## 4.1 Overview

This chapter presents the statistical analysis of data collected on 180 inter collegiate volleyball players. Data on volleyball skill tests and motor fitness components were gathered.

Descriptive analysis was used to highlight the prominence and dominance of specific variables in the given context. To examine the significant relationship of selected motor fitness components with the subjects' volleyball skill performance scores, Karl Pearson's product moment correlation statistical technique was applied.

Multiple correlation analysis was used to predict volleyball skill test performance scores based on motor fitness components.

In order to determine which factors had the biggest influence on the performance scores of intercollegiate volleyball players, multiple regression analysis was also used.

## 4.2 Level of Significance

The level of significance to ascertain the relationship obtained by Karl Pearson's product moment correlation was set at 0.05 level of confidence, which was considered adequate for the purpose of this study.

**Table 4.1 : Male Volleyball Players' Descriptive Statistics in Relation to their Motor Fitness Components and Volleyball Skill Performance**

| No. | Variable | Mean | S.D. | Variance | Minimum | Maximum | Skewness | Kurtosis |
|---|---|---|---|---|---|---|---|---|
| 1. | Speed | 7.23 | 0.61 | 0.37 | 6.00 | 9.10 | 0.30 | 0.11 |
| 2. | Agility | 13.22 | 0.85 | 0.72 | 6.78 | 13.22 | 0.10 | 2.02 |
| 3. | Flexibility | 25.59 | 6.21 | 39.00 | 11.00 | 45.00 | 0.07 | 0.05 |
| 4. | Explosive Power | 44.98 | 7.05 | 49.74 | 29.00 | 67.00 | 0.21 | 0.27 |
| 5. | Cardio-vascular Endurance | 3014.00 | 360.82 | 130189.56 | 1270.00 | 3014.00 | 0.75 | 0.70 |
| 6. | Volleying Ability | 30.00 | 3.62 | 14.00 | 8.00 | 30.00 | 0.07 | 0.41 |
| 7 | Service | 18.72 | 3.13 | 9.82 | 10.00 | 28.00 | 0.07 | 0.38 |

| No. | Variable | Mean | S.D. | Variance | Minimum | Maximum | Skewness | Kurtosis |
|---|---|---|---|---|---|---|---|---|
| | Ability | | | | | | | |
| 8 | Right Passing Ability | 2.93 | 1.22 | 0.97 | 1.00 | 7.00 | 0.20 | - 0.41 |
| 9 | Left Passing Ability | 2.41 | 0.98 | 1.49 | 1.00 | 7.00 | 0.70 | 1.73 |
| 10 | Right Set-Up Ability | 3.32 | 1.22 | 1.60 | 1.00 | 7.00 | 0.43 | 0.39 |
| 11 | Left Set-Up Ability | 2.89 | 1.27 | 1.47 | 1.00 | 6.00 | 0.60 | - 0.19 |

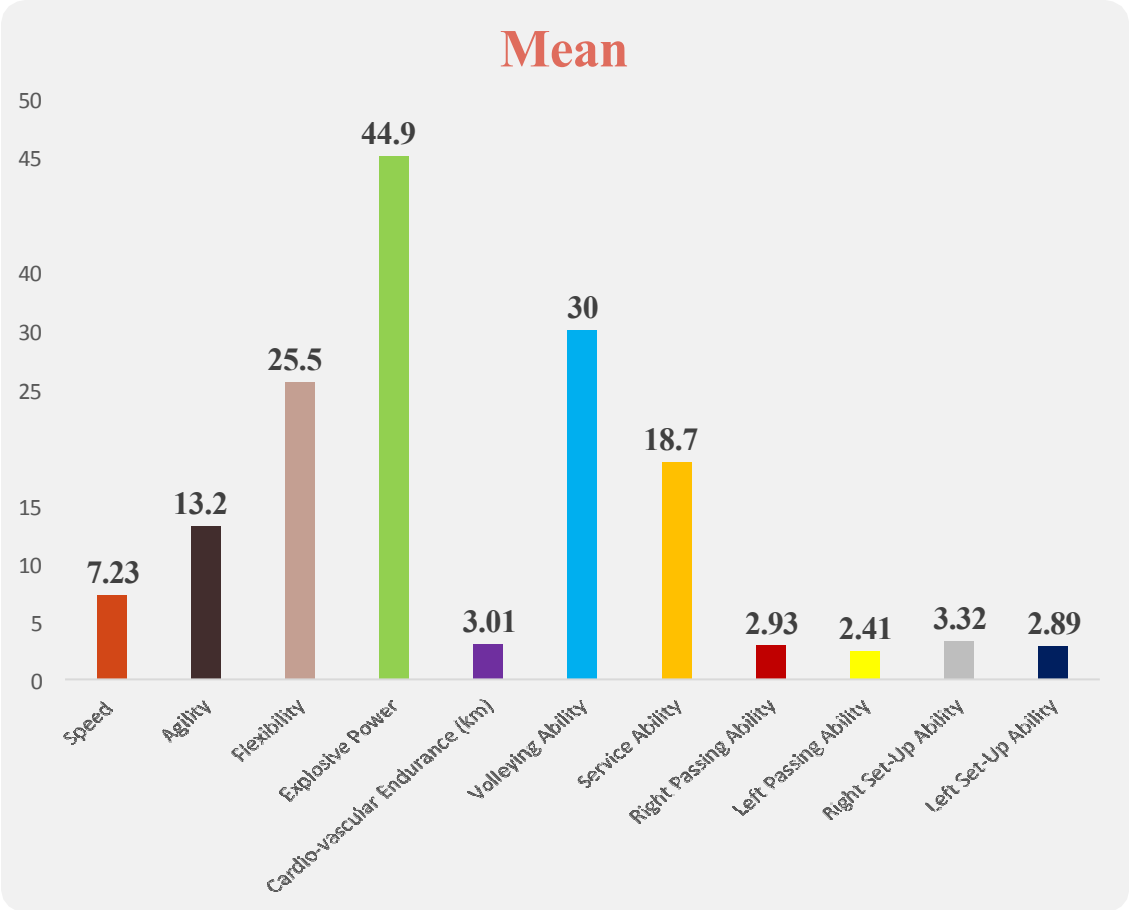


**Fig 4.1: Graphical Presentation of Mean Value of Male Volleyball Players of Motor Fitness Components and Volleyball Skill Performanc**

Table 4.1 clearly illustrates the speed at which male volleyball players can be found. Its mean value and standard deviation were 7.23 ± 0.61, variance was 0.37, minimum was 6.00, maximum was 9.10, skewness was 0.30 and kurtosis was 0.11, respectively.

The mean and standard deviation of agility were 13.22 ± 0.85, variance was 0.72, minimum was 6.78, maximum was 13.22, skewness was 0.10, and kurtosis was 2.02.

The mean and standard deviation of flexibility were 25.59 ± 6.21, variance was 39.00, minimum was 11.00, maximum was 45.00, skewness was 0.07, and kurtosis was 0.05.

The mean and standard deviation of explosive power were 44.98 ± 7.05, variance was 49.74, minimum was 29.00, maximum was 67.00, skewness was 0.21, and kurtosis was 0.27.

The mean and standard deviation of cardio-vascular endurance were 3014.00 ± 360.82, variance was 130189.56, minimum was 1270.00, maximum was 3014.00, skewness was 0.75, and kurtosis was 0.70.

Table 4.1 also demonstrates the volleying ability of male volleyball players. The variance was 14.00, the minimum was 8.00, the maximum was 30.00, the skewness was 0.07, and the kurtosis was 0.41, respectively. The mean value and standard deviation were 30.00 ± 3.62.

The mean value and standard deviation of service ability were found to be 18.72 ± 3.13, while the variance was 9.82, minimum 10.00, maximum 28.00, skewness 0.07, and kurtosis -0.41, in that order.

The mean value and standard deviation of right side passing ability were found to be 2.93 ± 1.22, while the variance was 0.97, minimum 1.00, maximum 7.00, skewness 0.20, and kurtosis - 0.40, in that order.

The mean value and standard deviation of left side passing ability were found to be 2.41 ± 0.98, while the variance was 1.49, minimum 01.00, maximum 07.00, skewness 0.70, and kurtosis 1.73, in that order.

The mean value and standard deviation of right side set-up ability were found to be 3.32 ± 1.22, while the variance was 1.60, minimum 01.00, maximum 07.00, skewness 0.43, and kurtosis 0.39, in that order.

The mean value and standard deviation of left side set-up ability were found to be 2.89 ± 1.27, while the variance was 1.47, minimum 01.00, maximum 06.00, skewness 0.60, and kurtosis - 0.19, in that order.

**VOLLEYING ABILITY:**

**Table 4.2 : Relationship of Motor Fitness Components with Volleying Ability of Volleyball Players**

| Sr. No | Motor Fitness Components | Volleyball Skill | Correlation Co-efficient | Sig. (2-tailed) |
|---|---|---|---|---|
| 1 | Speed | Volleying Ability | 0.150 | 0.04 |
| 2 | Agility | | - 0.160 | 0.03 |
| 3 | Flexibility | | - 0.159 | 0.03 |
| 4 | Explosive Power | | - 0.086 | 0.25 |
| 5 | Cardio-vascular Endurance | | - 0.037 | 0.62 |

***Statistical significant at 0.05 level**

The correlation coefficient between the volleying ability and motor fitness components of the volleyball players was presents in table 4.2. The statistical findings demonstrated that the speed **(r = 0.150, p<0.05)** significantly positive and agility **(r = - 0.160, p<0.05)** and flexibility **(r = - 0.159, p<0.05)** significantly negative correlation with the volleying ability. Regarding the other variables, there was a negative but not statistically significant correlation between explosive power **(r = - 0.086, p>0.05)** and cardio-vascular endurance **(r = - 0.037, p>0.05)** and volleying ability.

The graphs illustrate has been presented relationship of selected motor fitness components to volleying ability of volleyball players.

