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The Role of Fintech in Shaping Debt Financing Decisions in Sports Communities: A Cross-Sectional Study of Athletes' Financial Awareness and Risk Perception

Abdullah Abdul Ghaffar Khan[1], Dr. Muhammad Abdul Jabar Adnan[2], Yasmeen Tabassum[2]

[1] Independent Researcher: MBA (Finance) Virtual University of Pakistan

[2] Department of Sport Sciences and Physical Education, University of the Punjab, Pakistan

Corresponding Author: Abdullah Abdul Ghaffar Khan | Email: abdullah.agk@gmail.com

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Abstract

Background: The rapid proliferation of financial technology (FinTech) platforms has fundamentally transformed debt financing landscapes across emerging economies. In Pakistan, where sports communities remain financially underserved, athletes increasingly encounter novel digital lending instruments with limited financial literacy to navigate associated risks. This cross-sectional study examines the role of FinTech adoption in shaping debt financing decisions among professional and semi-professional athletes in Pakistan, with a specific focus on financial awareness and risk perception.

Methods: A structured questionnaire was administered to 312 athletes drawn from cricket, hockey, football, kabaddi, and squash communities across Lahore, Karachi, Islamabad, and Peshawar. The instrument measured FinTech awareness, digital lending utilization, financial risk perception, and debt financing behavior. Descriptive statistics, Pearson correlation analysis, and multiple linear regression were employed for data analysis using SPSS v.26.

Results: Findings reveal that 68.3% of respondents had utilized at least one FinTech platform for borrowing purposes, yet only 29.5% demonstrated adequate comprehension of associated interest rate structures and repayment obligations. FinTech awareness ($\beta = 0.412$, $p < 0.001$) and risk perception ($\beta = -0.287$, $p < 0.01$) were significant predictors of debt financing decisions. Athletes in individual sports exhibited higher FinTech utilization but lower financial risk awareness compared to team sport athletes. Education level and income stability emerged as significant moderating variables.

Conclusions: The study underscores a critical financial literacy gap within Pakistani sports communities despite growing FinTech adoption. Policy recommendations include embedding financial education modules in national sports federations' athlete development programs, creating sport-specific digital financial literacy campaigns, and regulating predatory digital lending targeting athletes. This research contributes to the nascent literature on FinTech adoption in non-traditional financial contexts within South Asian emerging markets.

Keywords: FinTech adoption, debt financing, sports communities, financial literacy, risk perception, Pakistan, digital lending, athlete financial awareness

Introduction

The global financial landscape is undergoing an unprecedented transformation driven by financial technology (FinTech) a broad ecosystem encompassing mobile payment systems, peer-to-peer lending platforms, robo-advisory services, blockchain-based instruments, and digital credit scoring mechanisms. In emerging economies such as Pakistan, FinTech has emerged as a potentially disruptive force capable of extending financial services to populations historically excluded from formal banking channels (Arner et al., 2020; Gomber et al., 2018). The State Bank of Pakistan (2023) reported that digital transaction volumes surpassed PKR 47 trillion in fiscal year 2022–23, reflecting exponential growth in digital financial infrastructure. Yet the distribution of FinTech benefits and risks remains deeply unequal across socioeconomic and occupational segments of Pakistani society.

Sports communities in Pakistan occupy a peculiar socioeconomic position. Athletes, particularly those competing at provincial and national levels outside the most commercially lucrative sports such as cricket, frequently operate under conditions of income irregularity, career brevity, and limited access to conventional credit facilities. The absence of stable employment contracts, pension mechanisms, and formal financial management support systems leaves athletes vulnerable to suboptimal financial decision-making (Gough et al., 2019; Rodgers & Cox, 2018). Within this context, FinTech platforms with their reduced documentation requirements, expedited approval processes, and mobile-first delivery models have emerged as increasingly attractive borrowing alternatives for athletes seeking to manage training expenses, equipment costs, and personal financial obligations during competitive seasons.

However, the accessibility of FinTech debt financing instruments does not inherently translate into informed financial decision-making. Financial awareness is defined as an individual's functional comprehension of financial concepts, products, and their implications and risk perception the subjective evaluation of financial hazards associated with borrowing decisions are central determinants of whether FinTech utilization leads to financially beneficial or detrimental outcomes (Lusardi & Mitchell, 2014; Van Rooij et al., 2011). In the Pakistani sports context, where formal financial education is rarely integrated into athlete development pathways, a structural gap exists between FinTech adoption rates and the financial competencies needed to utilize such platforms judiciously.

This study is motivated by several intersecting research gaps. First, while the literature on FinTech adoption has proliferated rapidly in recent years, studies specifically examining debt financing behavior within sports communities remain exceptionally scarce, particularly within South Asian emerging market contexts (Gomber et al., 2018; Lee & Shin, 2018). Second, Pakistan's distinctive socio-institutional environment characterized by a young demographic profile, rapidly expanding mobile internet penetration reaching 190 million subscriptions as of 2024 (Pakistan Telecommunication Authority, 2024), and a sports ecosystem with significant governance and financial management deficiencies creates a context warranting dedicated empirical investigation. Third, existing financial literacy research has focused predominantly on general populations, leaving occupationally specific groups such as athletes underexplored despite their distinctive financial profiles and vulnerabilities.

