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A qualitative analysis of the economic profile of athletes

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Abstract
In the present study, the socio-economic profile of the athletes was analyzed. Over a hundred athletes' were selected by disproportionate stratified sampling. Dependent and independent variables were used to assess the socio-economic status including education status, place of residence, annual family income, annual expenditure of athletes' and annual sports expenditure. The objective of this research is to analyze the family income and patterns of expenditure among athletes of different sports. Descriptive and inferential statistics were used to analyze the relationship between income and expenditure; chi-square was used to test the hypothesis and one way ANOVA was used to analyze the differences between the variables. In the study, income status was categorized into three levels *viz.* median, percentile and quartile values and reported that the majority of the athlete belongs to low-income group. Results further revealed that athletes annually spend 15.27% of their mean annual family income and spent around 16.15% on the purchase of sports items. Family income has a significant effect on the annual expenditure of the athlete.

Keywords: Sports, athletes, income, expenditure, financial status

1. Introduction
In the last few decades sport has become a competitive and professionalized industry where financial status would normally cause changes in the socioeconomic and social standing of the populace [9, 31]. The wide range of sports disciplines in India reflects the country's diverse culture, economic, and tribes. There are hundreds of sports, ranging from single-player competitions to those involving hundreds of people competing simultaneously in teams or as individuals which is affected by the economic status of the individual athlete. Income level is the major factor that influence consumption spending of an individual. However, income is not the only factor that influences spending, as loan and saving also affect spending. Spending of course fulfill the needs for basic necessity of an individual and family members.
Most of the studies [49, 33] examining the influencing factors of sports consumption have focused on individual expenditure such as family income and type of sports. Comparison of the distribution of sport consumption over the last 20 years shows it to have greatly increased its share in household consumption, while drastically decreasing its share in public expenditure [36]. The economic importance of sport in terms of GDP or other expenditure varies from one country to another, ranging between 1.5% to 2% of family expenditure. Therefore it is clear that sport has become a growing economic sector, with sporting goods and services taking up a significant portion of overall consumption.
Many previous researches focused on the influence of the socio-demographic variables (gender, age, degree of urbanization and region), socio-cultural variables (education, occupation and household size) and economic variables (income and occupation) involved in sports participation and sports consumption, which can be used to explain the demand for sport, especially if different sports and physical activities are considered [23]. From past few decade sports participation among individual has increased from 56.8% to 64.3% [32], with this the expenditures on sports participation have also increased by 1.5% to 3.0% and that expenditure on sports contributes to a significant part of the global industry [40].
Based on the above mentioned, it is obvious that there is deep relation between income and participation or consumption of sports related items. Sports consumption is too often considered as a composite item, despite studies demonstrating that the influencing elements of sports participation and sports expenditure varies depending on the sports activity under consideration [12, 49].

Consequent, the major part of the present studies focused on the family income and expenditure of the athletes practiced sports.

2. Materials and Methods

Income is often found to be associated with socio-demographic factors such as gender, age, region, education and occupation [17, 4, 5]. The purpose of the present study was conducted among the athletes from Hisar district of Haryana state from two different sports complex. In both the sports centers university, district, state and national level players from different institutions practice their game/sport.

2.1 Sampling procedure

Athletes who participated in various sports over the previous year were listed in table 1. From this list, a hundred athletes were selected from different sports. Disproportionate stratified sampling procedure was used to draw the sample. Out of reported individual and team sports, the following were played by the athletes.

Table 1: Involvement of athletes in different sports

Individual sports	Team sports	
Athletics	Basketball	Field hockey
Boxing	Cricket	Kabaddi
Wrestling	Badminton	Volleyball

Table 1 shows the distribution of athletes' participation in different sports. A total of nine sports were practiced by athletes in selected sports complex. The majority of athletes (53.00%) participated in individual sports *viz*. athletics, wrestling, and boxing, while 47.00% participated in team sports *viz*. volleyball, badminton, basketball, field hockey, cricket and kabaddi. The maximum number of athletes practiced athletics (20.00%) followed by wrestling (17.00%), volleyball (16.00%), basketball (13.00%), boxing (12.00%), hockey (09.00%), cricket (06.00%), badminton (04.00%) and kabaddi (03.00%).