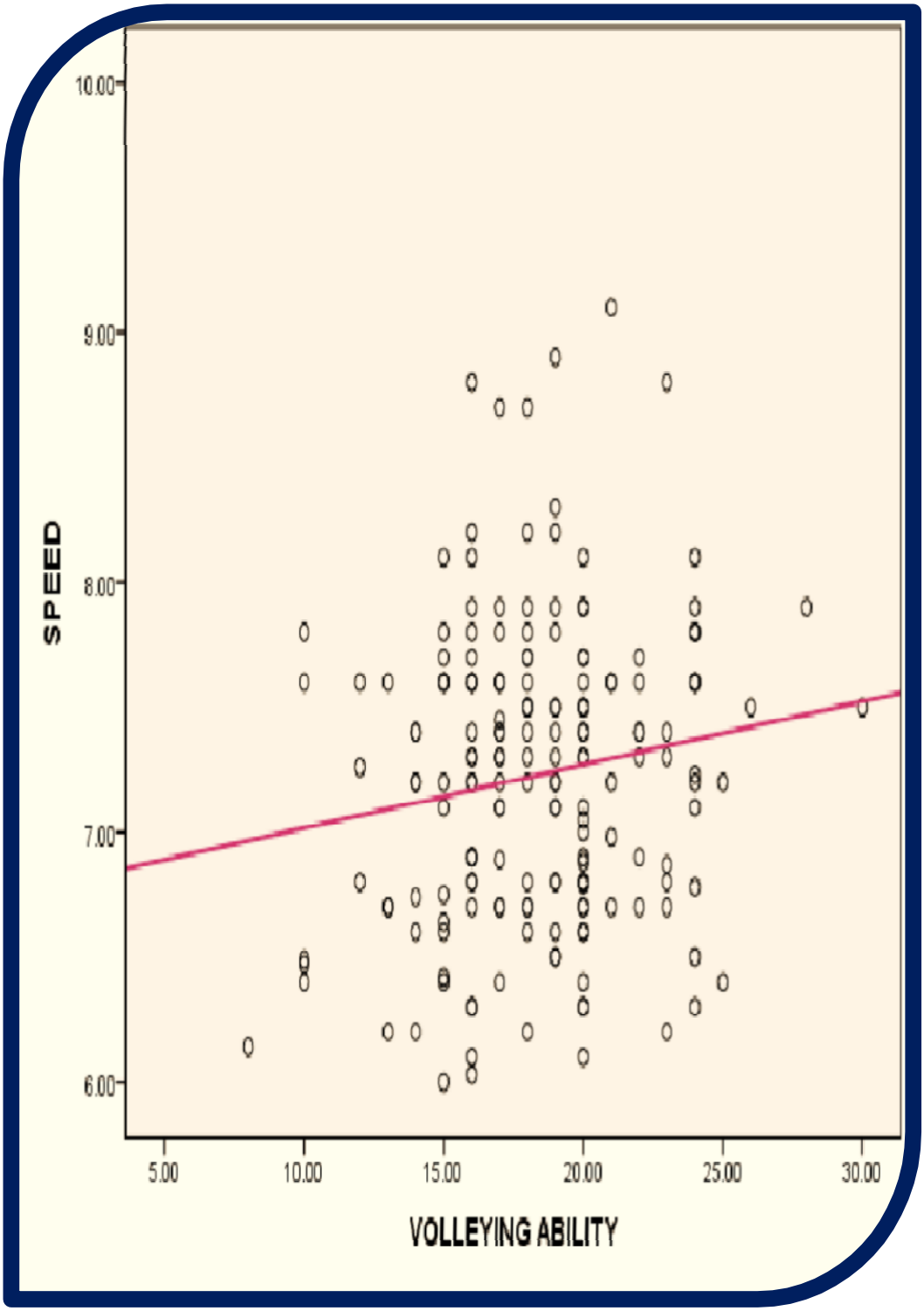


**Fig. 1 : Volleying Ability and Speed Relationship**

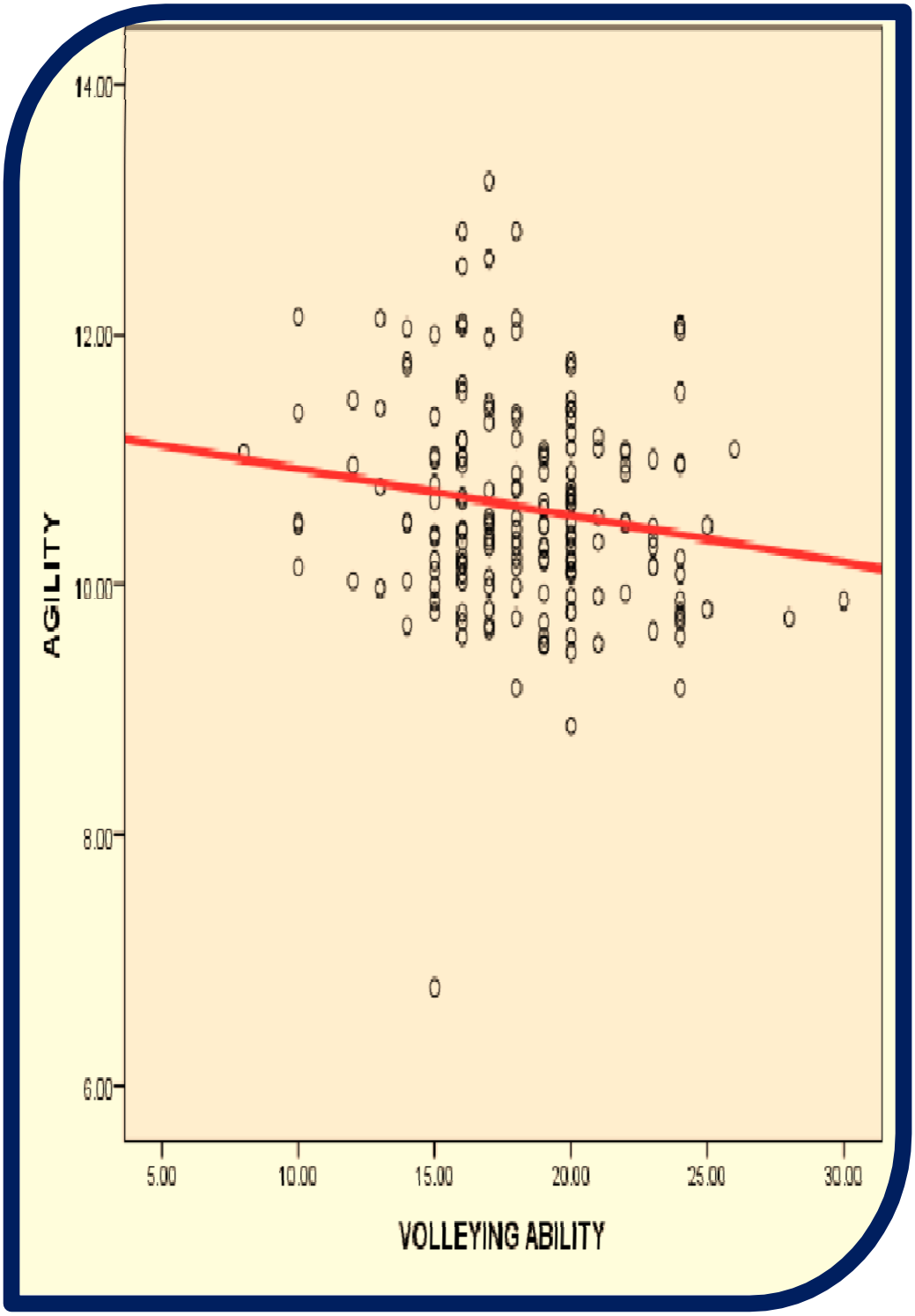


**Fig. 2 : Volleying Ability and Agility Relationship**


**Fig. 3 : Volleying Ability and Flexibility Relationship**

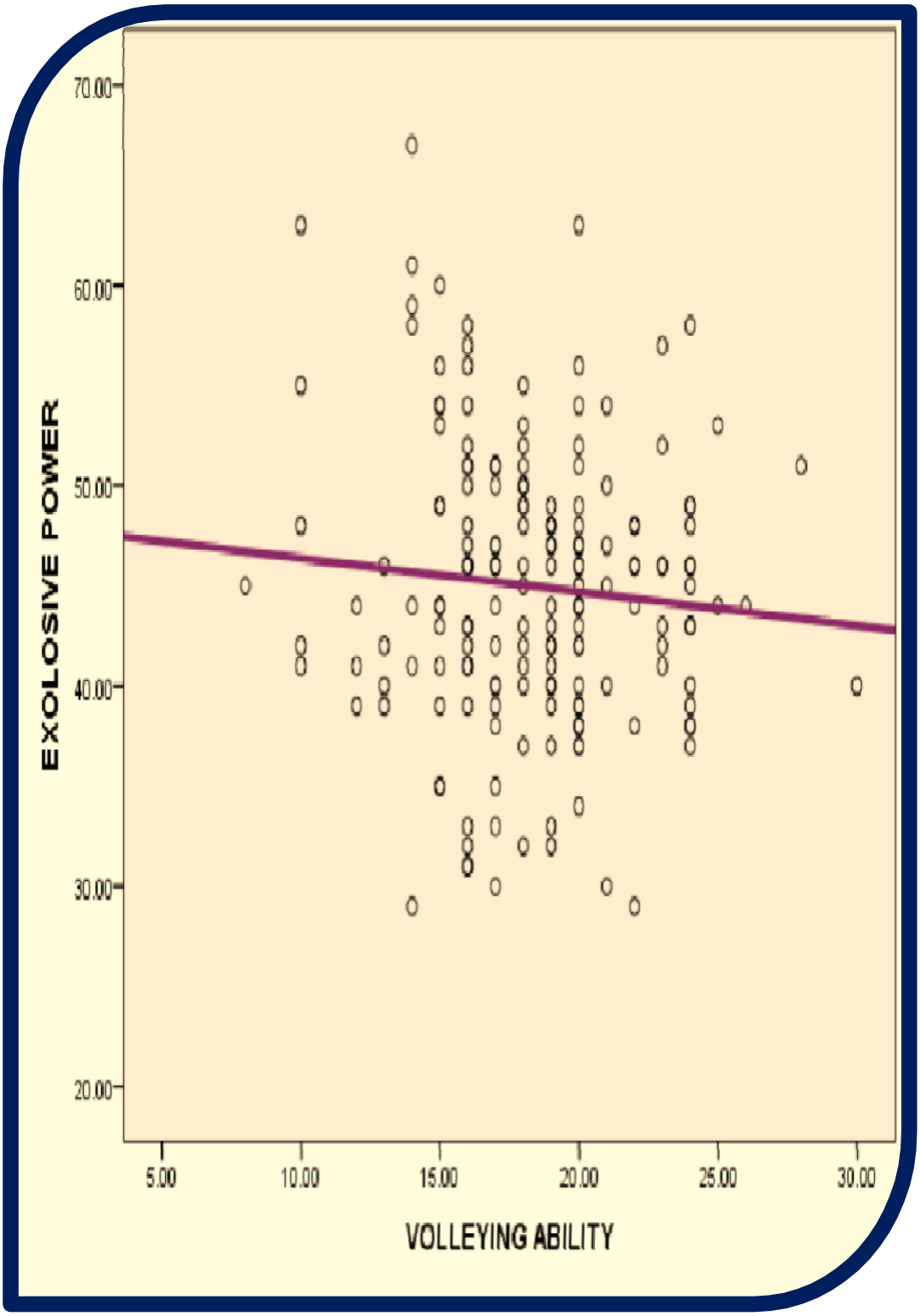


**Fig. 4 : Volleying Ability and Explosive Power Relationship**

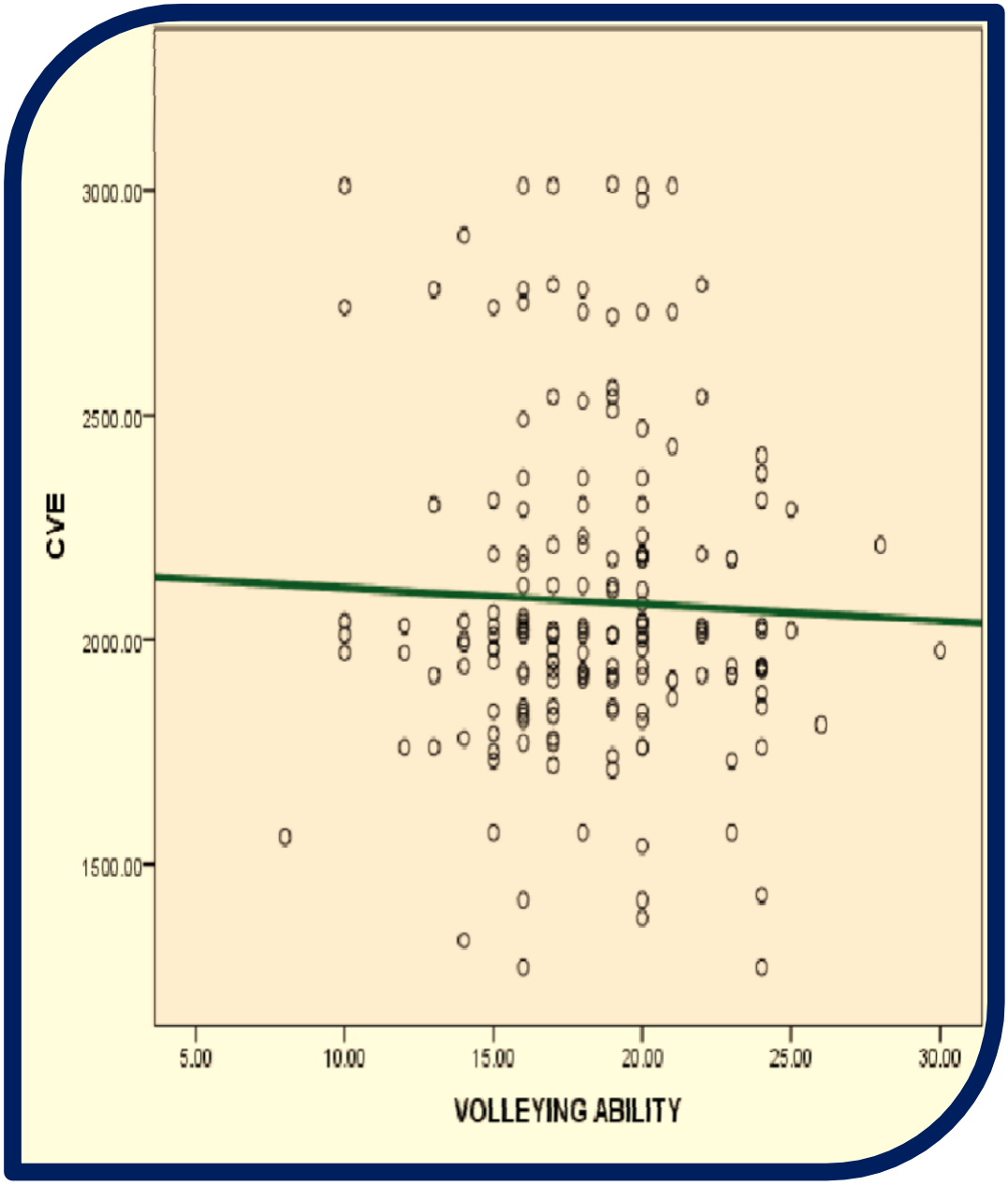


**Fig. 5 : Volleying Ability and Cardio-vascular Endurance (CVE) Relationship**

The multiple correlation method yields correlations between a volleying ability (dependent variable) and the combined effect of the motor fitness components (independent variable), which are weighted to give maximum correlation. This allowed researchers to ascertain the combined contributions of specific motor fitness components (speed, agility, flexibility, explosive power and cardiovascular endurance) to volleying ability of volleyball players.

Table 4.3 displays the multiple coefficients of correlation that were calculated between the independent and dependent variables.

**Table 4.3 : Multiple Correlation between Volleyball Players' Volleying Ability and Motor Fitness Components**

| Dependent Variables | Independent Variable | Multiple Coefficient of Correlation (r) | Multiple Correlation ANOVA F | Sig. |
|---|---|---|---|---|
| Volleying Ability | Speed | 0.089 | 3.42* | 0.00 |
| | Agility | | | |
| | Flexibility | | | |
| | Explosive Power | | | |
| | Cardio-vascular Endurance | | | |

***Statistical significant at 0.05 level**

According to Table 4.3, volleyball players' combined contribution volleying ability to motor fitness components has been determined to be statistically significant at r = 0.089 (F = 3.42, p<0.05).

The step-wise regression technique was used to determine which factor has the biggest influence on volleyball players' volleying ability, taking into account the motor fitness components that were previously described and selected. The results are shown in Table 4.4.

**Table 4.4 : Regression Prediction of Volleying Ability with selected Motor Fitness Components of Volleyball Players**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | 0.160[a] | 0.026 | 0.020 | 3.582 |
| 2 | 0.240[b] | 0.058 | 0.047 | 3.532 |
| 3 | 0.293[c] | 0.086 | 0.071 | 3.49 |

a. **Predictors: (Constant), Agility**

b. **Predictors: (Constant), Agility, Flexibility**

c. **Predictors: (Constant), Agility, Flexibility, Speed**

d. **Depended Variable Volleying Ability**

**Table 4.5 : Regression Coefficients Estimating Volleying Ability Using selected Motor Fitness Components of Players in Volleyball**

| | Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| 1. | (Constant) | 25.58 | 3.37 | - 0.16 | 7.60* | 0.00 |
| | Agility | - 0.68 | 0.32 | | - 2.16* | 0.03 |
| 2. | (Constant) | 29.26 | 3.62 | - 0.18 | 8.04* | 0.00 |
| | Agility | - 0.78 | 0.31 | - 0.18 | - 2.47* | 0.01 |
| | Flexibility | - 0.11 | 0.04 | | - 2.46* | 0.01 |
| 3. | (Constant) | 22.82 | 4.53 | - 0.20 | 5.04* | 0.00 |
| | Agility | -0.86 | 0.31 | - 0.18 | - 2.74* | 0.00 |
| | Flexibility | -0.11 | 0.04 | 0.17 | - 2.49* | 0.01 |
| | Speed | 1.01 | 0.43 | | 2.34* | 0.02 |

e. **Dependent Variable: Volleying Ability**

Table 4.4 displays the regression models that are available. Since the Adjusted $R^2$ value in the third model is 0.071, the regression equation was developed using the second model.

Furthermore, table 4.4 shows that three independent variables—agility, flexibility, and speed—have been found in the second model. As a result, the regression equation will only be developed using these three variables. These three independent factors explained 7.1 % variability in the volleyball players' volleying ability, as indicated by the model's adjusted $R^2$ value of 0.071. As a result, this model is ideal for creating the regression equations.

All of the models' regression coefficients are displayed in table 4.5. All three of the regression coefficients in the thread model ‘t’ value have significant since their p-values, or significant values, are less than 0.05. Thus, it was said that the factors of agility, flexibility and speed account for a large portion of the variances in volleying ability.

The regression equation was created using the regression coefficients (Beta) of the third model, which are displayed in Table 4.5. It is as follows:

**Volleying Ability** = 22.82 – 0.20 (Agility) – 0.18 (Flexibility) + 0.17 (Speed)

**SERVICE ABILITY:**

**Table 4.6 : Relationship of Motor Fitness Components with Service Ability of Volleyball Players**

| Sr. No | Motor Fitness Components | Volleyball Skill | Correlation Co-efficient | Sig. (2-tailed) |
|---|---|---|---|---|
| 1 | Speed | Service Ability | 0.013 | 0.86 |
| 2 | Agility | | -0.021 | 0.78 |
| 3 | Flexibility | | 0.041 | 0.58 |
| 4 | Explosive Power | | -0.150* | 0.04 |
| 5 | Cardio-vascular Endurance | | -0.034 | 0.64 |

***Statistical significant at 0.05 level**

The correlation coefficient between the service ability and motor fitness components of the volleyball players was presents in table 4.6. The statistical findings demonstrated that the explosive power **(r = - 0.150, p<0.05)** significantly negative correlation with the service ability. Regarding the other variables, there was a positive but not statistically significant correlation between speed **(r = 0.013, p>0.05)**, flexibility **(r = 0.041, p>0.05)** and agility **(r = -0.021, p>0.05)**, cardio-vascular endurance **(r = -0.034, p>0.05)** negative not statistically significant correlation with the service ability.

The graphs illustrate has been presented relationship of selected motor fitness components to service ability of volleyball players.