The primary objectives of this study are: (1) to assess the level of FinTech awareness among Pakistani athletes across multiple sports disciplines and geographic regions; (2) to examine the extent and nature of FinTech utilization for debt financing purposes within sports communities; (3) to evaluate athletes' risk perception regarding digital lending products; (4) to determine the relationship between FinTech awareness, risk perception, and debt financing decisions; and (5) to identify demographic and sport-specific factors that moderate these relationships. The research addresses the overarching question: To what extent does FinTech adoption shape debt financing decisions among Pakistani athletes, and how do financial awareness and risk perception mediate this relationship?

Literature Review

FinTech and Debt Financing: Theoretical Foundations

Financial technology, broadly conceptualized as the application of technology to deliver financial services, has generated substantial scholarly interest since the post-2008 financial crisis period when incumbent financial institutions' credibility erosion created structural opportunities for non-bank financial intermediaries (Arner et al., 2020). Debt financing through FinTech channels encompasses a spectrum of instruments including peer-to-peer (P2P) lending, buy-now-pay-later (BNPL) arrangements, digital microfinance, invoice financing platforms, and mobile wallet-based credit facilities (Claessens et al., 2018). These instruments share several defining characteristics: algorithmic credit scoring, reduced reliance on collateral, digital documentation processes, and real-time loan disbursement attributes particularly relevant to individuals lacking conventional credit histories.

Theoretically, FinTech-mediated debt financing can be analyzed through multiple frameworks. Technology Acceptance Model (TAM) (Davis, 1989), extended to FinTech contexts as TAM2 and the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003), posits that perceived usefulness and ease of use are primary determinants of technology adoption intentions. Prospect Theory (Kahneman & Tversky, 1979) offers complementary insights into how individuals evaluate financial risks asymmetrically, with losses weighted more heavily than equivalent gains a dynamic highly relevant to debt financing decisions where downside risks can be catastrophic. The Financial Capability Framework (Atkinson et al., 2006) further emphasizes that financial decision-making quality depends on the interaction of financial knowledge, motivation, and opportunity structures rather than knowledge alone.

In emerging market contexts, Information Asymmetry Theory (Stiglitz & Weiss, 1981) remains particularly salient: FinTech platforms leverage alternative data sources to address traditional information asymmetries between lenders and borrowers, but simultaneously create new asymmetries regarding algorithm opacity, data usage, and true cost of credit disclosure. For financially unsophisticated borrowers a category into which many athletes may fall these information asymmetries can facilitate over-indebtedness and financial distress.

FinTech Adoption in Pakistan: Contextual Overview

Pakistan's FinTech ecosystem has experienced remarkable growth trajectory since the State Bank of Pakistan's introduction of its National Financial Inclusion Strategy in 2015 and subsequent regulatory innovations including the Electronic Money Institutions regulations (2019) and the Open Banking Framework (2022). Key FinTech lending players operating in Pakistan include JazzCash, Easypaisa, Finja, CreditBook, Tez Financial Services, and NayaPay, among a rapidly expanding landscape of digital credit providers (Pakistan FinTech Association, 2023). Mobile wallet accounts have grown to exceed 60 million active accounts, with lending products increasingly integrated into these platforms.

Despite this growth, financial inclusion research consistently identifies significant heterogeneity in FinTech adoption quality across demographic segments. Akhtar and Liu (2018) found that while mobile money adoption has expanded in rural Pakistan, financial literacy deficits severely constrain productive utilization of digital financial services. Ahmed et al. (2021) specifically noted that Pakistani youth a demographic heavily represented in sports communities demonstrate high willingness to adopt FinTech platforms but inadequate comprehension of credit terms, interest calculation methodologies, and debt obligation management. The SBP's Consumer Protection Framework (2022) has begun addressing predatory lending practices, but regulatory coverage of digital lending products targeting specific occupational groups remains limited.

Athletes' Financial Literacy and Decision-Making

Research on athletes' financial management has accumulated primarily in North American and European contexts, where professional sports leagues have established relatively formalized player financial education programs. Consistent findings across this literature indicate that athletes face distinctive financial challenges including concentrated income periods, career uncertainty, peer pressure expenditure patterns, and susceptibility to financial exploitation (Gough et al., 2019; Rodgers & Cox, 2018; Williams & Connaughton, 2021). A frequently cited phenomenon is the 'sudden wealth syndrome' affecting athletes who transition rapidly from financial scarcity to relative affluence, often without the financial management infrastructure to sustain wealth effectively.

In the South Asian context, Khan and Bukhari (2019) conducted an exploratory study of Pakistani cricket players and found that while international-level players received some financial management guidance through the Pakistan Cricket Board, provincial and club-level athletes representing the vast majority of the competitive athlete population received no structured financial education. Similarly, Nasir et al. (2020) documented that kabaddi and wrestling athletes in Punjab, whose sports lack significant commercial sponsorship revenues, frequently resort to informal lending arrangements including interest-based loans from money lenders operating outside regulatory frameworks.

