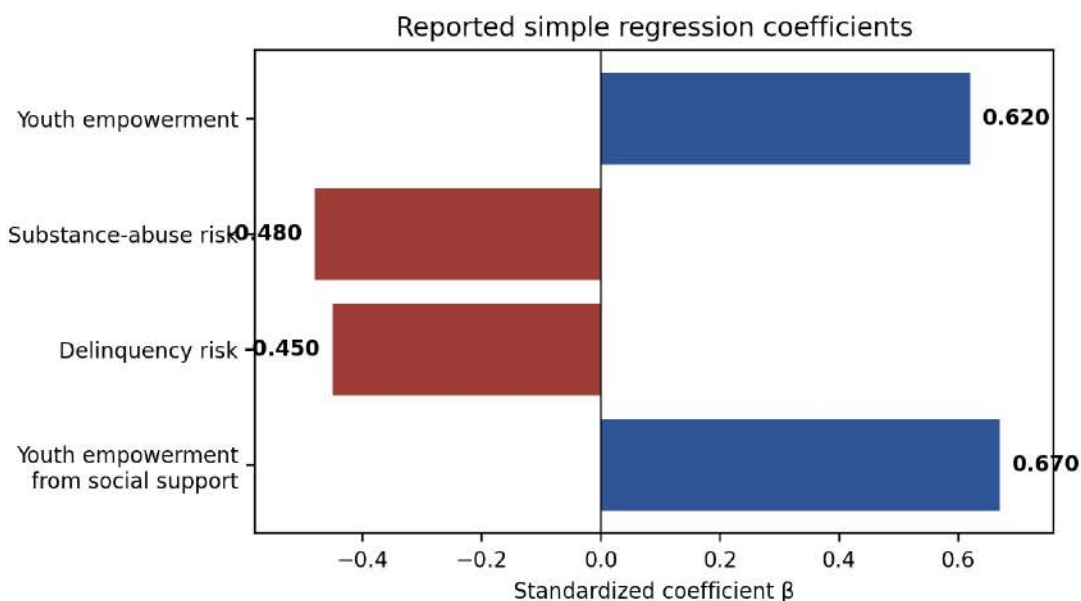


Figure 2 *Standardized coefficients from the four reported simple regression models.*

The coefficients indicate statistical prediction within this sample. For example, a one-unit increase in the sport-participation score was associated with a .624-unit higher empowerment score. This does not establish that increasing participation would cause the same change, because temporal order, omitted variables, and self-selection were not controlled.

Explanatory Strength and Model Boundaries

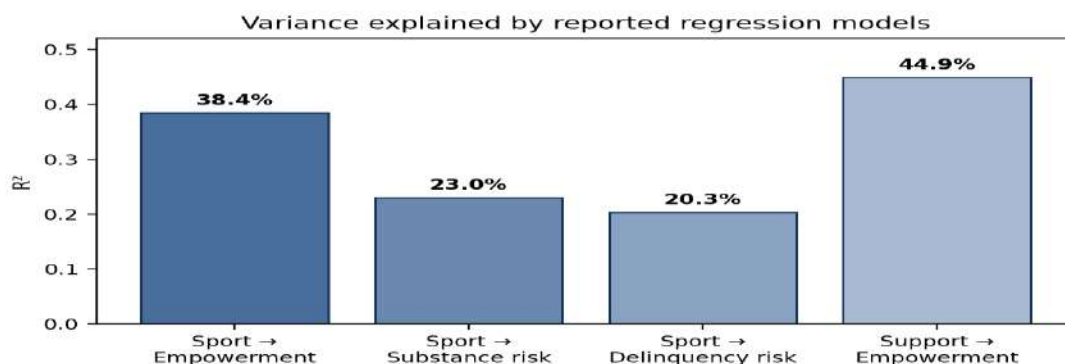


Figure 3 Variance explained by each reported regression model.

The social-support model accounted for the largest proportion of empowerment variance, but it should not be compared as though it competed directly with sport participation in one equation. Because the predictors were analyzed separately, shared variance between participation and support was counted within each model. Their correlation was $r = .58$, indicating substantial overlap.

The thesis correlation matrix shows that support was negatively associated with both risk outcomes. However, regression coefficients and R^2 values for support predicting those outcomes were not presented. Accordingly, the article reports the relationships as correlations only. A future multivariable analysis should enter sport participation and social support together, prespecify relevant demographic controls, evaluate assumptions, and report incremental and total model fit.