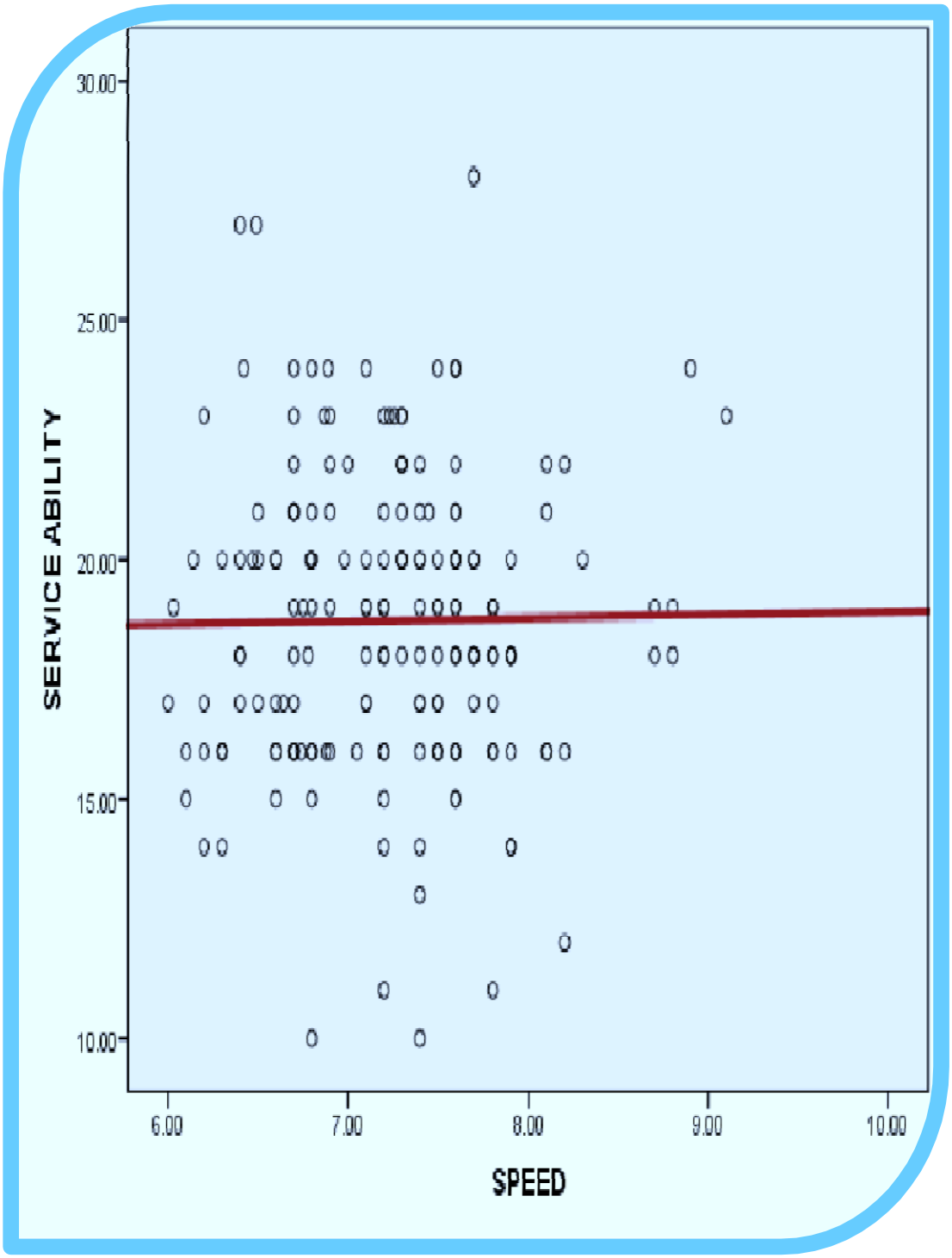


**Fig. 6 : Service Ability and Speed Relationship**

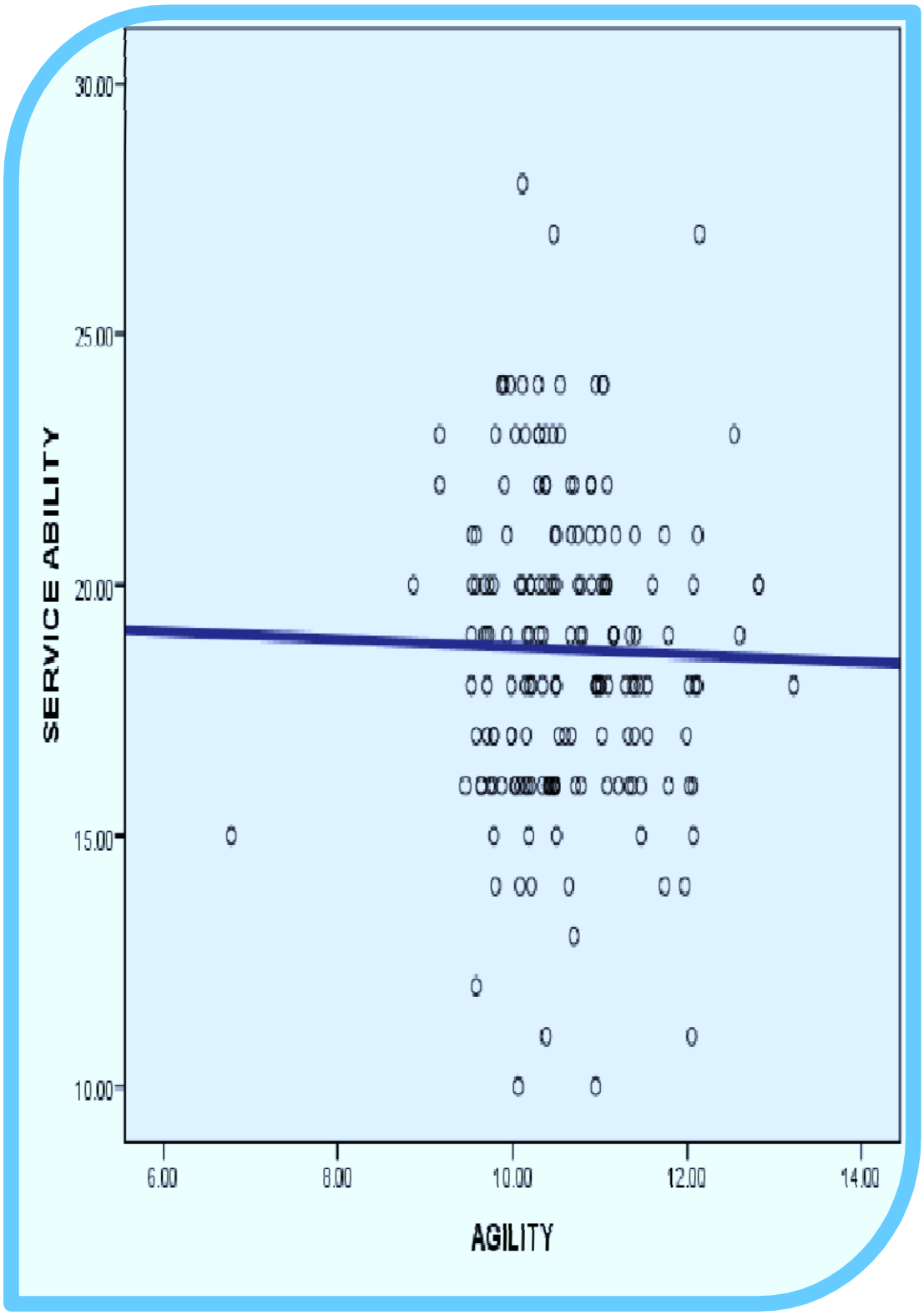


**Fig. 7 : Service Ability and Agility Relationship**

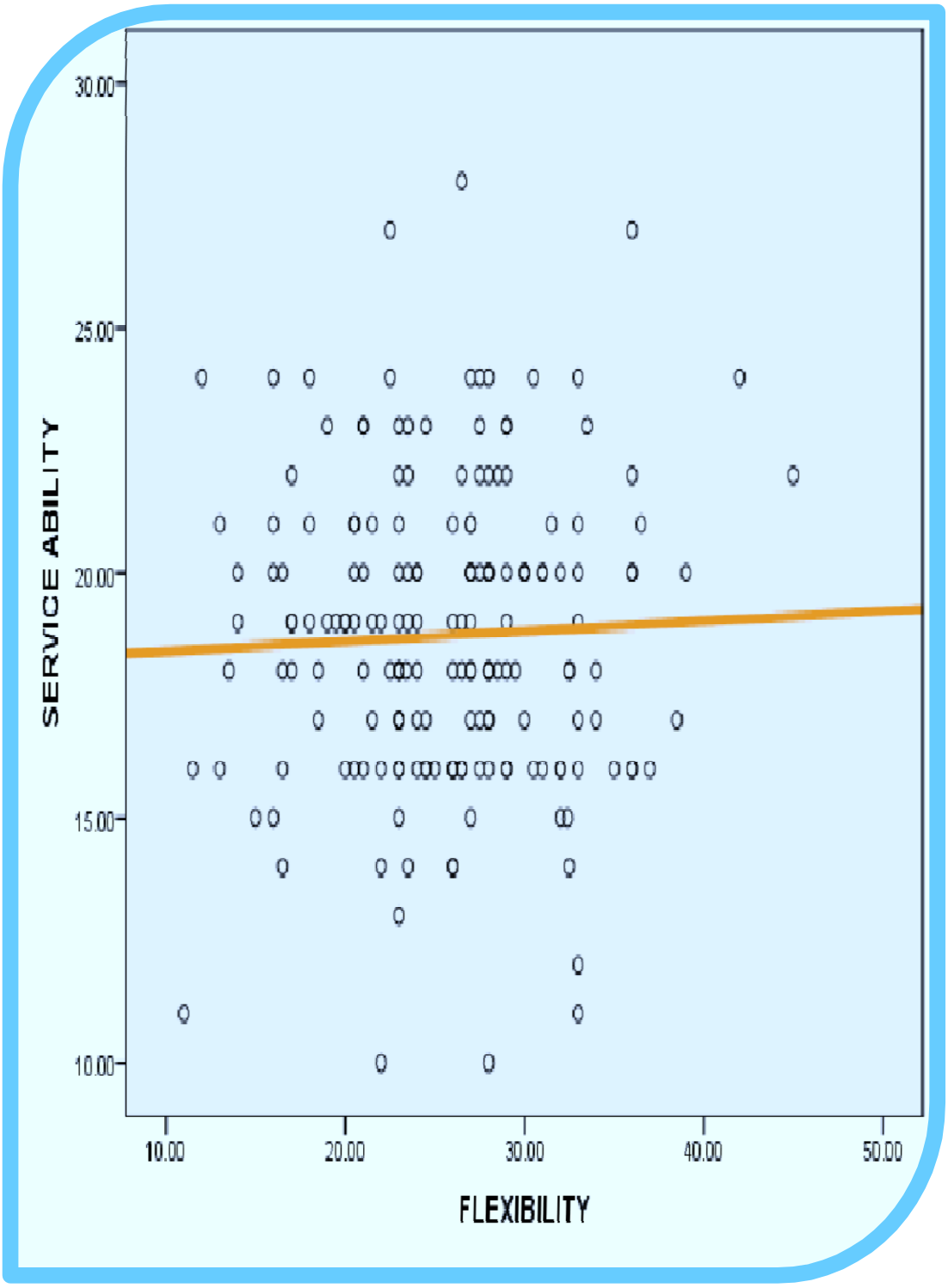


**Fig. 8 : Service Ability and Flexibility Relationship**

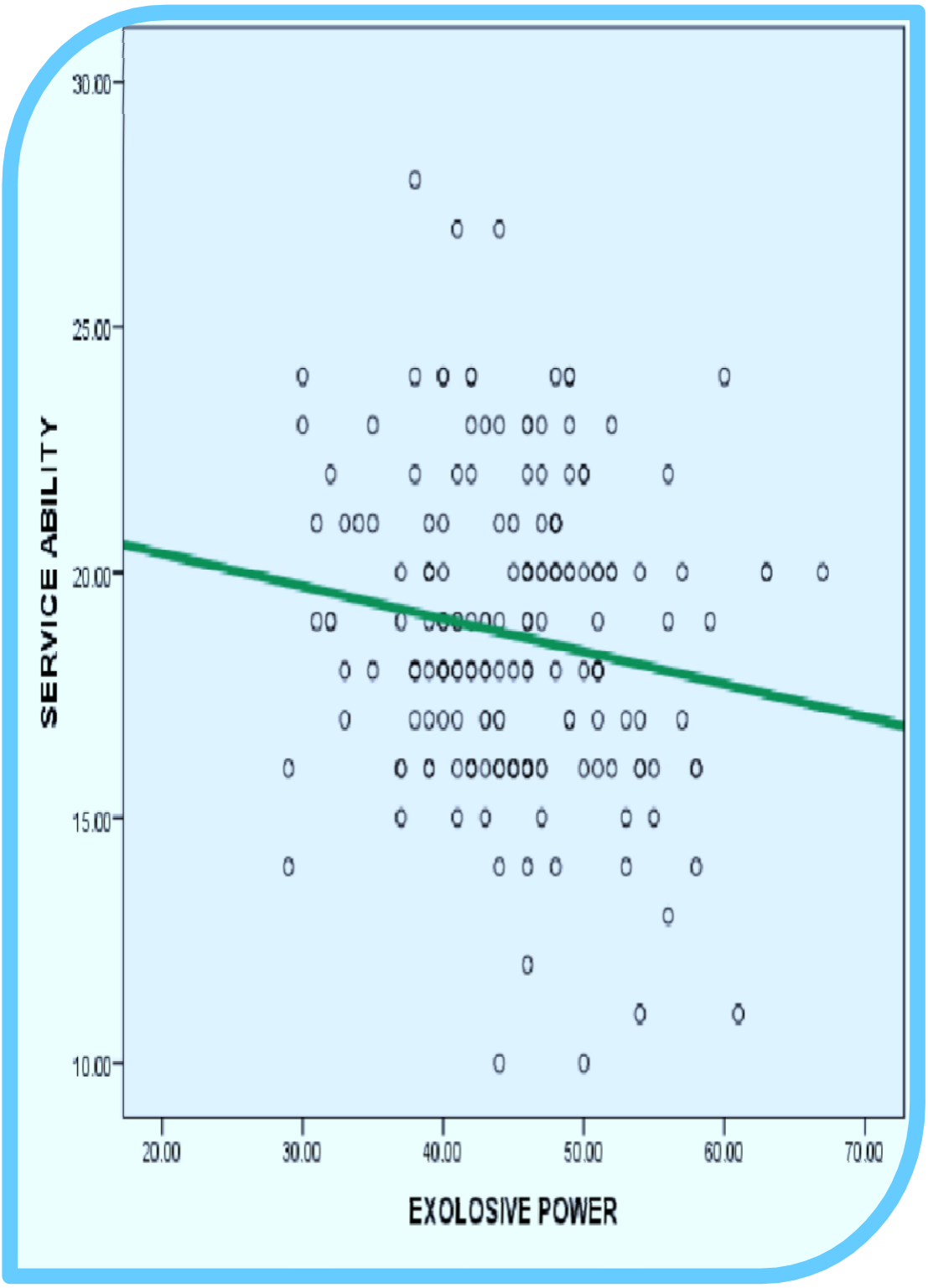


**Fig. 9 : Service Ability and Explosive Power Relationship**

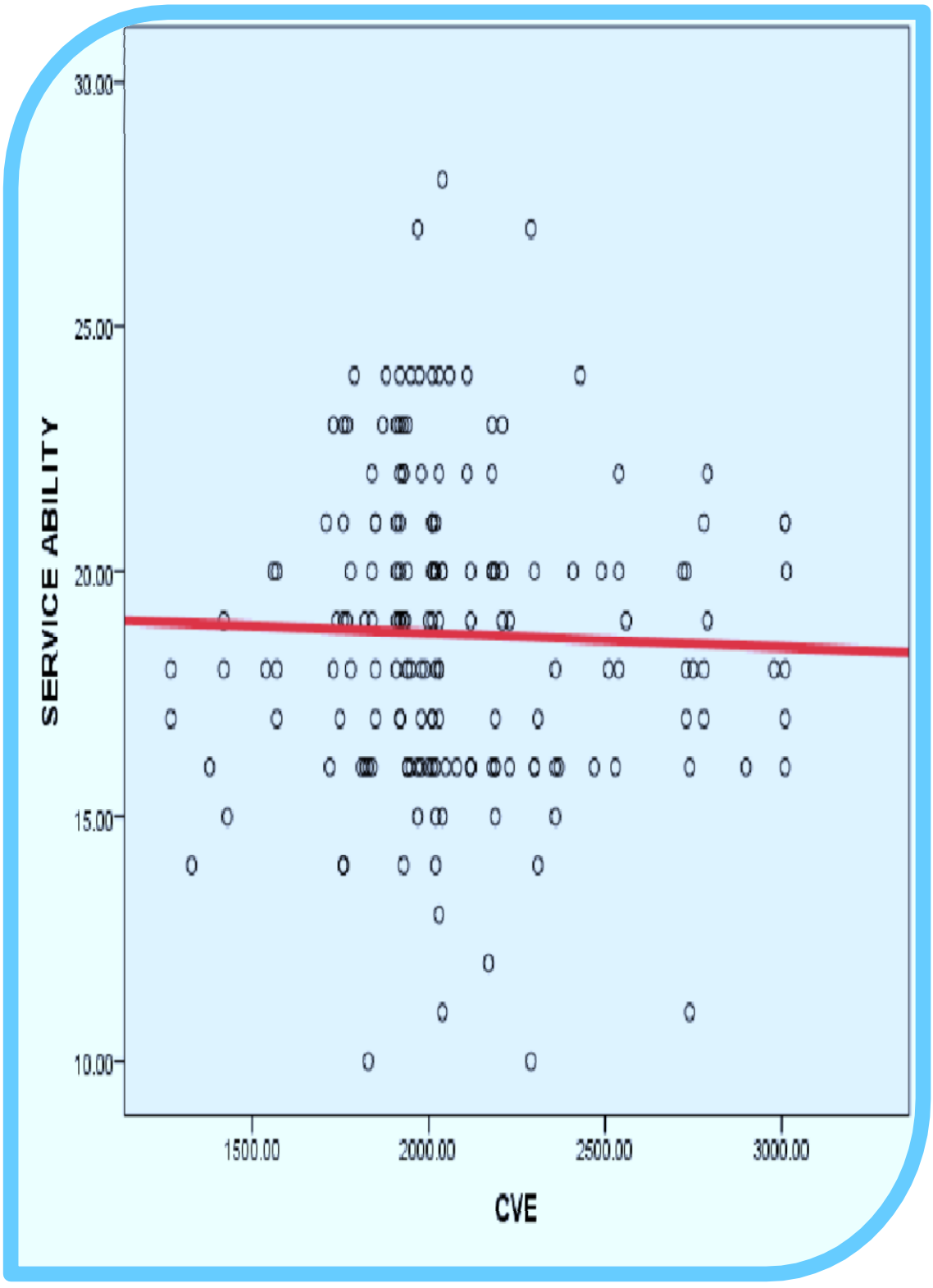


**Fig. 10 : Service Ability and Cardio-vascular Endurance Relationship**

The multiple correlation method yields correlations between a service ability (dependent variable) and the combined effect of the motor fitness components (independent variable), which are weighted to give maximum correlation. This allowed researchers to ascertain the combined contributions of specific motor fitness components (speed, agility, flexibility, explosive power and cardiovascular endurance) to service ability of volleyball players.