The intersection of FinTech and athlete financial decision-making is substantially underexplored. Existing studies have not examined how the availability of digital lending platforms is reshaping borrowing patterns specifically within sports communities, nor how sport-specific characteristics including team versus individual sports structures, seasonal income patterns, and federation governance quality moderate FinTech debt financing outcomes.

Risk Perception in Financial Decision-Making

Risk perception in financial contexts refers to the subjective assessment of the probability and severity of negative financial outcomes, which may diverge substantially from objective risk measures (Weber et al., 2002). In debt financing decisions, risk perception encompasses concerns about repayment capacity, interest rate risks, digital privacy, and platform reliability. Grable (2000) established that financial risk tolerance is significantly associated with education, income, age, and financial knowledge. Crucially, risk perception is not synonymous with risk aversion: individuals may accurately perceive high risks yet proceed with risky financial behaviors due to liquidity constraints, social pressures, or present-bias cognitive tendencies.

In the context of FinTech-mediated lending, studies have identified a distinctive risk perception paradox: the convenience and accessibility of digital lending platforms can systematically reduce perceived risks relative to objective risks, particularly among first-time digital borrowers and financially inexperienced individuals (Hasan et al., 2020; Liu et al., 2021). This suggests that FinTech design characteristics including gamified interfaces, instant approval notifications, and minimal friction application processes may inadvertently suppress appropriate risk deliberation. For athletes accustomed to high-risk decision-making in competitive contexts, the transferability of athletic risk tolerance to financial risk domains warrants specific examination.

Hypotheses Development

Drawing from the theoretical frameworks and empirical literature reviewed above, this study proposes the following hypotheses:

- **H1:** FinTech awareness is positively associated with the frequency of FinTech-mediated debt financing decisions among Pakistani athletes.

- **H2:** Financial risk perception is negatively associated with debt financing amounts obtained through FinTech platforms.
- **H3:** Financial literacy significantly moderates the relationship between FinTech awareness and debt financing decisions.
- **H4:** Significant differences exist in FinTech adoption patterns and risk perception across sport disciplines (individual vs. team sports).
- **H5:** Demographic variables (income level, education, age) significantly predict FinTech-mediated debt financing behavior among athletes.

Research Methodology

Research Design

This study employs a quantitative cross-sectional research design, administering a structured questionnaire to a purposively selected sample of athletes across Pakistan within a defined data collection window of October to December 2024. Cross-sectional designs are appropriate for examining associations between variables at a single time point and are well-suited for establishing baseline measurements of financial behavior in populations that have not been previously studied (Bryman, 2016). The positivist epistemological stance adopted in this study aligns with the objective of generating generalizable empirical findings regarding FinTech adoption and debt financing behavior within Pakistani sports communities.

Population and Sampling Strategy

The target population comprised professional, semi-professional, and competitive amateur athletes affiliated with recognized sports federations in Pakistan, encompassing cricket, field hockey, football, kabaddi, squash, wrestling, tennis, and athletics. An estimated population of approximately 45,000 registered competitive athletes exists within Pakistan's formally organized sports ecosystem, spanning provincial and national representative levels (Pakistan Sports Board, 2023).

A multi-stage stratified purposive sampling approach was employed. In the first stage, four metropolitan cities Lahore, Karachi, Islamabad, and Peshawar were selected to represent geographic diversity across Pakistan's major regions. In the second stage, sports academies, club training facilities, provincial sports complexes, and national championship venues were identified as data collection sites within each city. In the third stage, athletes meeting inclusion criteria (minimum age 18 years, active competitive participation within the preceding 12 months, and provision of informed consent) were recruited.

Sample size determination followed the formula recommended by Israel (1992) for finite populations:

$$\mathbf{n = N / [1 + N(e^2)]}$$

Where N = 45,000, e = 0.055 (5.5% margin of error), yielding n = 327. Accounting for an anticipated 10% non-response and unusable questionnaire rate, 370 questionnaires were distributed. After excluding incomplete, inconsistent, and outlier responses, 312 questionnaires were retained for final analysis, representing a usable response rate of 84.3%.

Research Instrument

The questionnaire was developed through a systematic instrument development process involving theoretical framework review, item generation, expert validation, and pilot testing. The final instrument comprised six sections:

- **Section A – Demographic and Sport Profile (12 items):** Age, gender, education, sport discipline, competitive level, income, and career duration.
- **Section B – FinTech Awareness (10 items):** Knowledge of FinTech platforms, digital lending products, interest structures, and regulatory frameworks. Items adapted from Lusardi and Mitchell (2014) and the OECD/INFE (2020) financial literacy measurement toolkit.
- **Section C – FinTech Utilization for Debt Financing (8 items):** Platform usage frequency, loan amounts, purposes of borrowing, and repayment experiences.
- **Section D – Financial Risk Perception (8 items):** Perceived risks associated with digital lending, privacy concerns, over-indebtedness fears, and platform trustworthiness assessments. Items adapted from Grable (2000) and Weber et al. (2002).
- **Section E – Debt Financing Decision Behavior (7 items):** Decision-making processes, information sources consulted, loan purpose rationalization, and repayment planning adequacy.
- **Section F – Financial Literacy Assessment (5 items):** Objective knowledge questions covering compound interest calculation, diversification concepts, inflation, loan comparison, and risk-return tradeoffs.