Hypothesis Decisions

The evidence supported positive sport–empowerment and support–empowerment associations and negative associations of sport and support with both risk indicators. Reported regression hypotheses were supported for sport participation across the three outcomes and for social support predicting empowerment. Predictive hypotheses concerning support and behavioural risk cannot be evaluated from the supplied regression tables, despite significant bivariate correlations.

Differences by sport format

Team-sport participants reported higher youth empowerment and social support and lower substance-abuse and delinquency-risk scores than individual-sport participants. Differences were significant for empowerment, substance risk, delinquency risk, and support; the sport-participation mean difference was not significant.

Table 9 Construct means and sport-format comparisons

Outcome	Individual M	Team M	t	P	Mean difference
Sport participation	3.55	3.66	−1.52	.130	−.11
Youth empowerment	3.61	3.82	−3.12	.002	−.21
Substance-abuse risk	2.29	2.11	2.22	.027	.18
Delinquency risk	2.23	2.05	2.43	.016	.18
Social support	3.69	3.88	−2.92	.004	−.19

Note. Individual sport $n = 104$; team sport $n = 168$. Mean difference is individual minus team.

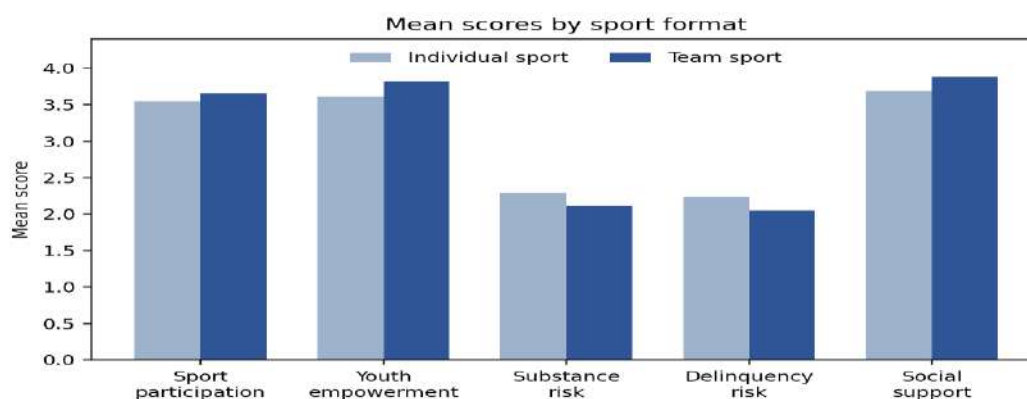


Figure 4 Mean construct scores for individual- and team-sport participants.

These comparisons are compatible with the possibility that team settings provide additional opportunities for shared goals, peer interaction, and reciprocal support. They are also compatible with selection effects—for example, students with stronger support or lower risk may be more likely to enter or remain in team sport. The cross-sectional data cannot distinguish these explanations.

Differences by competition level

All five construct means differed across recreational, college, and regional or national competition levels. Higher competition levels corresponded to higher participation, empowerment, and support means and lower risk means. Selected post-hoc comparisons showed significant differences, particularly between recreational and regional or national participants.

Table 10 Construct means by competition level

Construct	Recreational	College	Regional or national	F	P
Sport participation	3.41	3.67	3.86	7.32	.001
Youth empowerment	3.58	3.78	3.94	8.15	< .001
Substance-abuse risk	2.34	2.15	2.01	5.42	.005
Delinquency risk	2.27	2.09	1.96	6.11	.003
Social support	3.67	3.83	3.96	7.02	.001

Note. Recreational $n = 96$; college $n = 128$; regional or national $n = 48$.