Table 4.7 displays the multiple coefficients of correlation that were calculated between the independent and dependent variables.

**Table 4.7 : Multiple Correlation between Volleyball Players' Service Ability and Motor Fitness Components**

| Dependent Variables | Independent Variable | Multiple Coefficient of Correlation (r) | Multiple Correlation ANOVA F | Sig. |
|---|---|---|---|---|
| **Service Ability** | Speed | 0.028 | 1.023 | 0.40 |
| | Agility | | | |
| | Flexibility | | | |
| | Explosive Power | | | |
| | Cardio-vascular Endurance | | | |

***Statistical significant at 0.05 level**

According to Table 4.7, it has been shown that the combined effect of motor fitness components on volleyball players' service ability is statistically not significant **(r = 0.028; F = 1.023; p>0.05).** Therefore, it can be concluded from the research above that the selected motor fitness components listed above when combined do not affect a player's ability to serve in volleyball.

**PASSING ABILITY:**

**Right Side Passing Ability:**

**Table 4.8 : Relationship of Motor Fitness Components with Right Side Passing Ability of Volleyball Players**

| Sr. No | Motor Fitness Components | Volleyball Skill | Correlation Co-efficient | Sig. (2-tailed) |
|---|---|---|---|---|
| 1 | Speed | Right Side Passing Ability | 0.092 | 0.22 |
| 2 | Agility | | 0.175* | 0.01 |
| 3 | Flexibility | | 0.104 | 0.16 |
| 4 | Explosive Power | | -0.018 | 0.81 |
| 5 | Cardio-vascular Endurance | | 0.056 | 0.45 |

***Statistical significant at 0.05 level**

The correlation coefficient between the right side passing ability and motor fitness components of the volleyball players was presents in table 4.8. The statistical findings demonstrated that the agility **(r = 0.175, p<0.05)** significantly positive correlation with the right side passing ability. Regarding the other variables, there was a positive but not statistically significant correlation between speed **(r = 0.092, p>0.05)**, flexibility **(r = 0.104, p>0.05)** and cardio-vascular endurance **(r = 0.056, p>0.05).** And explosive power **(r = - 0.018, p<0.05)** negative but not statistically significant correlation between right side passing ability.