Likert-scale items (Sections B–E) utilized a 5-point scale (1 = Strongly Disagree to 5 = Strongly Agree). The questionnaire was prepared in both English and Urdu, with professional translation and back-translation procedures applied to ensure linguistic equivalence. Pilot testing was conducted with 32 athletes (not included in final analysis) from Lahore Sports Complex, resulting in minor item refinements based on comprehension feedback.

Reliability and Validity Assessment

Content validity was established through review by a five-member expert panel comprising financial economists, sports management scholars, and FinTech industry practitioners. The Content Validity Index (CVI) achieved a score of 0.89, exceeding the 0.80 threshold recommended by Polit and Beck (2006). Construct validity was assessed through Exploratory Factor Analysis (EFA) using principal axis factoring with oblique rotation (Promax), confirming the theorized four-factor structure with factor loadings ranging from 0.52 to 0.87. Internal consistency reliability was measured using Cronbach's alpha, with all subscales achieving values above 0.70 (Table 1).

Table 1. Reliability Statistics for Questionnaire Subscales

Subscale	No. of Items	Cronbach's α	Mean Inter-Item Corr.	Reliability Assessment
FinTech Awareness	10	0.847	0.412	Good
FinTech Utilization	8	0.793	0.378	Acceptable
Financial Risk Perception	8	0.821	0.396	Good
Debt Financing Behavior	7	0.768	0.354	Acceptable
Financial Literacy	5	0.712	0.331	Acceptable
Overall Instrument	38	0.881	0.387	Good

Data Collection Procedures

Data collection was conducted by four trained research assistants who attended training sessions on standardized questionnaire administration protocols. Questionnaires were administered in person at sports training facilities and competition venues following prior coordination with relevant sports federations

and club administrators. Participation was entirely voluntary, with no compensation provided to respondents. Ethical approval was obtained from the Institutional Review Board of the University of the Punjab (Ref: IRB-UoP-2024-178). All questionnaires were anonymized, and participants provided written informed consent prior to participation.

Data Analysis Approach

Completed questionnaires were coded and entered into IBM SPSS Statistics Version 26.0 for analysis. The analytical protocol comprised: (1) descriptive statistics for demographic profiling and variable distributions; (2) Pearson bivariate correlation analysis to examine inter-variable relationships; (3) independent samples t-tests and one-way ANOVA for group comparisons; (4) hierarchical multiple regression analysis to examine predictors of debt financing decisions, with demographic variables entered in Block 1 and theoretical constructs in Block 2; and (5) moderation analysis using the PROCESS macro (Hayes, 2018) with bootstrap confidence intervals (n = 5,000). Statistical significance was set at $p < 0.05$ throughout, with effect sizes reported as Cohen's d for group comparisons and partial η^2 for regression models.

Research Questionnaire

The following questionnaire was administered to study participants. All questionnaire items are presented here in their final English-language version as used in the study.

Section A: Demographic and Sports Profile

Please tick (✓) the appropriate box or fill in the required information.

Q#	Question	Response Options
A1	Age (in years)	18–22 / 23–27 / 28–32 / 33–37 / 38+
A2	Gender	Male / Female / Prefer not to say
A3	Education Level	Below Matric / Matric / Intermediate / Bachelor's / Master's / PhD
A4	Primary Sport Discipline	Cricket / Football / Hockey / Kabaddi / Squash / Wrestling / Athletics / Other
A5	Sport Category	Individual sport / Team sport
A6	Competitive Level	Club level / Provincial / National / International
A7	Years of Active Competition	Less than 2 / 2–5 / 6–10 / More than 10
A8	Primary City of Training	Lahore / Karachi / Islamabad / Peshawar / Other
A9	Monthly Income from Sports (PKR)	Below 20,000 / 20,001–50,000 / 50,001–100,000 / 100,001–200,000 / Above 200,000
A10	Employment Status	Full-time athlete / Part-time athlete & other work / Student athlete / Retired competitive athlete
A11	Do you have a bank account?	Yes / No
A12	Do you own a smartphone with internet access?	Yes / No

Section B: FinTech Awareness

Please indicate your level of agreement with the following statements using the scale:

1 = Strongly Disagree | 2 = Disagree | 3 = Neutral | 4 = Agree | 5 = Strongly Agree

Q#	Statement	1	2	3	4	5
B1	I am familiar with FinTech platforms such as JazzCash, Easypaisa, Finja, and Tez Financial.					
B2	I understand what digital lending or online loan services are.					
B3	I know how interest rates on digital loans are calculated.					
B4	I am aware of the regulatory bodies (e.g., State Bank of Pakistan) that oversee FinTech companies.					
B5	I know the difference between conventional bank loans and FinTech-based digital loans.					
B6	I understand the concept of Annual Percentage Rate (APR) in the context of digital borrowing.					
B7	I am aware of the data privacy risks associated with using FinTech loan platforms.					
B8	I know how to compare loan terms across different FinTech platforms.					
B9	I have read or reviewed the terms and conditions of a FinTech loan agreement.					
B10	I can identify whether a digital lending offer is appropriate for my financial situation.					