2.2 Tools and techniques of data collection

A survey was conducted to collect the data on general information included personal information, socio-economic status of the family, financial assistance/support, sports participation at different levels and satisfaction level of the athletes about the financial assistance provided by authority. Gender was classified as male and female. Place of birth was categorized as urban and rural. Education was classified as secondary, senior secondary, undergraduate graduate and post graduate [14].

Income levels were classified based on commonly used summary measures of income level i.e., median, percentiles, quartiles and quintiles [45] of the family income.

For the analysis, these were arbitrarily classified as:

1. **Income levels (Median):** Income was categorized into two groups-low and high, (using the median as threshold value).
2. **Income levels (Percentiles):** Income was categorized into three groups-low (below 50th percentile), middle (50th-75th percentile) and high (above 75th percentile).
3. **Income levels (Quartiles):** Income was categorized into four income groups - low, lower middle, upper middle and high income group.

2.3 Hypothesis

H0: Expenditure on sports related items are depend on sports categories.

H1: Expenditure on sports related items are not depend on sports categories

2.4 Statistical analysis

In this research descriptive and inferential analysis (correlation and regression) methods were used in statistical data processing. Percentage, mean values, standard deviations and weighted mean score were calculated as descriptive statistical indicators. Pearson's correlation and regression analysis was use to analyze the relation between the family income, athletes annual general expenditure and expenditure in sports related items. For testing the hypothesis chi-square tests of independence were performed to examine the association between expenditure on sports apparels, food/supplement and accessories. One way ANOVA was used to analyze the differences between annual family income and expenditure. The significance value was determined to be $p<0.05$ and 0.01.

3. Result

3.1 Socio-economic profile of athletes

Table 2 gives an overview of the socio-demographic determinants (gender, age, education, place of residence and competition level) that have been investigated in a large selection of sports consumption in study. Female athlete's participation was reported more than the male athletes, categorized under different sports authorities *viz* SAI sports training center and non-SAI sports training center. Among the female athlete majority were from non-SAI training center and less than half were practiced under SAI, similar percentage were found about male athletes. In line with the current finding by Pawlowski and Breuer, (2011) [30]; Wicker *et al*., (2010) [49] also reported that relation between age, education status, place of residence and competitive level was unclear.

Table 2: Socio-demographic profile of athletes

Variables	Frequency/Percentage (n=100)
Gender	
Female	53
SAI	23 (43.39)
Non-SAI	30 (56.61)
Male	47
SAI	19 (40.42)
Non-SAI	28 (59.57)
Age (years)	
Female	19.09±2.39
Male	19.98±1.78
Education status of athletes	
Secondary	07
Senior secondary	26
Undergraduate Graduate	51
Post Graduate	16
Place of residence	
Rural	50 (50.00)
Urban	50 (50.00)
Competitive levels (*)	
School	60
District	57
State	56
University/college	56
National	62
International	04

Fig. in parentheses indicate the percentage, SAI= sports authority of India, Non-SAI= athletes from CCSHAU and Mahavir stadium. *Multiple responses.

Athletes compete in variety of sports at various levels like school, district, state, National, and International level. Study asserts the athletes' participation in various events and multiple responses of the athletes were reported about the participation at different level of sports competitions (table 2). Study further reported that athletes practiced under SAI represented their respective sports at all the competitive levels, while non-SAI athletes participated in school, district, state and university athletics meets, which included Inter & Intra university, north zone and south zone university-level sports competitions.

3.2 Economic profile of the athletes

The economic profile of the athletes practicing in the various sports centers of Hisar, is presented in table 3. Annual family income and expenditure of the athletes were divided into three categories and sports expenditure was divided into four categories. Family income of the athletes' might have positive impact on expenditure pattern [41] as income of an individual directly affects the expenditure of the individual and expenditure of an individual depends on the type of lifestyle. The relationships among annual family income, athletes' annual general expenditure and annual sports expenditure was presented by the linear regression chart: Fig a and Fig b.

Table 3: Economic profile of the athletes

Annual Family income (Rs.)	Frequency/Percentage
<5L	73
5-10 L	21
>10 L	06
Mean	SD
521400	317764
Annual expenditure (Rs.)	
<50K	52
50K-1L	38
>1 L	10
Meant	SD
79620	56651.12
Sport expenditure yearly (Rs.)	
<5K	34
5-10 K	29
10-20 K	27
>20 K	10
Mean	SD
12860	12417

Fig. in parentheses indicate the percentage.