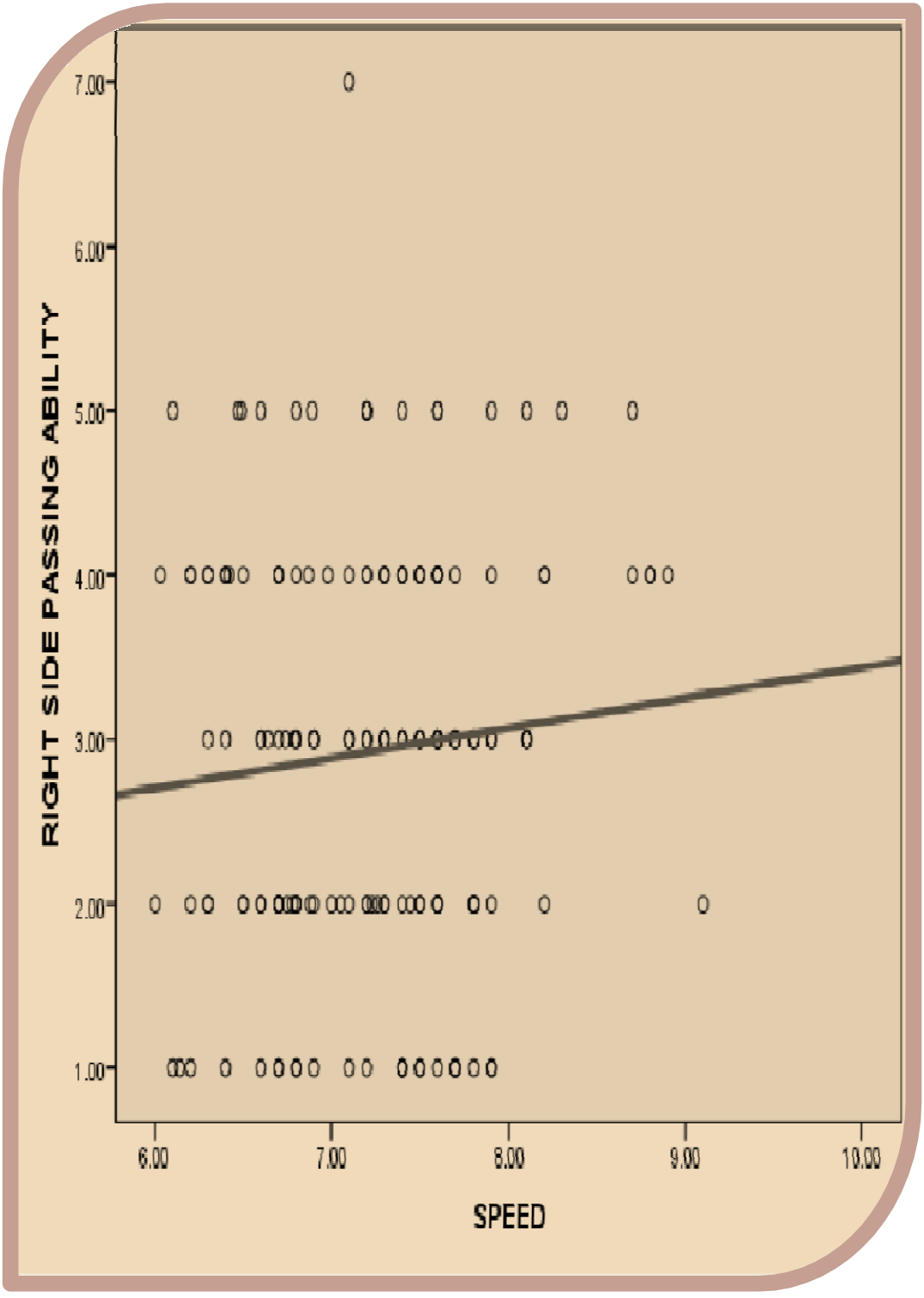


**Fig. 11 : Right Side Passing Ability and Speed Relationship**

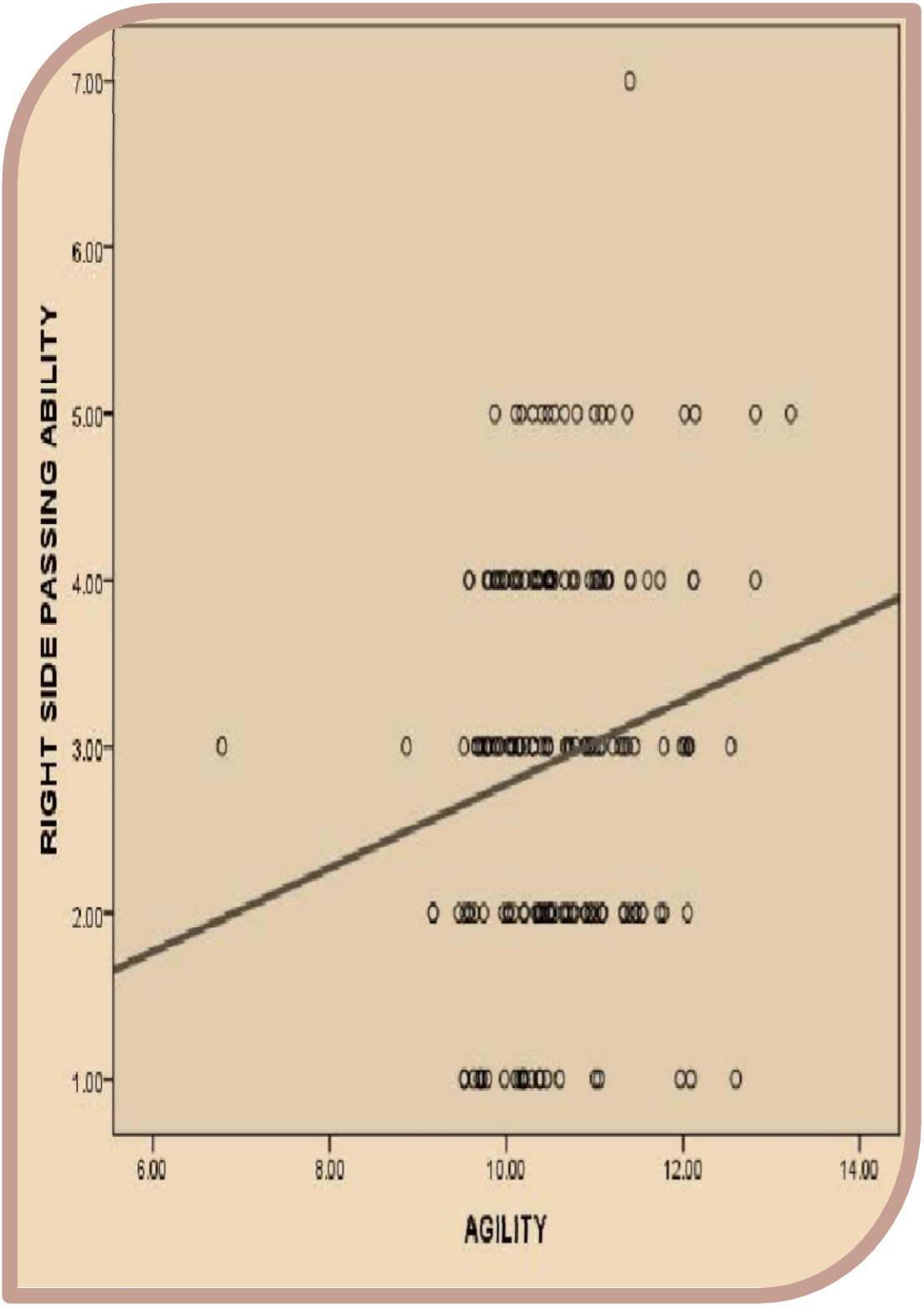


**Fig. 12 : Right Side Passing Ability and Agility Relationship**

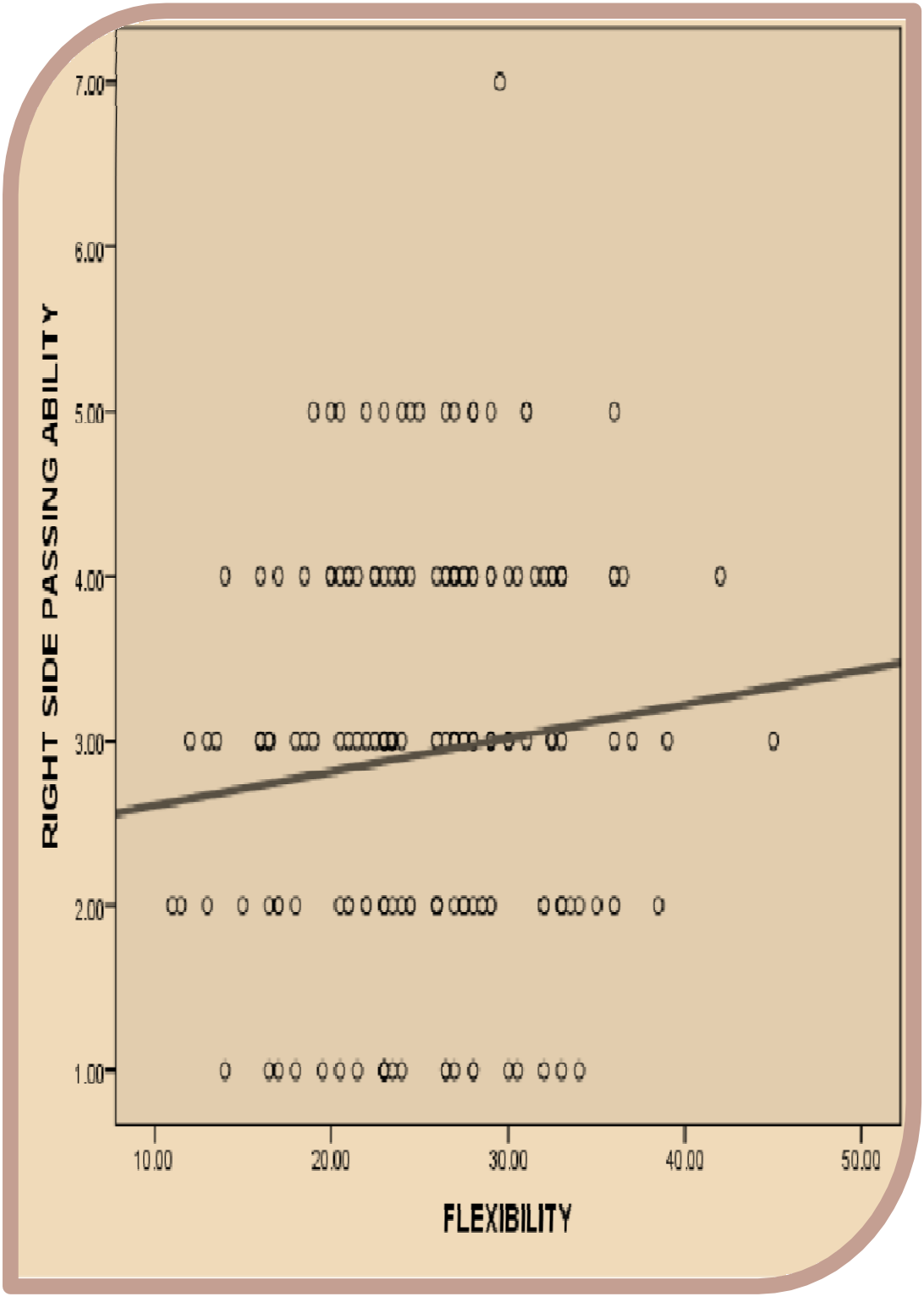


**Fig. 13 : Right Side Passing Ability and Flexibility Relationship**

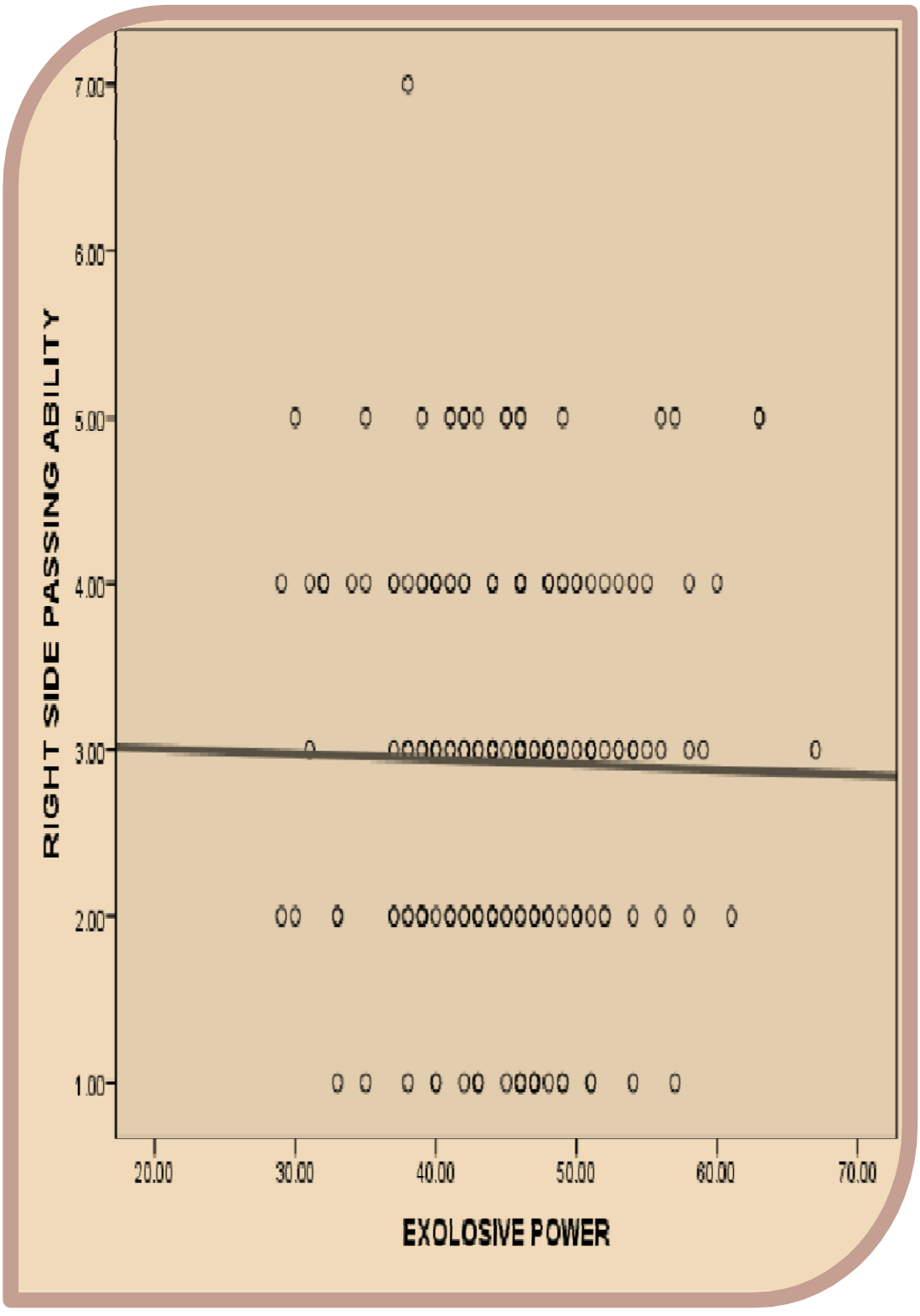


**Fig. 14 : Right Side Passing Ability and Explosive Power Relationship**

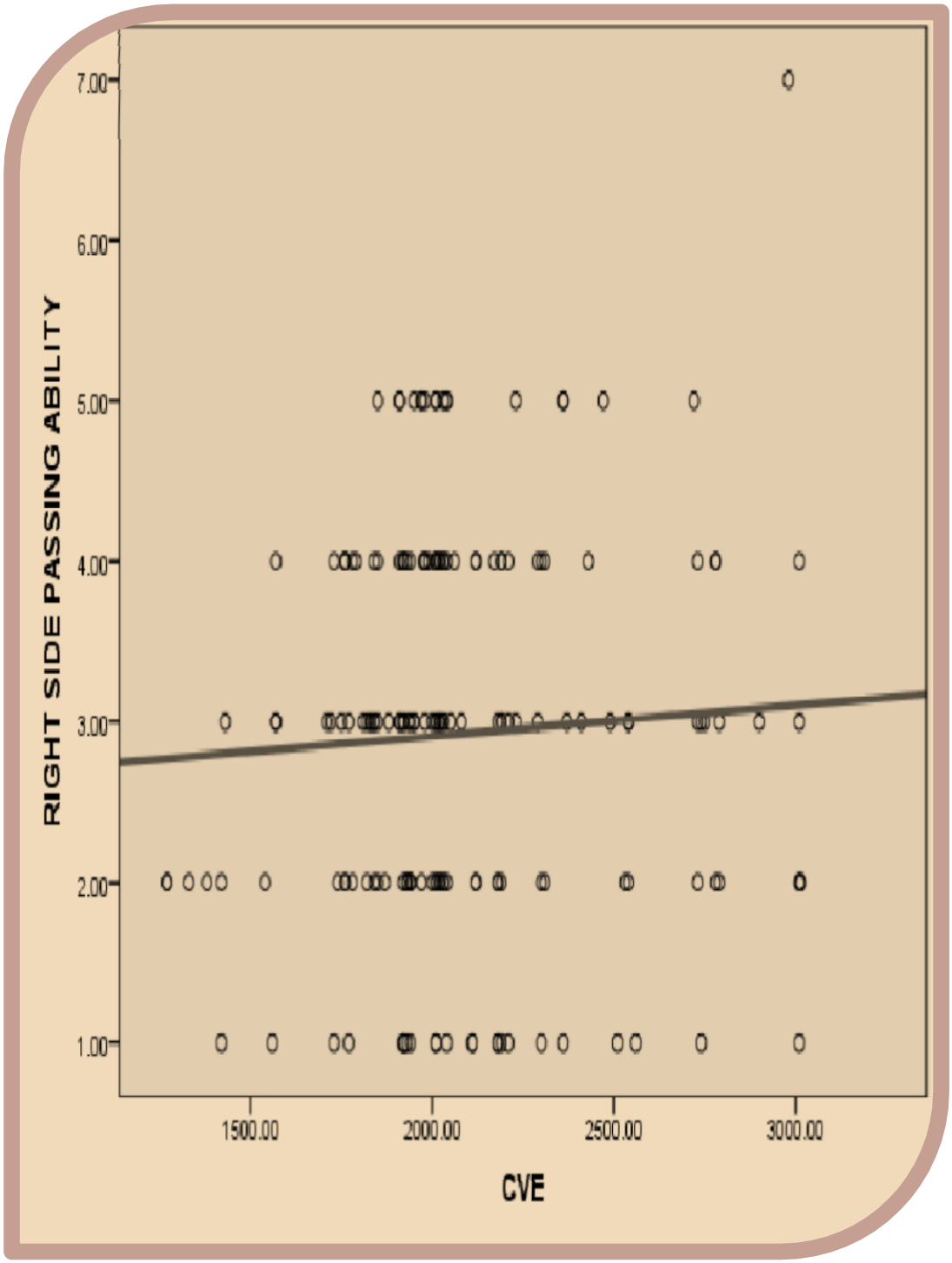


**Fig. 15 : Right Side Passing Ability and Cardio – vascular endurance Relationship**

The multiple correlation method yields correlations between a right side passing ability (dependent variable) and the combined effect of the motor fitness components (independent variable), which are weighted to give maximum correlation. This allowed researchers to ascertain the combined contributions of specific motor fitness components (speed, agility, flexibility, explosive power and cardiovascular endurance) to right side passing ability of volleyball players.

Table 4.9 displays the multiple coefficients of correlation that were calculated between the independent and dependent variables.

**Table 4.9 : Multiple Correlation between Volleyball Players' Right Side Passing Ability and Motor Fitness Components**

| Dependent Variables | Independent Variable | Multiple Coefficient of Correlation (r) | Multiple Correlation ANOVA F | Sig. |
|---|---|---|---|---|
| **Right Side Passing Ability** | Speed | 0.056 | 2.067 | 0.07 |
| | Agility | | | |
| | Flexibility | | | |
| | Explosive Power | | | |
| | Cardio-vascular Endurance | | | |

***Statistical significant at 0.05 level**

According to Table 4.9, it has been shown that the combined effect of motor fitness components on volleyball players' right side passing ability is statistically not significant **(r = 0.056; F = 2.067; p>0.05).** Therefore, it can be concluded from the research above that the selected motor fitness components listed above when combined do not affect a player's ability to right side passing in volleyball.

**Left Side Passing Ability:**

**Table 4.10 : Relationship of Motor Fitness Components with Left Side Passing Ability of Volleyball Players**

| Sr. No | Motor Fitness Components | Volleyball Skill | Correlation Co-efficient | Sig. (2-tailed) |
|---|---|---|---|---|
| 1 | Speed | Left Side Passing Ability | 0.095 | 0.20 |
| 2 | Agility | | 0.054 | 0.47 |
| 3 | Flexibility | | 0.151* | 0.04 |
| 4 | Explosive Power | | -0.044 | 0.56 |
| 5 | Cardio-vascular Endurance | | -0.033 | 0.66 |

***Statistical significant at 0.05 level**

The correlation coefficient between the left side passing ability and motor fitness components of the volleyball players was presents in table 4.10. The statistical findings demonstrated that the flexibility **(r = 0.151, p<0.05)** significantly positive correlation with the left side passing ability. Regarding the other variables, there was a positive but not statistically significant correlation between speed **(r = 0.095, p>0.05)** and agility **(r = 0.054, p>0.05).** And explosive power **(r = -0.044, p>0.05)** and cardio-vascular endurance **(r = -0.033, p>0.05)** negative but not statistically significant correlation between left side passing ability.