Section C: FinTech Utilization for Debt Financing

Please respond to the following questions about your use of FinTech platforms for borrowing money.

Q#	Question	Response Options
C1	Have you ever used a FinTech platform (digital app or mobile wallet) to borrow money?	Yes / No (If No, skip to Section D)
C2	How frequently do you use FinTech platforms for borrowing?	Never / Once or twice / Occasionally (3–5 times) / Regularly (6+ times) / Currently using
C3	What was the primary purpose of your most recent FinTech loan?	Sports equipment / Training expenses / Medical/injury costs / Personal expenses / Business investment / Other
C4	What was the approximate amount of your largest FinTech loan? (PKR)	Below 10,000 / 10,001–50,000 / 50,001–100,000 / 100,001–300,000 / Above 300,000
C5	Which FinTech platform(s) have you used for borrowing? (Select all that apply)	JazzCash / Easypaisa / Finja / Tez / CreditBook / NayaPay / Other

C6	How did you hear about the FinTech loan you used?	Social media / Fellow athlete / Coach or club official / Sports federation / Advertisement / Other
C7	Were you able to repay your FinTech loan on time?	Yes, fully on time / Yes, but with difficulty / Partially repaid / Could not repay / Still repaying
C8	Would you recommend FinTech borrowing to fellow athletes?	Definitely yes / Probably yes / Uncertain / Probably not / Definitely not

Section D: Financial Risk Perception

1 = Strongly Disagree | 2 = Disagree | 3 = Neutral | 4 = Agree | 5 = Strongly Agree

Q#	Statement	1	2	3	4	5
D1	I believe that borrowing money through FinTech apps carries significant financial risk.					
D2	I am concerned about the possibility of falling into a debt trap when using digital lending services.					
D3	I worry that FinTech loan interest rates may be too high for me to manage comfortably.					
D4	I perceive risks related to the security of my personal and financial data on FinTech platforms.					
D5	I believe my irregular income as an athlete makes repaying FinTech loans risky.					
D6	I think FinTech lending companies may engage in unfair or deceptive practices.					
D7	I feel anxious when thinking about taking a digital loan for sports-related expenses.					
D8	Overall, I consider digital lending to be riskier than borrowing from a traditional bank.					

Section E: Debt Financing Decision Behavior

1 = Strongly Disagree | 2 = Disagree | 3 = Neutral | 4 = Agree | 5 = Strongly Agree

Q#	Statement	1	2	3	4	5
E1	When I need financing, I carefully evaluate multiple borrowing options before deciding.					
E2	I seek advice from a financial expert or knowledgeable person before taking a digital loan.					
E3	My decision to use a FinTech loan is primarily influenced by the speed of approval and convenience.					

E4	I have a clear repayment plan before I accept any digital loan offer.					
E5	I consider the total cost of borrowing (including all fees and interest) when choosing a FinTech loan.					
E6	My fellow athletes' positive experiences with FinTech loans influence my own borrowing decisions.					
E7	I feel confident in my ability to manage FinTech loan repayments alongside my other financial obligations.					

Section F: Financial Literacy Assessment (Objective Questions)

Please answer the following questions to the best of your knowledge. There is no penalty for incorrect answers.

Q#	Question	Options
F1	If you borrow PKR 10,000 at an annual interest rate of 20%, how much interest will you owe after one year?	a) PKR 200 b) PKR 2,000 c) PKR 20,000 d) I don't know
F2	Which of the following best describes the concept of compound interest?	a) Interest calculated only on the original amount b) Interest calculated on the original amount plus accumulated interest c) A fixed monthly fee d) I don't know
F3	If inflation in Pakistan is 15% annually and your loan interest rate is 12%, which of the following is true?	a) Your real debt burden increases b) Your real debt burden decreases c) Real debt burden stays the same d) I don't know
F4	When comparing two digital loan offers, which factor is most important for determining the true cost of each loan?	a) Monthly installment amount b) Annual Percentage Rate (APR) c) Brand recognition of the app d) Speed of approval
F5	What does 'diversification' mean in personal finance?	a) Having savings in one bank only b) Spreading financial risk across different sources c) Taking multiple loans from different apps d) I don't know

Results

Demographic Profile of Respondents

The final analytical sample comprised 312 athletes. Demographic characteristics are summarized in Table 2. The sample was predominantly male (78.5%), reflecting the gender distribution of competitive sports participation in Pakistan, where female athletic participation remains structurally constrained despite recent growth. The largest age cohort was 23–27 years (38.8%), followed by 18–22 years (26.6%), indicating a young sample consistent with peak competitive athletic careers. Educational attainment was concentrated at the intermediate (31.7%) and bachelor's degree (28.5%) levels, suggesting moderate

formal education within the sample. Notably, 14.7% of respondents had education below Matric level, concentrated primarily among kabaddi and wrestling athletes from rural provincial backgrounds.

Discipline-wise, cricket (29.5%), football (21.8%), and kabaddi (16.0%) were most heavily represented, reflecting Pakistan's sports participation landscape. Provincial-level competitive athletes constituted the largest group (43.3%), followed by national-level (27.2%) and club-level (22.4%) participants. Income distribution revealed that 52.2% of respondents earned below PKR 50,000 monthly from sports activities, underscoring the financial precarity characteristic of non-elite athletes in Pakistan. Smartphone ownership was universal among respondents (100%), though self-reported internet data limitations affected usage patterns for 18.6% of the sample.