Figure a explained that annual family income significantly (α=0.05) affects annual athlete's general expenditure. There was 93.74% change in athlete's general expenditure with respect to the annual family income. Similarly figure b explained that annual family income significantly (α=0.05) affects athletes' annual sports expenditure. There was 93.53% change in athletes' sports expenditure with respect to the annual family income. In line with the findings of Eakins (2016) [7], Løyland and Ringstad (2009) [25], Pawlowski and Breuer (2012) data in the current study reported that annual expenditure has positive effect on income-expenditure. In contrast study by Humphreys and Ruseski (2011) [12] discussed that income had a favorable influence on the decision to participate in sports, but there was a negative association observed between income and the amount of expenditure [13].

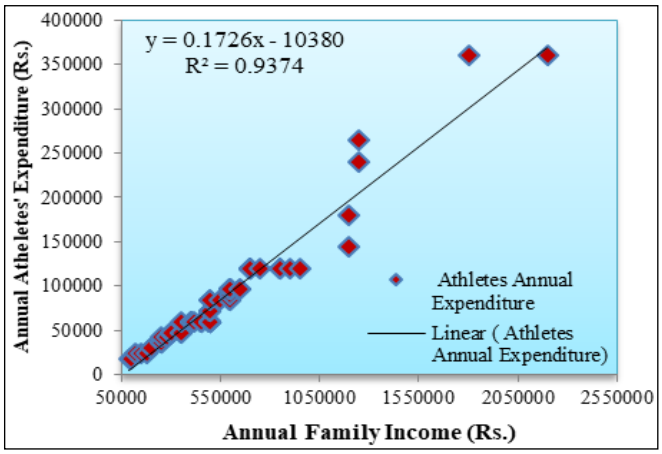


Fig A

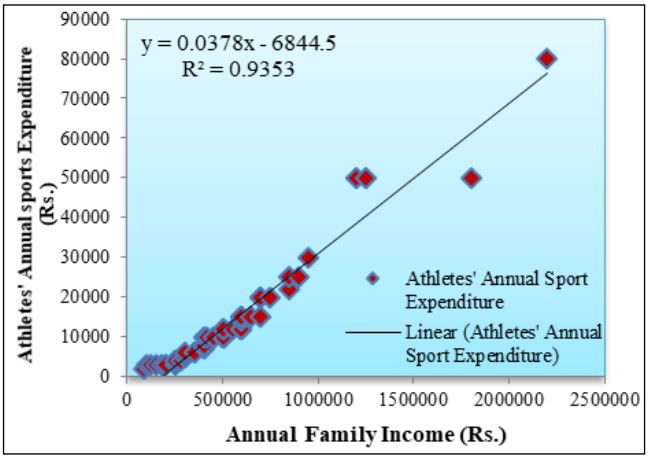


Fig B

Fig 1: Impact of annual family income on athletes' annual expenditure pattern

3.3 Family income level distribution of athletes

The income distribution of respondents using various categorization methods by United Nations (2011) [45], Jami (2018) [19]. The income distribution of athletes based on different classification methods are shown in Table 4. Followed by Jami (2018) [19] findings, current study classified income level on the basis of median, percentile and quartile. It was observed that when income was classified through the median values about 65% of the athletes were grouped under the low income group (LIG) while 35% were classified under the high income group (HIG). On the basis of percentile classification three groups were observed where 47% athletes family income level was low, 34% were middle, and 19% having high income level. Similar, income classification based on quartiles also revealed that majority of the athletes were belong to low and lower middle income groups.

Table 4: Family income level distribution of athletes based on different classification method

Income level (Median)	Median value	Annual family Income (*)
Low income group	5L Rs	65
High income group		35
Income level (Percentile)	**Percentile value**	
Low income group	<5L Rs	47
Middle income group	5L-6LRs	34
High income group	>6L Rs	19
Income level (Quartiles)	**Quartile value**	
Low income group	3L Rs	31
Lower middle income group	5L Rs	34
Upper middle income group	6L Rs	16
High income group	22L Rs	19

*****Frequency/percentage

3.4 Financial status of athletes based on different categories

The financial status of athletes sports based on events in sports was discussed in table 5. The extent of monetary investment by players was divided into three categories as proposed by Verma and Verma (2016) [47]. Generally, in sports like athletics, *kabaddi* and wrestling (category I), athletes spend less money on clothing and sports accessories as compared to volleyball, basketball, and boxing (category II) whereas sports like cricket, field hockey, and badminton (category III), athletes need more clothing and maintenance of sports accessories.