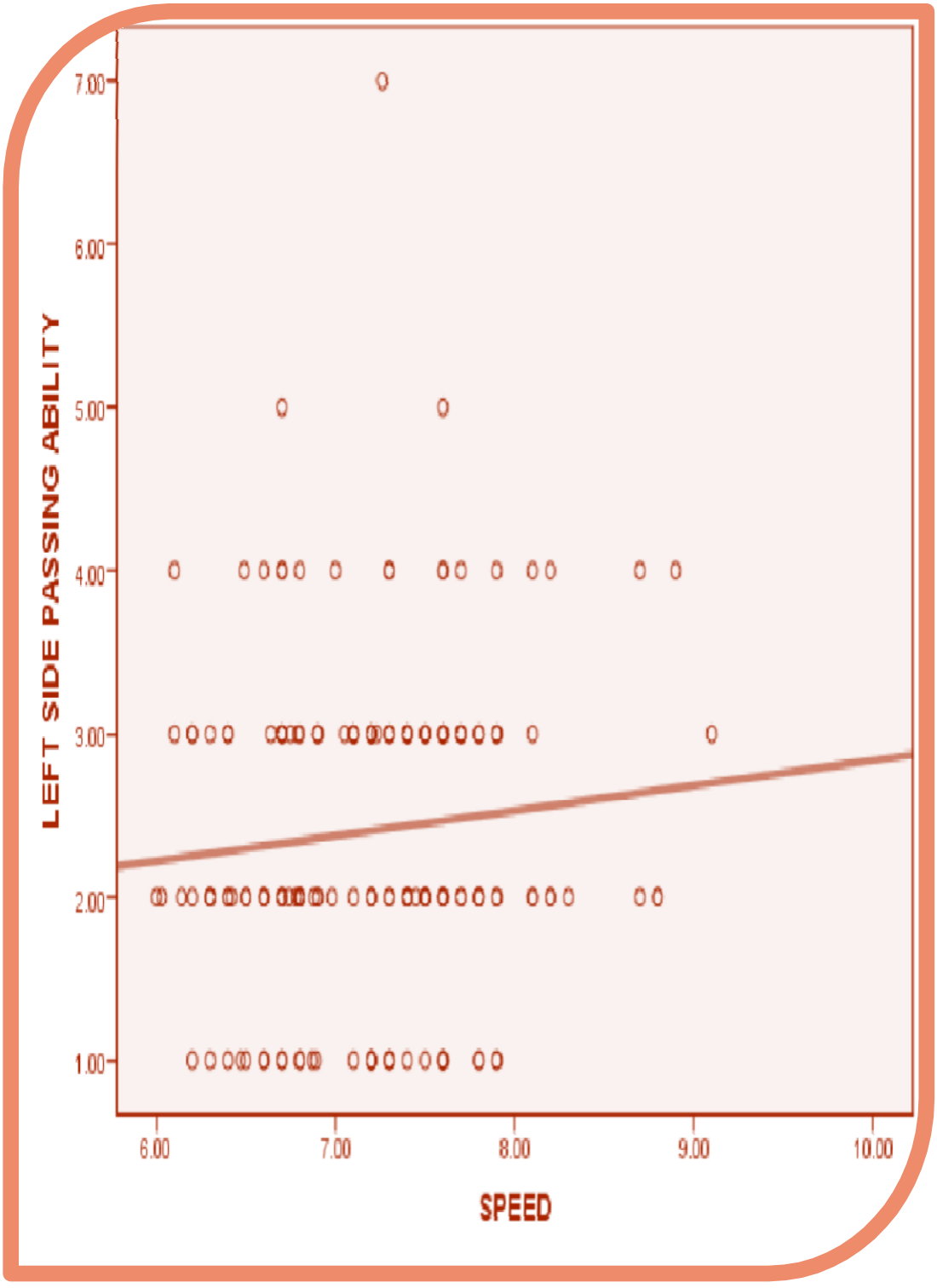


**Fig. 16 : Right Side Passing Ability and Speed Relationship**

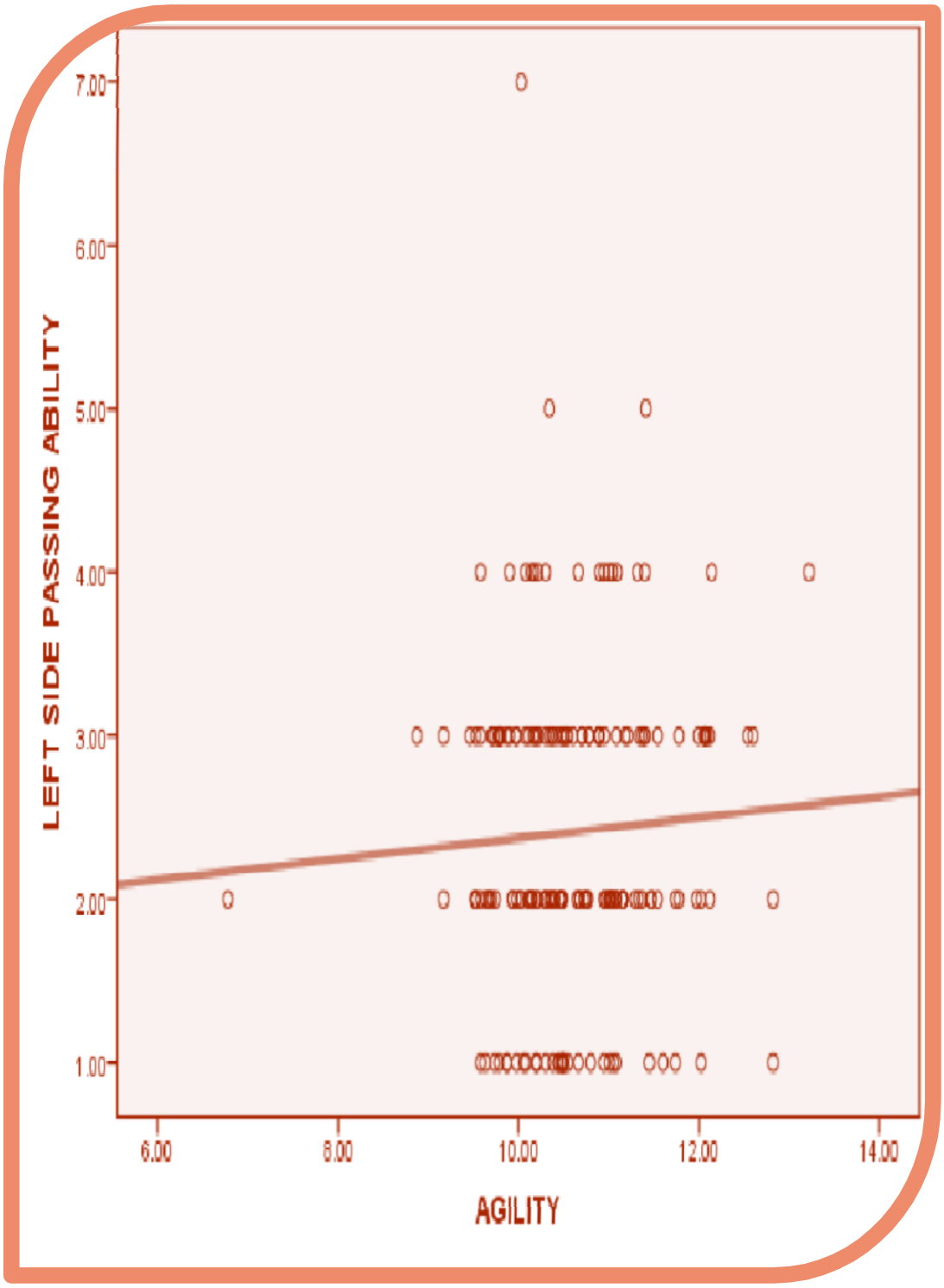


**Fig. 17 : Right Side Passing Ability and Agility Relationship**

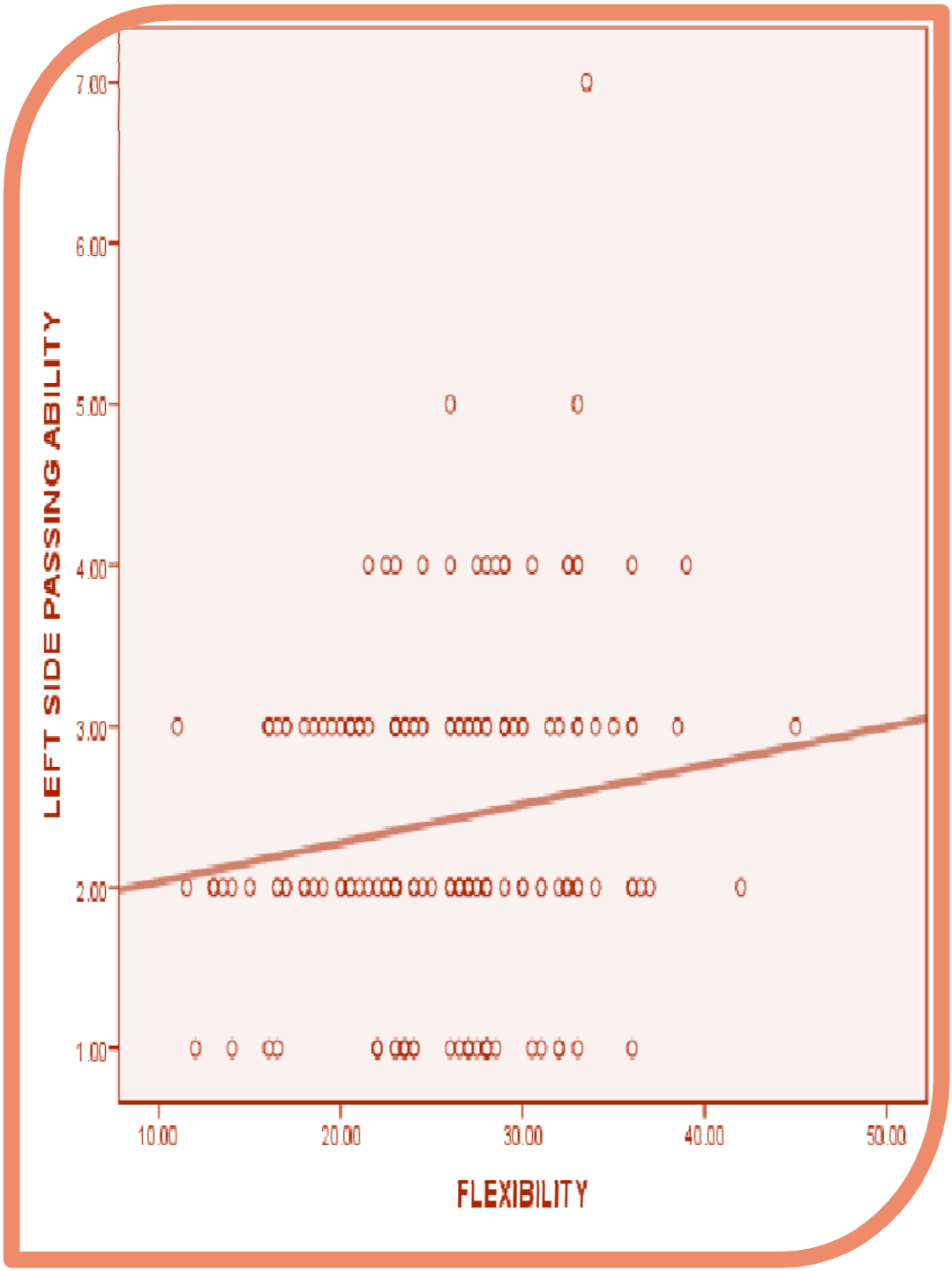


**Fig. 18 : Right Side Passing Ability and Flexibility Relationship**

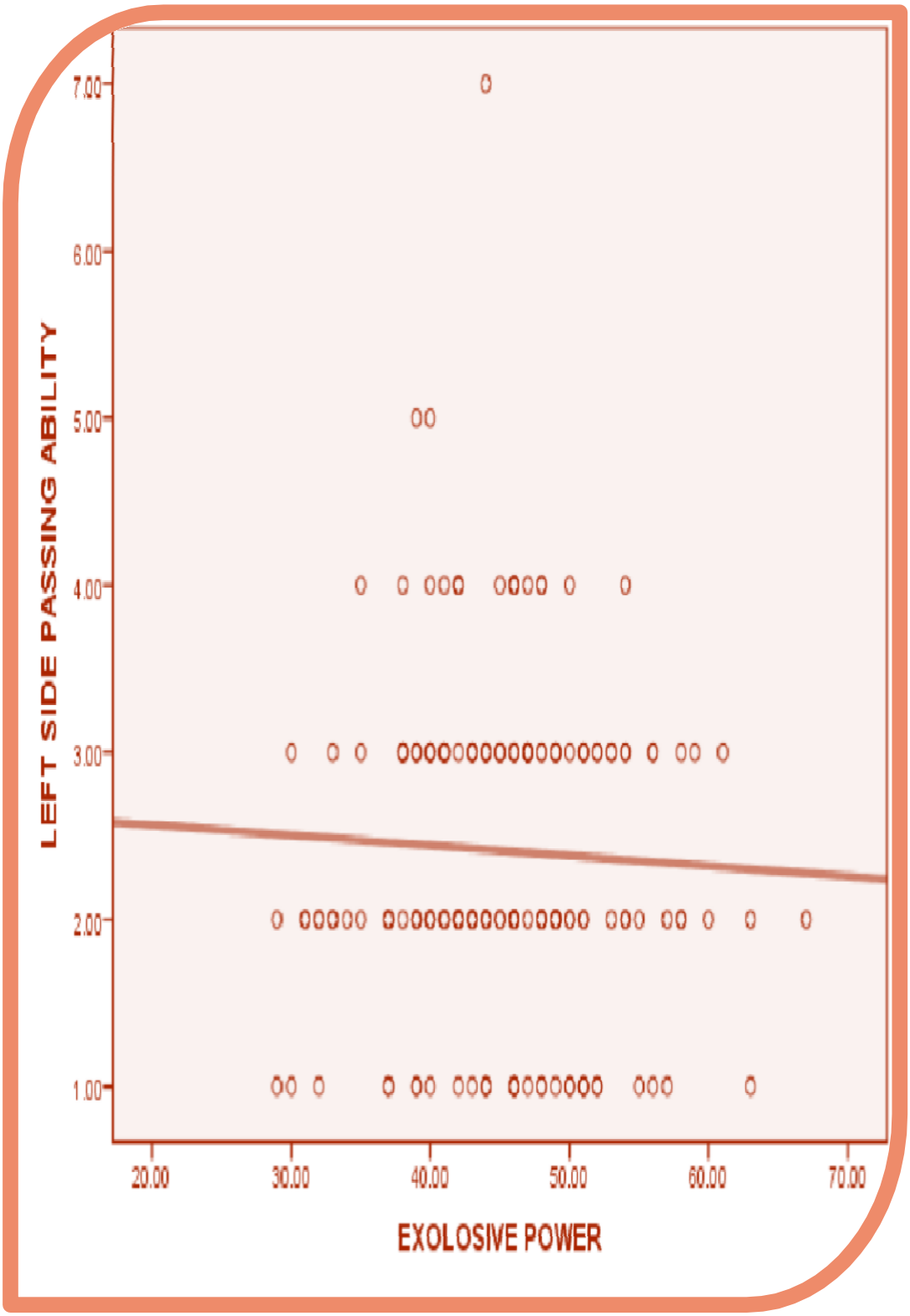


**Fig. 19 : Right Side Passing Ability and Explosive Power Relationship**

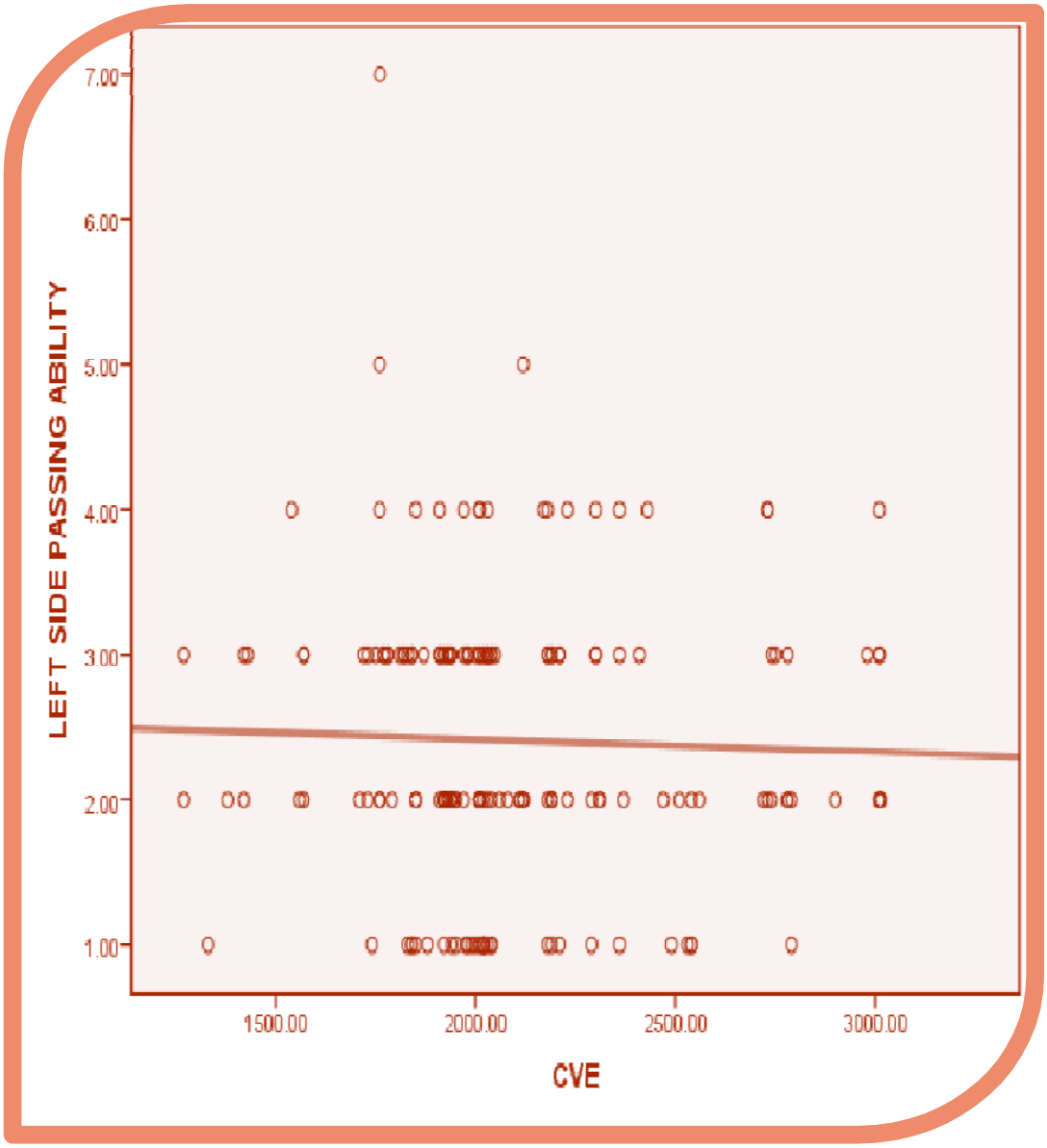


**Fig. 20 : Right Side Passing Ability and Cardio-vascular Endurance Relationship**

The multiple correlation method yields correlations between a left side passing ability (dependent variable) and the combined effect of the motor fitness components (independent variable), which are weighted to give maximum correlation. This allowed researchers to ascertain the combined contributions of specific motor fitness components (speed, agility, flexibility, explosive power and cardiovascular endurance) to left side passing ability of volleyball players.

Table 4.11 displays the multiple coefficients of correlation that were calculated between the independent and dependent variables.

**Table 4.11 : Multiple Correlation between Volleyball Players' Left Side Passing Ability and Motor Fitness Components**

| Dependent Variables | Independent Variable | Multiple Coefficient of Correlation (r) | Multiple Correlation ANOVA F | Sig. |
|---|---|---|---|---|
| **Left Side Passing Ability** | Speed | 0.040 | 1.449 | 0.21 |
| | Agility | | | |
| | Flexibility | | | |
| | Explosive Power | | | |
| | Cardio-vascular Endurance | | | |

***Statistical significant at 0.05 level**

According to Table 4.11, it has been shown that the combined effect of motor fitness components on volleyball players' left side passing ability is statistically not significant **(r = 0.040; F = 1.449; p>0.05).** Therefore, it can be concluded from the research above that the selected motor fitness components listed above when combined do not affect a player's ability to left side passing in volleyball.

**SET-UP ABILITY:**

**Right Side Set-up Ability:**

**Table 4.12 : Relationship of Motor Fitness Components with Right Side Set-up Ability of Volleyball Players**

| Sr. No | Motor Fitness Components | Volleyball Skill | Correlation Co-efficient | Sig. (2-tailed) |
|---|---|---|---|---|
| 1 | Speed | Right Side Set-up Ability | -0.084 | 0.26 |
| 2 | Agility | | 0.037 | 0.62 |
| 3 | Flexibility | | -0.179* | 0.01 |
| 4 | Explosive Power | | 0.108 | 0.15 |
| 5 | Cardio-vascular Endurance | | 0.107 | 0.15 |

***Statistical significant at 0.05 level**

The correlation coefficient between the right side set-up ability and motor fitness components of the volleyball players was presents in table 4.12. The statistical findings demonstrated that the flexibility **(r = -0.179, p<0.05)** significantly negative correlation with the right side set-up ability. Regarding the other variables, there was a positive but not statistically significant correlation between agility **(r = 0.0.37, p>0.05)**, explosive power **(r = 0.108, p>0.05)** and cardio-vascular endurance **(r = 0.107, p>0.05).** And speed **(r = - 0.084, p<0.05)** negative but not statistically significant correlation between right side set- up ability.