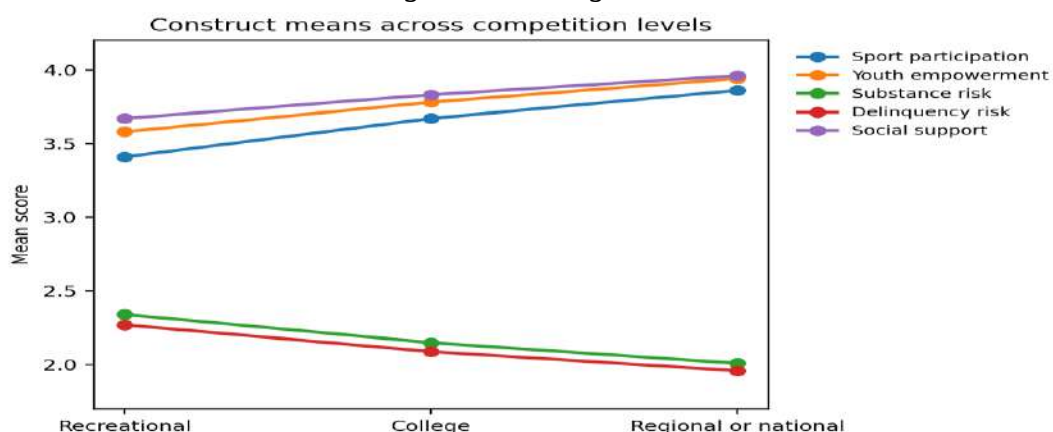


Figure 5 *Mean profiles across competition levels. Higher scores indicate more of each named construct.*

Competition level may capture duration of involvement, access to coaching, achievement, selection, resources, or institutional support. It may also reflect survivorship: students with positive experiences and resources may be more likely to progress. The result should not be interpreted as evidence that increasing competitive pressure necessarily improves development.

Age-Group Findings

The reported age-group analyses showed significant differences in sport participation, $F(2, 269) = 4.21$, $p = .016$, and youth empowerment, $F(2, 269) = 5.36$, $p = .005$. Mean scores increased across the reported age categories. The detailed age table in the results section uses $n = 102$, 118 , and 52 , which sum to 272 , whereas an earlier demographic table uses 96 , 128 , and 48 . The inferential table is retained for the analysis, but this discrepancy must be checked against the data file before submission.

Table 11 *Age-group means used in the inferential results*

Construct	18–20 n 102	21–23 n 118	24 plus n 52	F	P
Sport participation	3.51	3.69	3.78	4.21	.016
Youth empowerment	3.62	3.79	3.88	5.36	.005

Note. *The source thesis contains conflicting age-group frequencies elsewhere. Confirm these values against the original dataset.*

Older students may have accumulated longer exposure to collegiate sport, broader peer networks, or more opportunities for responsibility. Maturation and academic progression may also contribute. Since age, duration of participation, and competition level were not separated in a multivariable model, the observed difference cannot be attributed to age alone.

Overall Pattern

Across correlations, regressions, and group comparisons, the most consistent pattern was that stronger engagement and support accompanied higher empowerment and lower risk scores. The results are internally coherent at the level of direction. The most important uncertainty concerns causal interpretation and inconsistencies in sample-flow reporting, not the signs of the final reported associations.

Discussion

The strong positive relationship between sport participation and empowerment is consistent with Positive Youth Development accounts of structured activity. Participation may offer repeated mastery experiences, leadership roles, feedback, social recognition, and opportunities to practice cooperation and self-regulation. Such experiences are relevant in tribal college contexts where organized extracurricular opportunities may be unevenly available. The result should nevertheless be interpreted as contextual association. Students who are already confident, socially connected, or institutionally supported may participate more. College resources and socioeconomic circumstances may influence both participation and empowerment. The study's simple regression does not adjust for these possibilities. The finding justifies program development and stronger research, but not a claim that sport alone produces empowerment.

Sport participation was moderately negatively related to substance-abuse and delinquency risk. Structured schedules, affiliation with conventional institutions, adult supervision, prosocial roles, and reduced unstructured time offer plausible explanations. Social bonds developed through teams

and coaches may reinforce norms and provide alternatives to risky peer contexts. Prior research cautions that sport–risk relationships vary by substance, sport culture, competition context, gender, and peer norms. Some environments can normalize aggression, alcohol use, or performance-enhancing substances. The present measures assess broad risk tendencies rather than verified behaviour. Prevention programs should therefore use sport as a platform for education and support, not assume participation is an automatic safeguard.

Social support had the strongest observed relationship with empowerment. Supportive family members, peers, coaches, and institutional figures may reinforce competence, offer advice and practical help, and provide emotional security during educational and sporting challenges. Ecological theory predicts that development emerges through interaction with these proximal environments rather than through isolated individual effort. Support also correlated with lower behavioural-risk scores. These associations are consistent with social-bond and stress-buffering perspectives, but they do not identify the effective source or type of support. Family, peer, coach, and institutional support may operate differently. Support can also be conditional or controlling. Future measurement should separate sources and assess negative social interactions as well as supportive ones.