Statistical analysis explained the significant variance ($p<0.05$, $p<0.01$) among annual family income, athletes' general expenditure and expenditure on sports item. Sports categorized under group III showed minimum variance between annual income and expenditure as compare with group II and group I sports.

Sports under category III (field hockey) had the highest annual sports expenditure, followed by category II sports (boxing) and category I sports (wrestling).

Table 5: Category wise financial status of the athletes

Category	Sports	Annual family Income (Rs.) (Mean ± SD)	Annual athletes Expenditure (Rs.) (Mean ± SD)	Annual sports expenditure (Rs.) (Mean ± SD)	F-statistic	T- statistic	p-value	Critical value
I	Athletics	5.24L±03.81L	68.10K±28.36K	16.25K±17.91K	28.76**	3734.87	0.00**	9.48
	Kabbadi	3.83L±01.44L	56.00K±06.93K	8.00K±06.08K	09.85*			
	Wrestling	4.58L±01.32L	99.50K±55.90K	11.11K±04.04K	139.71**			
II	Volleyball	5.03L±01.89L	64.13K±33.49K	06.93K±03.92K	83.68**	2852.05	0.00**	9.48
	Basketball	3.76L±01.58L	67.85K±29.43K	07.23K±02.94K	54.86**			
	Boxing	8.70L±04.93L	01.29L±01.22L	18.41K±19.43K	56.66**			
III	Cricket	4.50L±01.89L	68.00K±25.92K	10.00K±02.60K	19.75*	3604.43	0.00**	9.48
	Field hockey	3.07L±99.61K	64.00K±24.00K	19.88K±04.22K	53.82**			
	Badminton	6.87L±03.75L	75.00K±35.83K	13.75K±07.50K	07.98*			

n=100 *$p<0.05$, **$p<0.01$.

The heterogeneous composition of the sport expenditure has also shown in table 5. Table has examined the effects of total annual sports expenditure on different sports items including sports apparel, food/supplements and accessories. A chi square test was performed among the sport within a group.

Table 5 further exhibits that the test statistic ($\varkappa^2$) is higher than the critical value and p-value was below the significance level conformity hence the statistical analysis reject H0 (null hypothesis).

3.5 Correlation among income and expenditure variables

Correlation coefficient, also known as linear correlation coefficient, is a statistical analysis indicator that determines the linear relationship between variables. The equation $0<|r|<1$ suggests that there is some linear connection between two variables. The closer |r| approaches one, the stronger the linear correlation between the two variables. The closer |r| gets to 0, the lower the linear correlation between the two variables. The value 0.00 to 0.30 (0.00 to -0.30) have negligible correlation, 0.30 to 0.50 (-0.30 to -0.50) have Low positive (negative) correlation, 0.50 to 0.70 (-0.50 to -0.70) have Moderate positive (negative) correlation, 0.70 to 0.90 (-0.70 to -0.90) have High positive (negative) correlation (10, 11). Table showed the relation among the annual income and annual expenditure of the athletes on sports related items. Annual family income and general expenditure shows negligible to low correlation ($\alpha=0.05$) with annual sports expenditure including sports apparel, food/supplements, accessories. On contrary annual sport expenditure shows moderate to high correlation ($\alpha=0.05$) with expenditure on sports apparel (r=0.612-0.770). Sports food/supplement and accessories showed low relation with each other.