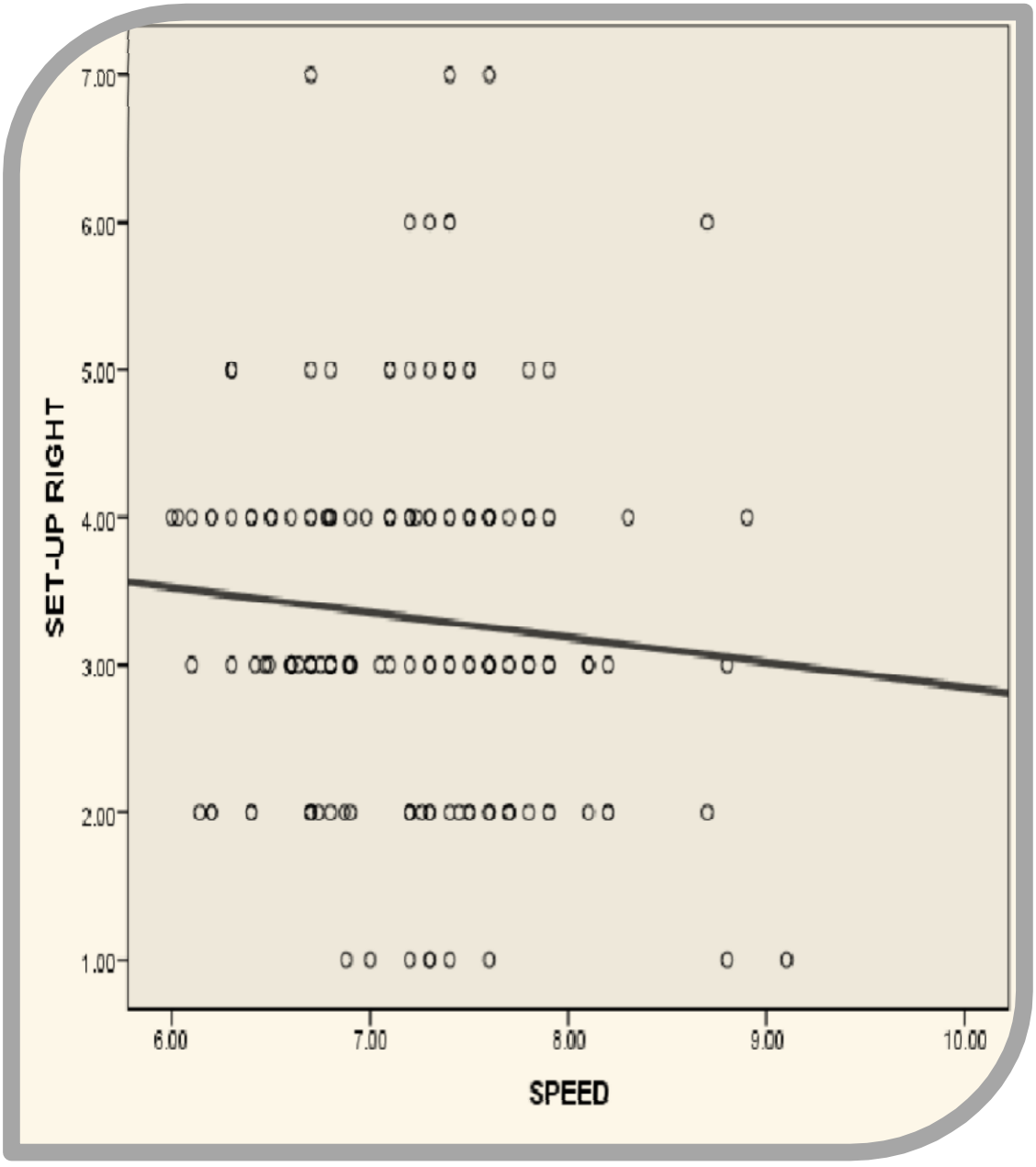


**Fig. 21: Right Side Passing Ability and Speed Relationship**

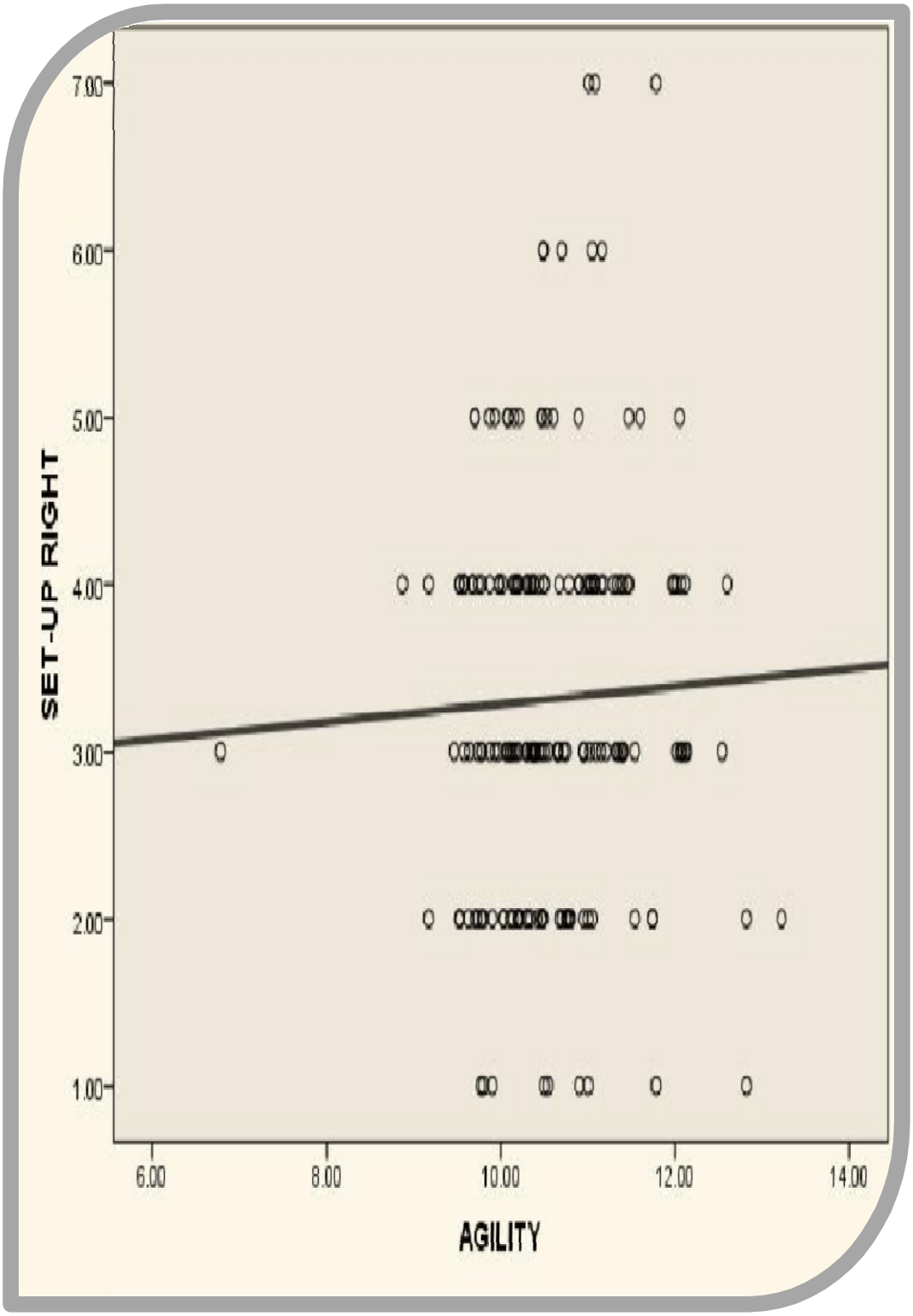


**Fig. 22 : Right Side Passing Ability and Agility Relationship**

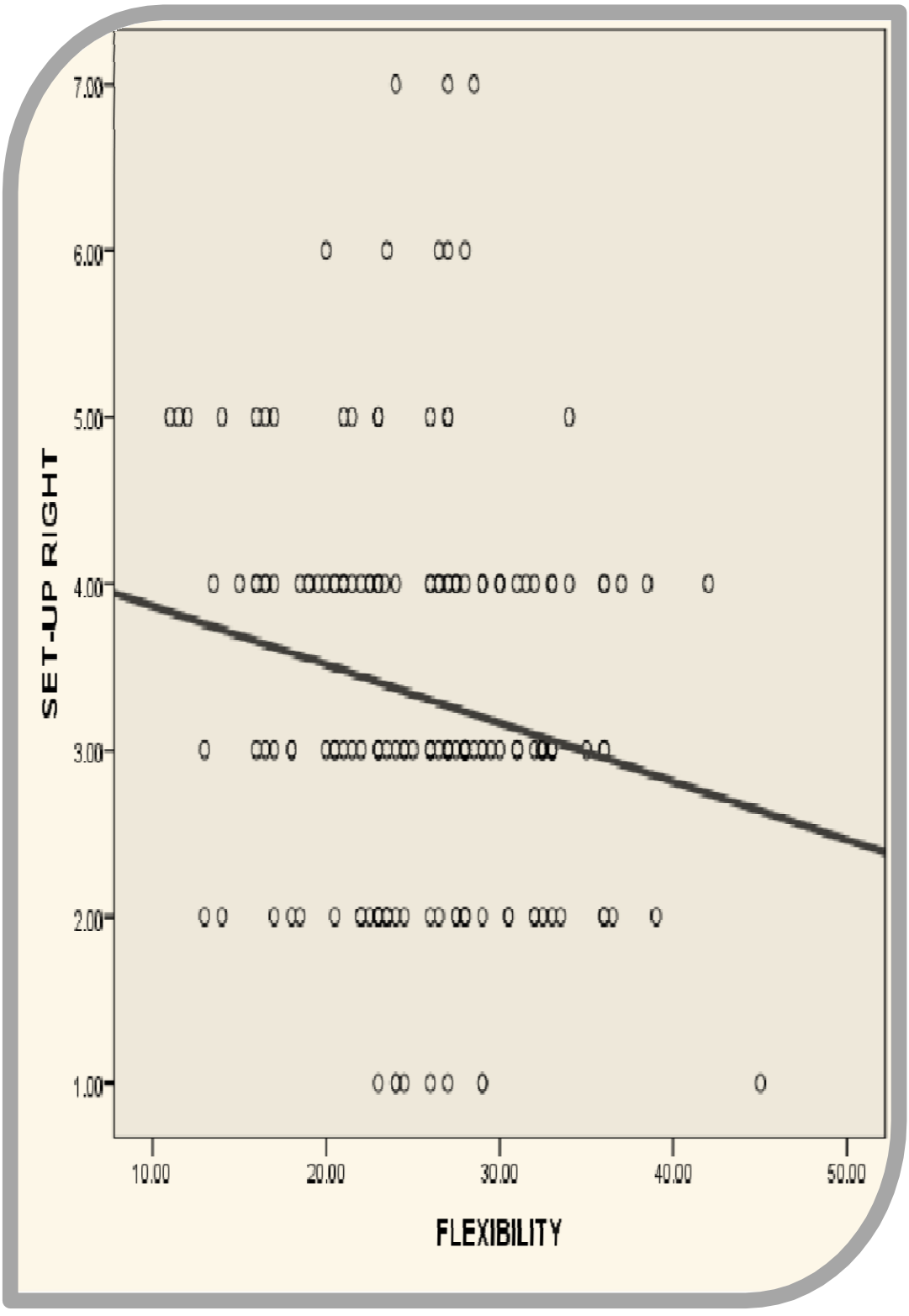


**Fig. 23 : Right Side Passing Ability and Flexibility Relationship**

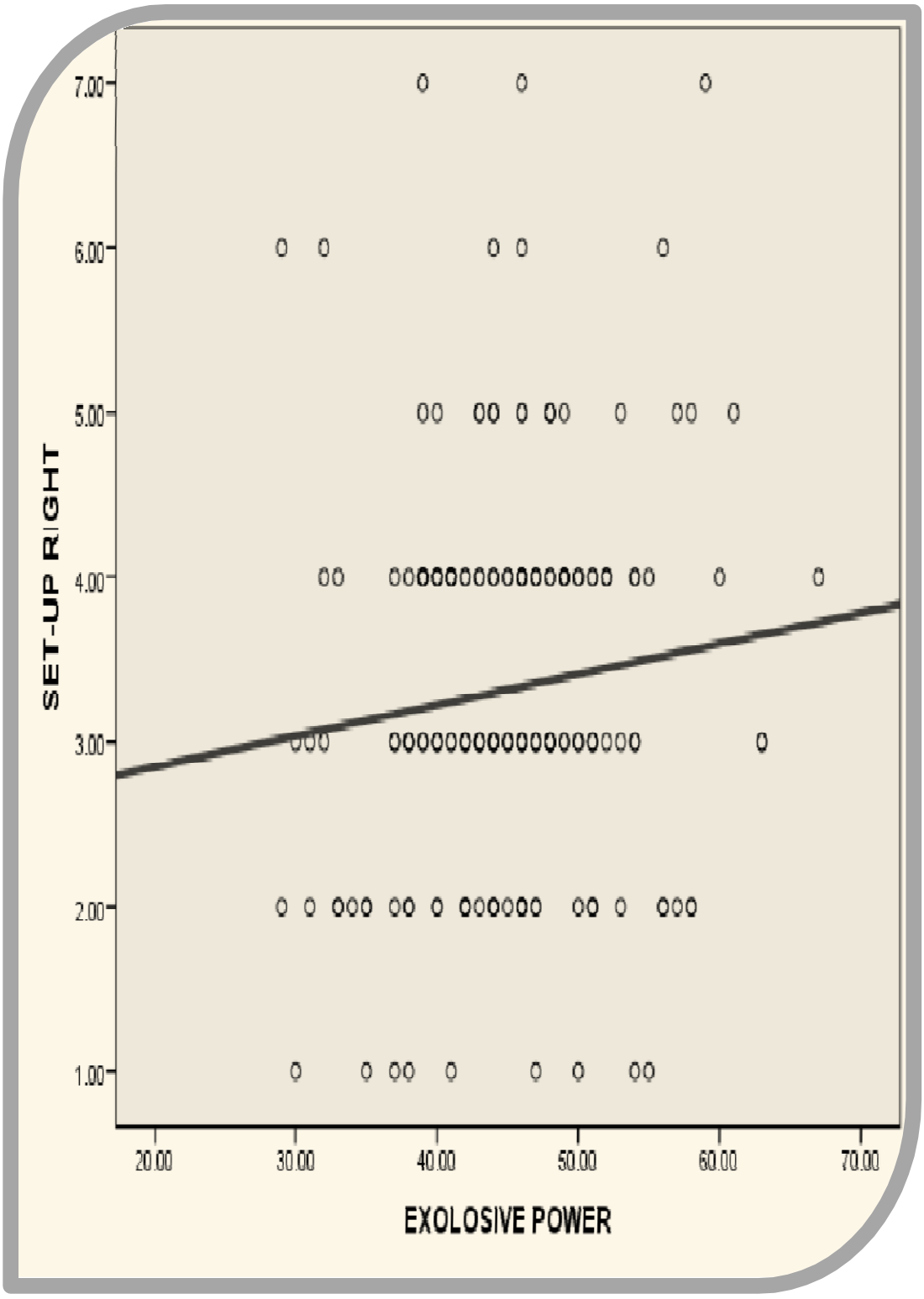


**Fig. 24 : Right Side Passing Ability and Explosive Power Relationship**

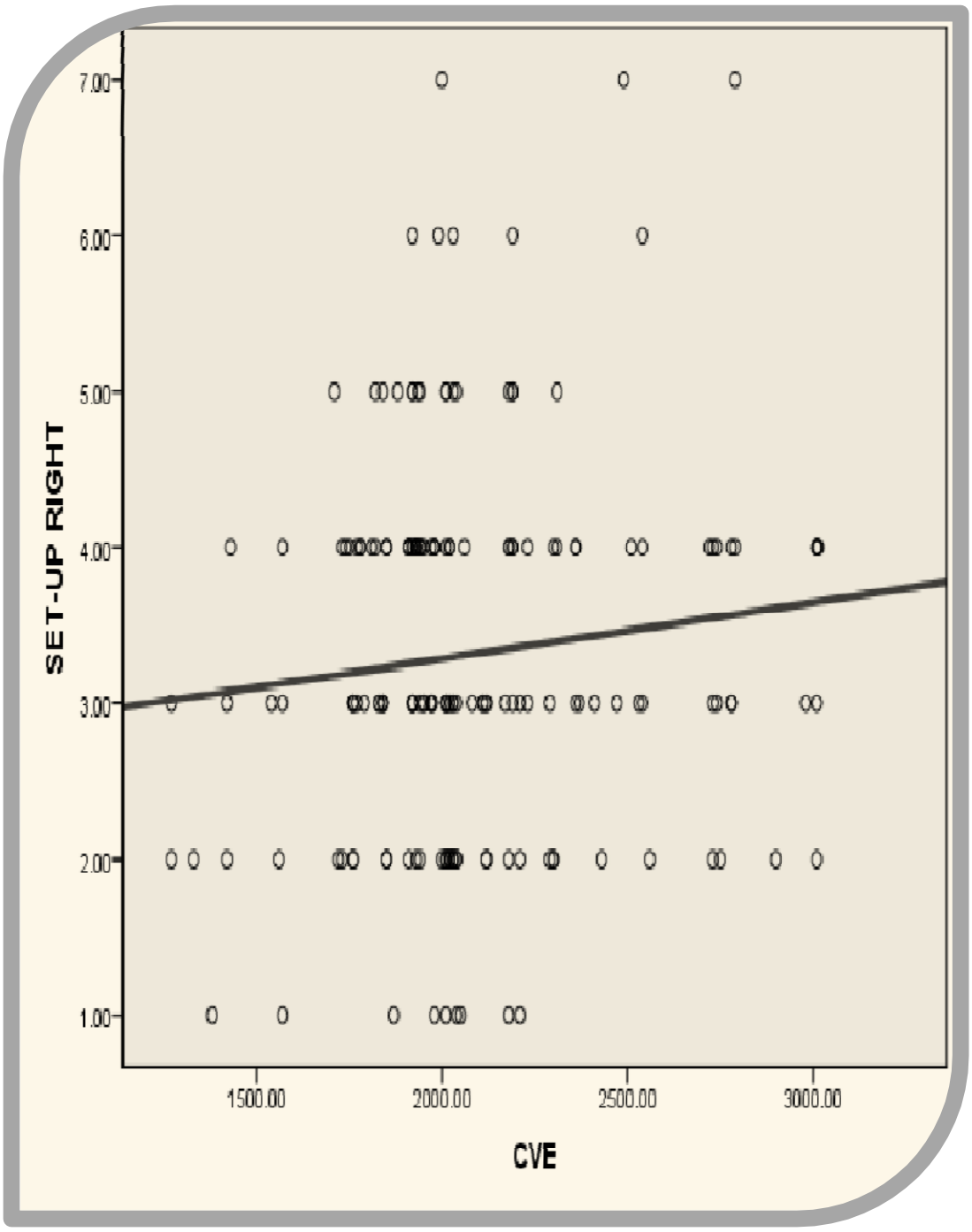


**Fig. 25 : Right Side Passing Ability and Cardio – vascular endurance Relationship**

The multiple correlation method yields correlations between a right side set-up ability (dependent variable) and the combined effect of the motor fitness components (independent variable), which are weighted to give maximum correlation. This allowed researchers to ascertain the combined contributions of specific motor fitness

components (speed, agility, flexibility, explosive power and cardiovascular endurance) to right side set- up ability of volleyball players.