The more favourable team-sport profile may reflect opportunities for interdependence, communication, shared identity, and peer accountability. It may also reflect selection into teams and differences between sports or institutions. Likewise, higher-level competitors may receive more structured coaching and recognition, yet they may also be students with greater initial resources or talent. Longitudinal designs are needed to determine whether development changes as students progress.

The study adds evidence from an underrepresented Pakistani setting and connects strengths and behavioural vulnerabilities within one framework. Its chief contribution is contextual rather than causal: it documents a coherent network of associations among sport, support, empowerment, and risk in four colleges serving tribal communities. This provides a foundation for participatory, culturally responsive program design and for more rigorous multisite research.

5 Practical Implications

College Sport as a Development Platform

- Integrate leadership, life-skills reflection, mentoring, and community contribution into regular sport programming rather than treating development as an assumed by-product.
- Train coaches in inclusive communication, ethical leadership, safeguarding, psychological support, and referral procedures.
- Expand access to facilities, equipment, travel, and organized competition for students facing financial or geographic barriers.
- Create meaningful roles for recreational participants as well as high-level competitors so benefits are not restricted to selected athletes.

Social Support and Prevention

- Build structured family, peer, coach, and college support routes, with confidential options for students to seek help.
- Use teams and clubs as settings for evidence-based substance-risk education, peer mentoring, and connection to health or counselling services.
- Monitor team climate and address bullying, aggression, exclusion, and risky norms rather than assuming all peer influence is positive.

- Partner with tribal leaders and community organizations so program content reflects local priorities, language, identity, and social structures.

Table 12 Program logic derived from the study

Input	Developmental process	Intended outcome	Evaluation
Accessible sport	Mastery and constructive engagement	Higher competence and confidence	Participation quality and empowerment
Supportive coaching	Feedback, safety, role modelling	Leadership and self-regulation	Climate and life-skills measures
Family and peer support	Belonging and practical help	Persistence and connection	Source-specific support
Prevention services	Knowledge, referral, healthy norms	Lower behavioural vulnerability	Validated risk and service-use indicators

Note. This is a proposed application framework, not an intervention tested by the thesis.

6 Strengths Limitations and Future Research

Strengths

Strengths include a context-specific focus on tribal college students, representation from four colleges, integration of positive and risk outcomes, good reported internal consistency, and transparent presentation of correlations, simple regressions, and group comparisons. The study provides a useful baseline for settings that are underrepresented in sport-development research.

Limitations

- Cross-sectional measurement prevents temporal and causal conclusions and leaves reverse relationships plausible.
- Self-report and a single survey method may produce recall, desirability, and shared-method bias.
- The sample included only male students from four colleges, limiting generalizability to women, non-students, other tribal communities, and other regions.
- The scales were adapted and assessed with exploratory principal components in the same sample; independent confirmatory validation and measurement-invariance testing are needed.
- Simple regressions did not estimate the independent contributions of sport participation and support or control likely confounders.
- The thesis contains inconsistent case-flow, age-frequency, college-frequency, and preliminary descriptive tables. The original dataset and output should be audited before submission.

Future Research

Future studies should use prospective designs across academic and sport seasons, combine survey and qualitative evidence, and recruit women and diverse tribal communities. Multilevel models can separate student, team, coach, college, and community influences. Confirmatory factor analysis should precede structural models testing joint predictors, source-specific support, and theoretically justified mediation. Trials or strong quasi-experiments should evaluate culturally co-

designed sport-plus-mentoring programs using preregistered outcomes and appropriate comparison groups.

Conclusion

Among 272 male college students in the Khyber Tribal Area, greater sport participation and stronger perceived social support were associated with higher youth empowerment and lower substance-abuse and delinquency-risk scores. Separate simple regressions showed meaningful statistical prediction of empowerment and behavioural-risk outcomes by sport participation and of empowerment by social support. Team-sport and higher-competition groups generally displayed more favourable mean profiles.

These results support viewing sport as a potential platform for development rather than as a self-sufficient intervention. Programs should combine accessible participation with supportive coaching, mentoring, family and peer involvement, life-skills learning, and links to prevention and student services. The study does not establish that sport or support causes empowerment or prevents risky behaviour. Data verification and longitudinal or intervention research are required before stronger claims are warranted.

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