Table 6: Correlation among income and expenditure variables

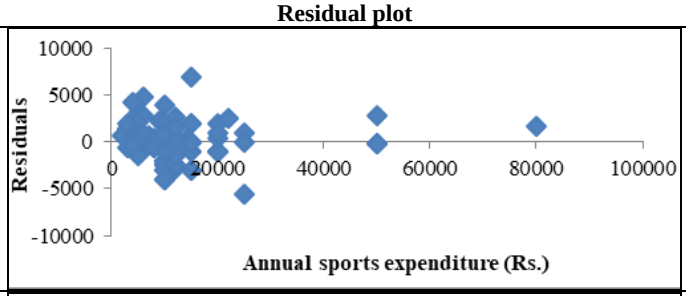
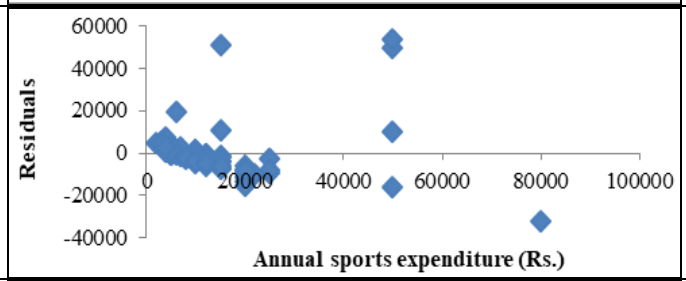
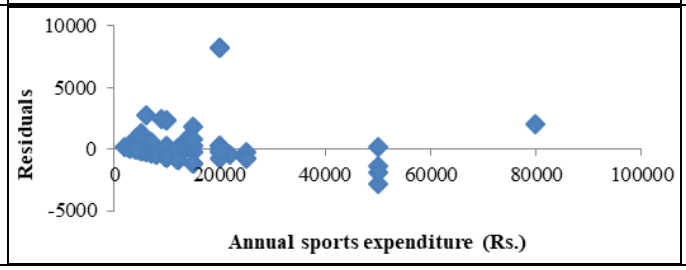
Variables	Annual family Income	Annual athletes Expenditure	Annual sports expenditure	Expenditure on sports apparel	Expenditure on sports food	Expenditure on sports accessories
Annual family Income	1					
Annual athletes general Expenditure	0.381	1				
Annual sports expenditure	0.302	0.231	1			
Expenditure on sports apparel	0.288	0.163	0.770*	1		
Expenditure on sports food/supplements	0.157	0.268	0.748*	0.693*	1	
Expenditure on sports accessories	0.281	0.109	0.637*	0.612*	0.432	1

*$\alpha=0.05$

3.6 Relation among annual sports expenditure of the athletes

A multiple linear regression and residual plot was performed within a group explain in table 7. Significant relation (p<0.01) was found among annual sport expenditure, expenditure on sports apparel, food/supplements and sports accessories. Residual plot in table 3.6 shows the dependent variable (expenditure residuals) on the vertical axis and the independent variable (total annual expenditure) on the horizontal axis. The data in plot depicts the heteroscedasticity (non-linear association) with outliers.

Table 7: Relation among annual sports expenditure and expenditure on sports apparels, sports food/supplement and sports accessories

Expenditure	Annual sports expenditure (R^2)	Residual plot
Expenditure on sports apparels	**0.593	
Expenditure on sports food/supplement	**0.559	
Expenditure on sports accessories	**0.407	

**p<0.01

3.7 Financial assistance and satisfaction dimensions regarding facilities provided by organizations to athletes

Table 8 highlighted the financial support provided to the athletes by their respective sports authorities. Financial assistance was provided in the form of sports cash holds (based on position in the event), sports clothing/kit, and refreshment during camps. Athletes satisfaction level about 'sports kit' was highest (WMS= 40.83) followed by 'sports stipend' (WMS=31.17) and 'refreshment (during camp)' (WMS=35.17). Refreshment and refreshment money (coupons) was provided by SAI and HAU authorities during camp. The overall weight means score was 35.72.

Table 8: Satisfaction dimensions regarding facilities provided by organizations

Satisfaction dimensions	Great extent	Some extent	Not at all	WMS	Overall WMS
Sports stipend/cash prize	14	59	27	31.17	35.72
Sports kit	51	43	06	40.83	
Refreshment (during camp)	25	61	14	35.17	

n=100 *WMS=Weight mean score

4. Discussion

Study aimed to determining the socioeconomic patterns associated with sporting activity and the expenditure [22]. Study reported the participation of the athletes in nine different sports under selected sports centers. Over hundred athletes' selected through disproportionate stratified sampling, practiced individual and team sports. Ismail *et al.* (1997) in a similar study on national athletes also reported the same number of sports. Sports specialization is intense and year-round training in a single sport with the exclusion of other sports [19, 25]. The participation of female athletes in the above nine sports was more than male athletes'. The increase in participation by female athletes slightly outpaced their male counterparts were also reported by Irick (2016) [16]; on the contrary Brown and Prinstein (2011) [3] mentioned that girls are still less active than boys, especially during adolescence.