Table 2. Demographic Profile of Study Respondents (N = 312)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	245	78.5
	Female	67	21.5
Age Group	18–22 years	83	26.6
	23–27 years	121	38.8
	28–32 years	74	23.7
	33–37 years	28	9.0
	38+ years	6	1.9
Education Level	Below Matric	46	14.7
	Matric	53	17.0
	Intermediate	99	31.7
	Bachelor's	89	28.5
	Master's/PhD	25	8.0
Sport Category	Individual sport	118	37.8
	Team sport	194	62.2
Competitive Level	Club level	70	22.4
	Provincial	135	43.3
	National	85	27.2
	International	22	7.1
Monthly Income (PKR)	Below 20,000	87	27.9
	20,001–50,000	76	24.4
	50,001–100,000	89	28.5
	100,001–200,000	43	13.8
	Above 200,000	17	5.4

FinTech Awareness and Utilization

Table 3 presents descriptive statistics for all study constructs. FinTech Awareness scores showed a mean of 3.12 (SD = 0.74) on the 5-point scale, indicating moderate awareness levels overall. Item-level analysis revealed particular awareness gaps around interest rate calculation (B3: M = 2.64), APR comprehension (B6: M = 2.41), and ability to compare loan terms across platforms (B8: M = 2.73). Basic platform familiarity (B1: M = 4.02) and general awareness of digital lending (B2: M = 3.87) were considerably higher, suggesting surface-level familiarity unaccompanied by substantive financial product understanding.

Regarding FinTech utilization for debt financing, 68.3% (n = 213) of respondents reported having used a FinTech platform for borrowing at least once. Among users, Easypaisa (45.1%) and JazzCash (41.8%) were the most frequently utilized platforms, consistent with their market dominance in Pakistan's mobile financial services sector. Sports equipment purchases (34.7%) and personal expenses management (29.6%) were the most commonly cited loan purposes, with medical and injury-related costs constituting 18.3% of primary loan purposes a finding with significant policy implications regarding athlete healthcare financing. The majority of loans were for amounts below PKR 50,000 (72.3% of borrowers), consistent with the microcredit nature of most FinTech lending products available in Pakistan.

Table 3. Descriptive Statistics for Study Constructs (N = 312)

Construct	N	Mean	SD	Min	Max	Skewness	Kurtosis
FinTech Awareness (FA)	312	3.12	0.74	1.00	5.00	-0.23	-0.41
FinTech Utilization (FU)	312	2.87	0.91	1.00	5.00	0.34	-0.18
Financial Risk Perception (FRP)	312	3.54	0.68	1.25	5.00	-0.31	0.22
Debt Financing Behavior (DFB)	312	3.01	0.82	1.00	5.00	0.12	-0.35
Financial Literacy Score (FLS)	312	2.43	1.12	0.00	5.00	0.19	-0.61

Correlation Analysis

Table 4 presents Pearson bivariate correlations among study constructs. FinTech Awareness showed a significant positive correlation with Debt Financing Behavior ($r = 0.512$, $p < 0.001$), supporting H1. Financial Risk Perception was significantly negatively correlated with Debt Financing Behavior ($r = -0.384$, $p < 0.001$), providing preliminary support for H2. Financial Literacy Score correlated positively with FinTech Awareness ($r = 0.433$, $p < 0.001$) and negatively with FinTech Utilization for borrowing ($r = -0.218$, $p < 0.01$), suggesting that greater objective financial knowledge is associated with more cautious digital borrowing behavior. All significant correlations remained below 0.70, indicating absence of multicollinearity concerns for regression analysis.

Table 4. Pearson Correlation Matrix (N = 312)

Construct	1. FA	2. FU	3. FRP	4. DFB	5. FLS
1. FinTech Awareness (FA)	1.000				
2. FinTech Utilization (FU)	0.487***	1.000			
3. Financial Risk Perception (FRP)	-0.312***	-0.241***	1.000		
4. Debt Financing Behavior (DFB)	0.512***	0.445***	-0.384***	1.000	
5. Financial Literacy Score (FLS)	0.433***	-0.218**	0.389***	-0.176**	1.000

Note: ***p < 0.001, **p < 0.01, *p < 0.05 (two-tailed). FA = FinTech Awareness; FU = FinTech Utilization; FRP = Financial Risk Perception; DFB = Debt Financing Behavior; FLS = Financial Literacy Score.

Regression Analysis: Predictors of Debt Financing Behavior

Hierarchical multiple regression was conducted to examine predictors of Debt Financing Behavior (DFB). Table 5 presents results from the three-block hierarchical model. Block 1 entered demographic variables

(age, education, income level), explaining 14.7% of DFB variance ($R^2 = 0.147$, $F[3, 308] = 17.72$, $p < 0.001$). Education ($\beta = -0.198$, $p < 0.01$) and income level ($\beta = 0.223$, $p < 0.001$) were significant demographic predictors. Block 2 added FinTech Awareness and Financial Risk Perception, producing a significant increment ($\Delta R^2 = 0.213$, $\Delta F = 42.87$, $p < 0.001$). FinTech Awareness emerged as the strongest predictor ($\beta = 0.412$, $p < 0.001$), followed by Financial Risk Perception ($\beta = -0.287$, $p < 0.01$). The final model explained 36.0% of DFB variance ($R^2 = 0.360$, $F[5, 306] = 34.41$, $p < 0.001$), providing strong support for H1 and H2.