The socio-economic profile of the athletes comprised education status, place of residence, annual family income, annual general expenditure and annual sports expenditure of athletes'. Data revealed the education status of the athletes from freshman year of high school to postgraduate level. Half of the athletes were pursuing graduation (51.00%), around one-fourth were pursuing senior secondary (26.00%), the rest of one-fourth were in post-graduation (16.00%) and only 07.00% secondary. Further in previous studies [40, 49] data have shown the significant effect on sports by purchasing power and educational level, in contrast with these findings there was no relation found between these two variables.

Athletes annually spend average 15.27% of their mean annual family income and out of mean annual expenditure 16.15% was spent on the purchase of sports items. As expenditure in sports refers to the sportswear, sports equipment, accessories and its maintenance [1, 35] the spending on sports items depends on the type of sports, frequency of purchase and

duration of sports activities [28]. Literature also analyzed that athletes' expenditure on sports includes passive and active sports consumption which was affected by demographic, socioeconomic and sports socialization factors [20, 21, 38]. The extent of monetary investment by players was divided into three categories as proposed by Verma and Verma (2016) [47]. Players under category I (including sports like athletics, *kabaddi*, and wrestling) spend less money on clothing and sports accessories as compared to category II (volleyball, basketball, and boxing) whereas athletes under category III (cricket, field hockey, and badminton) need more clothing and maintenance of sports accessories. Category III sports (field hockey) had the highest annual sports expenditure, followed by category II sports (boxing) and category I sports (wrestling) similar findings were also reported by Verma and Verma (2016) [47]. In line with the study of Jami (2018) [19] family income was categorized income levels on median, percentile and quartile values often provide generalized cut-off points [27, 45, 6, 26]. Annual family income level classification based on median, percentile and quartile revealed that majority of the athlete were belong from low income group similar as Jami (2018) [19] finding. Income also had a positive influence on the amount of money spent [39]. As income directly affects the expenditure of the individual, the annual family income of the athletes' was significantly (α=0.05) affects the annual general and sports expenditure of athletes', similar findings were also highlighted in the literature by Wicker *et al.* (2010) [49]; Pawlowski and Breuer (2011) [30]; Thrane (2001); Breuer and Schlesinger (2006) [2].

With chi square analysis it has been concluded that annual sports expenditure on sports related items are not depend on mentioned sports categories, this rejected the null hypothesis. Whereas regression analysis showed significant association [28] with annual sport expenditure where residual plot depicts non-linear association with outliers. In accordance with the present finding result showed that there was significant difference between amounts of annual sports expenditures and expenditure on single items. A contrast finding was reported by Paár *et al*. (2021) [29] in a study on comparative analysis of sports consumption.

Study further exhibits the low relation with family income and expenditure; whereas only sport related expenditure showed significant (α=0.05) moderate and high correlation with sport related items.

Further, the study discussed the satisfaction level of the athletes' towards the facilities provided by the organizations. Financial assistance for athletes was necessary in order to strengthen the spirit of sports competition, make it more accessible to everyone, and raise the economically weaker & competent sections of society. In line with this, the present study reported that organizations have also offered other financial help to the athletes [8]. The athlete's were satisfied with the facilities provided by their individual organization. Satisfaction is defined as a subjective domain-specific response exhibited by an athlete while considering all factors of achieving a certain goal. It is psychologically dynamic dependent on both individual and environmental aspects influencing the specified reaction. As a result, an athlete's degree of satisfaction plays an important role in determining stimulating elements in the development and execution of successful goal-related outcomes [34]. For example, when it came to regarding the financial assistance provided in the form of 'sports kit', 'sports stipend' and 'refreshment (during camp)', most of the athletes were satisfied upto some extent. The reason behind the low satisfaction level of the athletes was the late transaction of the cash prize & stipend by the authority and most of the time athletes had to go through with the time consuming procedure.

5. Conclusion

Study gives the detail about the athletes' involvement in different types of sports activities, socio-economic profile of the athletes, monthly expenditure and their satisfaction level towards the financial help provided by their respective authority.

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