Table 5. Hierarchical Multiple Regression Analysis for Debt Financing Behavior (N = 312)

Predictor	Block 1 β	Block 2 β	Block 3 β	t-value	p-value
Age	-0.087	-0.064	-0.058	-1.231	0.219
Education Level	-0.198**	-0.152*	-0.143*	-2.847	0.005
Monthly Income	0.223***	0.187**	0.176**	3.412	0.001
FinTech Awareness (FA)	—	0.412***	0.387***	7.843	<0.001
Financial Risk Perception (FRP)	—	-0.287**	-0.271**	-4.912	<0.001
Financial Literacy (Moderator)	—	—	-0.143*	-2.318	0.021
FA × Financial Literacy	—	—	-0.168*	-2.641	0.009
	$R^2 = 0.147$	$R^2 = 0.360$	$R^2 = 0.398$	ΔR^2 (B2) = 0.213***	ΔR^2 (B3) = 0.038*

Note: ***p < 0.001, **p < 0.01, *p < 0.05. Standardized beta (β) coefficients reported. — = variable not entered in this block.

Moderation Analysis: Financial Literacy as Moderator

Block 3 of the regression tested the moderating role of Financial Literacy on the FA–DFB relationship (H3). The interaction term (FA × Financial Literacy) was significant ($\beta = -0.168$, $p < 0.01$), indicating that the positive relationship between FinTech Awareness and Debt Financing Behavior was attenuated among athletes with higher financial literacy. Simple slopes analysis revealed that the FA–DFB relationship was strongest among athletes with low financial literacy ($\beta = 0.521$, $p < 0.001$) and substantially weaker among those with high financial literacy ($\beta = 0.274$, $p < 0.01$), supporting H3. This finding implies that financial literacy serves as a protective buffer, enabling athletes with FinTech awareness to approach debt financing decisions more cautiously.

Sport-Specific Differences in FinTech Adoption and Risk Perception

Independent samples t-tests revealed statistically significant differences between individual and team sport athletes in FinTech Awareness ($t[310] = 3.214$, $p = 0.001$, Cohen's $d = 0.36$) and Financial Risk Perception ($t[310] = -2.874$, $p = 0.004$, Cohen's $d = 0.32$). Individual sport athletes scored higher on FinTech Awareness ($M = 3.34$, $SD = 0.71$ vs. $M = 3.00$, $SD = 0.75$) but lower on Financial Risk Perception ($M = 3.38$, $SD = 0.72$ vs. $M = 3.63$, $SD = 0.65$), supporting H4. This pattern may reflect the greater financial self-reliance required of individual sport athletes who lack the institutional support structures including club management, federation stipends, and shared logistical resources more commonly available to team sport athletes in Pakistan.

One-way ANOVA revealed significant differences in Financial Literacy scores across sport disciplines ($F[7, 304] = 5.847$, $p < 0.001$, partial $\eta^2 = 0.12$). Cricket athletes demonstrated the highest Financial Literacy scores ($M = 2.94$, $SD = 1.08$), likely reflecting the greater institutional infrastructure and commercial exposure within Pakistan's cricket ecosystem. Kabaddi and wrestling athletes recorded the lowest Financial Literacy scores ($M = 1.87$ and $M = 1.93$, respectively), consistent with their more peripheral position in Pakistan's formal sports economy.

Discussion

This study presents the first systematic empirical investigation of FinTech-mediated debt financing behavior within Pakistani sports communities, yielding findings with significant theoretical and practical implications. The central finding that FinTech awareness significantly predicts debt financing utilization ($\beta = 0.412$, $p < 0.001$) is consistent with TAM-based predictions that perceived usefulness and familiarity drive technology adoption, and extends this literature to the specific context of digital lending behavior among athletes in an emerging economy (Davis, 1989; Venkatesh et al., 2003). However, the concurrent finding that only 29.5% of FinTech users demonstrated adequate comprehension of interest rate structures underscores that awareness of a technology's existence does not imply the financial competence to use it wisely.

The negative relationship between financial risk perception and debt financing behavior ($\beta = -0.287$, $p < 0.01$) aligns with Prospect Theory predictions regarding loss aversion as a behavioral moderator in financial decision-making (Kahneman & Tversky, 1979). Athletes who perceive higher financial risks associated with digital lending demonstrate more restrained borrowing behavior a functionally protective response. Notably, however, mean risk perception scores ($M = 3.54$) suggest that moderate-to-high risk awareness does not consistently prevent FinTech loan utilization among the sample, implying that situational financial pressures training costs, injury expenses, and income irregularity may override risk-based deliberation in many cases.

The moderation finding that financial literacy attenuates the positive FA–DFB relationship constitutes perhaps the most policy-relevant contribution of this study. This interaction effect indicates that athletes who combine FinTech awareness with substantive financial knowledge approach digital borrowing decisions with greater circumspection, suggesting that financial literacy functions as a cognitive 'braking mechanism' that moderates the impulsive adoption of available credit. This extends Lusardi and Mitchell's (2014) foundational financial literacy framework by demonstrating its applicability in novel FinTech-specific and occupationally distinctive contexts.

The sport-type differences identified with individual sport athletes showing higher FinTech adoption but lower risk perception suggest structural influences that future research should examine more granularly. Individual sport athletes in Pakistan operate with substantially greater financial autonomy and institutional isolation than team sport counterparts, a condition that may simultaneously drive FinTech platform adoption as a practical financial solution and limit exposure to collective financial learning that occurs within team environments. The significantly lower Financial Literacy scores among kabaddi and wrestling athletes reflect the broader marginalization of these sports within Pakistan's formal economic and educational ecosystems, and suggest that financial literacy interventions must be discipline-sensitive rather than assuming uniform knowledge deficits across sporting contexts.

The finding that 18.3% of FinTech borrowing among athletes was motivated by medical and injury-related costs reveals a critical systemic gap: the absence of adequate athlete health insurance and sports injury compensation frameworks in Pakistan drives athletes toward high-cost digital credit to meet healthcare needs. This creates a compound vulnerability in which career-threatening physical injuries simultaneously impair earning capacity and generate high-cost debt obligations a financial adversity cycle that structural policy interventions must address.

Comparing these findings with the limited existing literature on athletes' financial behavior in other contexts reveals both convergences and divergences. The financial vulnerability patterns documented are broadly consistent with North American research showing athletes' susceptibility to financial distress (Gough et al., 2019), but the specific mechanism FinTech-mediated digital borrowing in the absence of financial literacy is distinctive to the Pakistani emerging market context and represents a novel pathway

to athlete financial distress that prior research has not examined. The Pakistani context's combination of expanding FinTech infrastructure, limited regulatory consumer protection, and underdeveloped athlete welfare systems creates a particularly acute risk environment.

Conclusions and Recommendations

Conclusions

This cross-sectional study of 312 Pakistani athletes across five sports disciplines and four cities provides robust empirical evidence that FinTech platforms are playing an increasingly significant role in shaping debt financing decisions within sports communities. The study demonstrates that while FinTech awareness drives digital borrowing behavior, it does so against a backdrop of inadequate financial literacy and suboptimal risk perception that exposes athletes to preventable financial vulnerabilities. The moderating role of financial literacy underscores its protective function in mediating between FinTech familiarity and responsible debt financing outcomes. Sport-specific differences in financial awareness and risk perception highlight the need for contextualized rather than generic financial education interventions within Pakistan's diverse sports ecosystem.

Policy Recommendations

Based on the study's findings, the following recommendations are advanced:

1. National Sports Federations should integrate structured financial literacy curricula with specific modules on FinTech products, digital loan mechanics, and debt management into athlete development and licensing programs. Particular emphasis should be placed on disciplines with lower financial literacy scores, including kabaddi and wrestling.
2. The State Bank of Pakistan and Pakistan Telecommunication Authority should strengthen disclosure and consumer protection regulations specifically applicable to FinTech lending products, with particular attention to interest rate transparency, true cost of credit disclosure, and target marketing restrictions to financially vulnerable populations.
3. The Pakistan Sports Board should develop partnerships with reputable FinTech providers to create sport-specific financial products with transparent terms, appropriate credit limits, and integrated financial counseling addressing the genuine credit needs of athletes through regulated rather than predatory channels.
4. Provincial sports departments should establish athlete welfare funds to address injury-related financial emergencies reducing the pressure that drives athletes toward high-cost digital borrowing for healthcare needs and should explore public-private partnerships for athlete health insurance schemes.
5. Academic institutions offering sports management and physical education programs in Pakistan should incorporate financial management and digital financial literacy as core curriculum components, building long-term financial competency at the foundational level of athlete education.

Limitations and Future Research Directions

This study has several limitations that should be acknowledged. The cross-sectional design precludes causal inference regarding the directionality of relationships between FinTech awareness and debt financing behavior; longitudinal designs tracking athletes across career stages would provide greater insight into dynamic financial behavior evolution. The sample, while diverse, is concentrated in four major cities and may not fully represent athletes from smaller cities and rural areas, where FinTech infrastructure

limitations and cultural attitudes toward digital financial services may differ substantially. Self-reported data is subject to social desirability biases, particularly for items relating to debt amounts and repayment difficulties.

Future research should employ longitudinal methodologies to examine how financial behavior evolves across athletic career stages, from early development through peak performance to post-career transition. Qualitative studies incorporating in-depth interviews with athletes about their FinTech experiences would complement the quantitative portrait offered here. Comparative studies across South Asian economies including India, Bangladesh, and Sri Lanka would illuminate how different regulatory environments and sports ecosystems shape athlete financial behaviors. Furthermore, research specifically examining female athletes' FinTech experiences is critically needed, given the gender dynamics of sports participation and financial access in Pakistan.

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