Table 4.13 displays the multiple coefficients of correlation that were calculated between the independent and dependent variables.

**Table 4.13 : Multiple Correlation between Volleyball Players' Right Side Set-up Ability and Motor Fitness Components**

| Dependent Variables | Independent Variable | Multiple Coefficient of Correlation (r) | Multiple Correlation ANOVA F | Sig. |
|---|---|---|---|---|
| **Right Side Set-up Ability** | Speed | 0.071 | 2.651* | 0.02 |
| | Agility | | | |
| | Flexibility | | | |
| | Explosive Power | | | |
| | Cardio-vascular Endurance | | | |

***Statistical significant at 0.05 level**

According to Table 4.13, volleyball players' combined contribution right side set- up ability to motor fitness components has been determined to be statistically significant at **r = 0.071 (F = 2.651, p<0.05).**

The step-wise regression technique was used to determine which factor has the biggest influence on volleyball players' right side set-up ability, taking into account the motor fitness components that were previously described and selected. The results are shown in Table 4.14.

**Table 4.14 : Regression Prediction of Right Side Set-Up Ability with selected Motor Fitness Components of Volleyball Players**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| **1** | 0.179[a] | 0.032 | 0.026 | 1.204 |
| **2** | 0.230[b] | 0.053 | 0.042 | 1.195 |

a. **Predictors: (Constant), Flexibility**

b. **Predictors: (Constant), Flexibility, Cardio – vascular endurance**

**Table 4.15 : Regression Coefficients Estimating Right Side Set-Up Ability Using selected Motor Fitness Components of Players in Volleyball**

| | Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1. | (Constant) | 4.21 | 0.38 | - 0.18 | 11.04* | 0.00 |
| | Flexibility | - 0.03 | 0.01 | | - 2.42* | 0.01 |
| 2. | (Constant) | 3.32 | 0.59 | - 0.21<br>- 0.15 | 5.63* | 0.00 |
| | Flexibility | - 0.04 | 0.01 | | - 2.78* | 0.00 |
| | Cardio-vascular endurance | 0.001 | 0.00 | | 1.98* | 0.04 |

c. **Dependent Variable: Volleying Ability**

Table 4.14 displays the regression models that are available. Since the Adjusted $R^2$ value in the third model is 0.042, the regression equation was developed using the second model.

Furthermore, table 4.14 shows that three independent variables – flexibility and Cardio – vascular endurance have been found in the second model. As a result, the regression equation will only be developed using these three variables. These three independent factors explained 4.2 % variability in the volleyball players' right side set-up ability, as indicated by the model's adjusted $R^2$ value of 0.042. As a result, this model is ideal for creating the regression equations.

All of the models' regression coefficients are displayed in table 4.15. All two of the regression coefficients in the thread model 't' value have significant since their p-values, or significant values, are less than 0.05. Thus, it was said that the factors of flexibility and Cardio – vascular endurance account for a large portion of the variances in right side set- up ability.

The regression equation was created using the regression coefficients (Beta) of the third model, which are displayed in Table 4.15. It is as follows:

**Right Side Set-Up Ability** = 3.32 – 0.21 (Flexibility) - 0.15 (Cardio – vascular endurance)

**Left Side Set-up Ability:**

**Table 4.16 : Relationship of Motor Fitness Components with Left Side Set-up Ability of Volleyball Players**

| Sr. No | Motor Fitness Components | Volleyball Skill | Correlation Co-efficient | Sig. (2-tailed) |
|---|---|---|---|---|
| 1 | Speed | Left Side Set-up Ability | -0.105 | 0.16 |
| 2 | Agility | | 0.040 | 0.59 |
| 3 | Flexibility | | -0.059 | 0.43 |
| 4 | Explosive Power | | -0.044 | 0.56 |
| 5 | Cardio-vascular Endurance | | 0.114 | 0.13 |

***Statistical significant at 0.05 level**

The correlation coefficient between the left side set-up ability and motor fitness components of the volleyball players was presents in table 4.16. The statistical findings demonstrated that the positive but not statistically significant correlation between agility **(r = 0.040, p>0.05)**, cardio-vascular endurance **(r = 0.114, p>0.05)**. And speed **(r = - 0.105, p<0.05),** flexibility **(r = -0.059, p>0.05)** and explosive power **(r = -0.044, p>0.05)** negative but not statistically significant correlation between left side set-up ability.

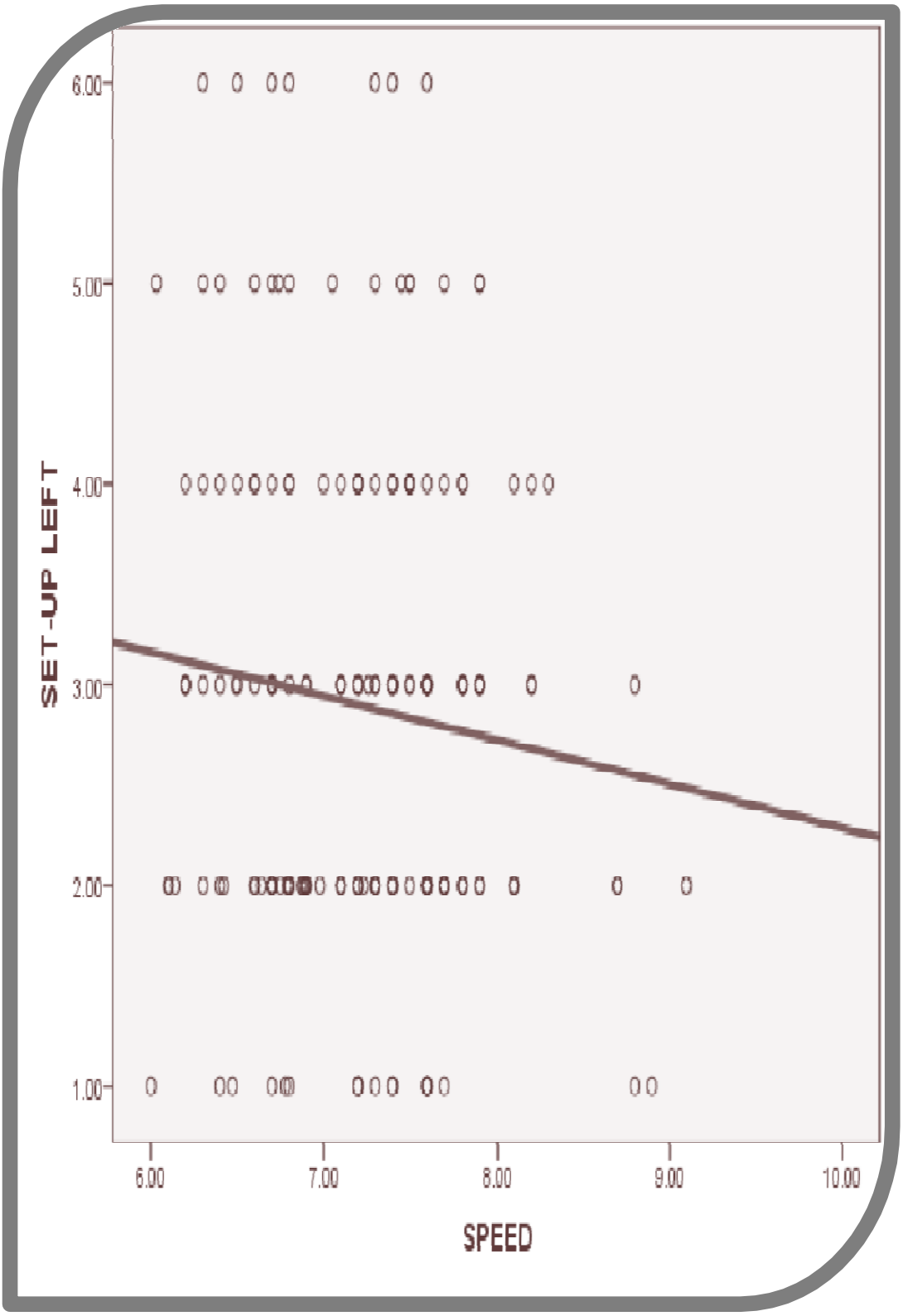


**Fig. 26 : Left Side Passing Ability and Speed Relationship**

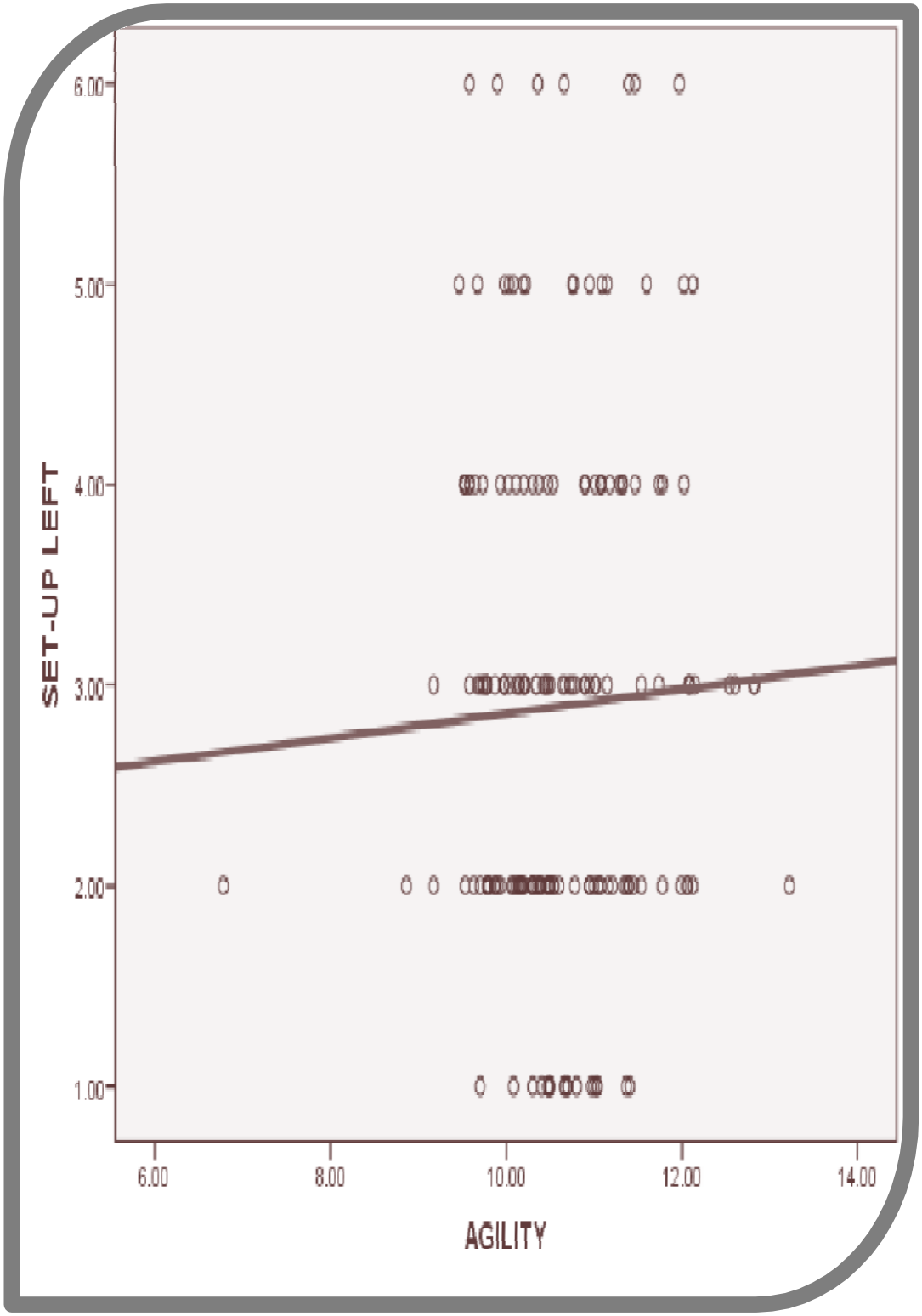


**Fig. 27 : Left Side Passing Ability and Agility Relationship**

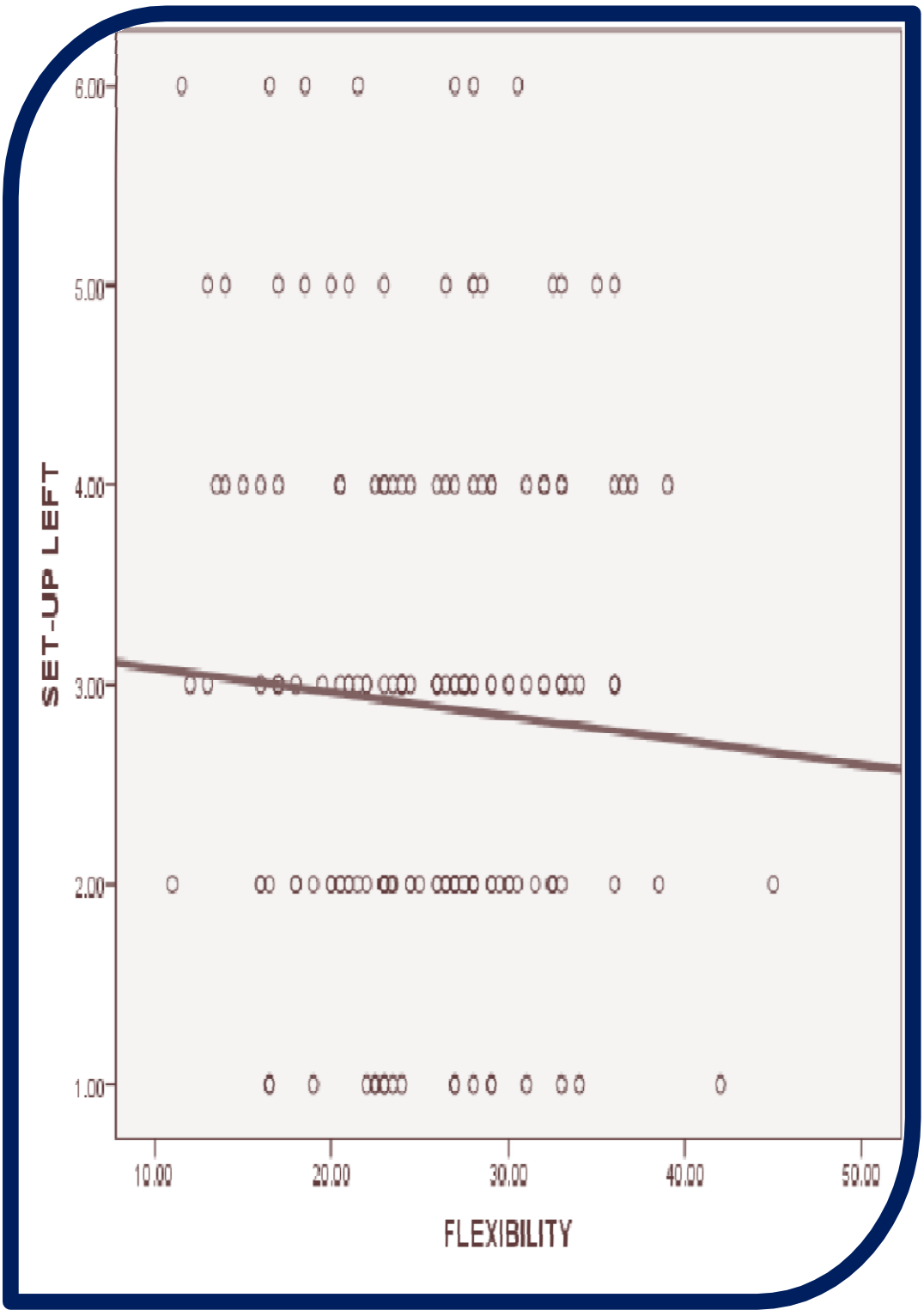


**Fig. 28 : Left Side Passing Flexibility and Speed Relationship**

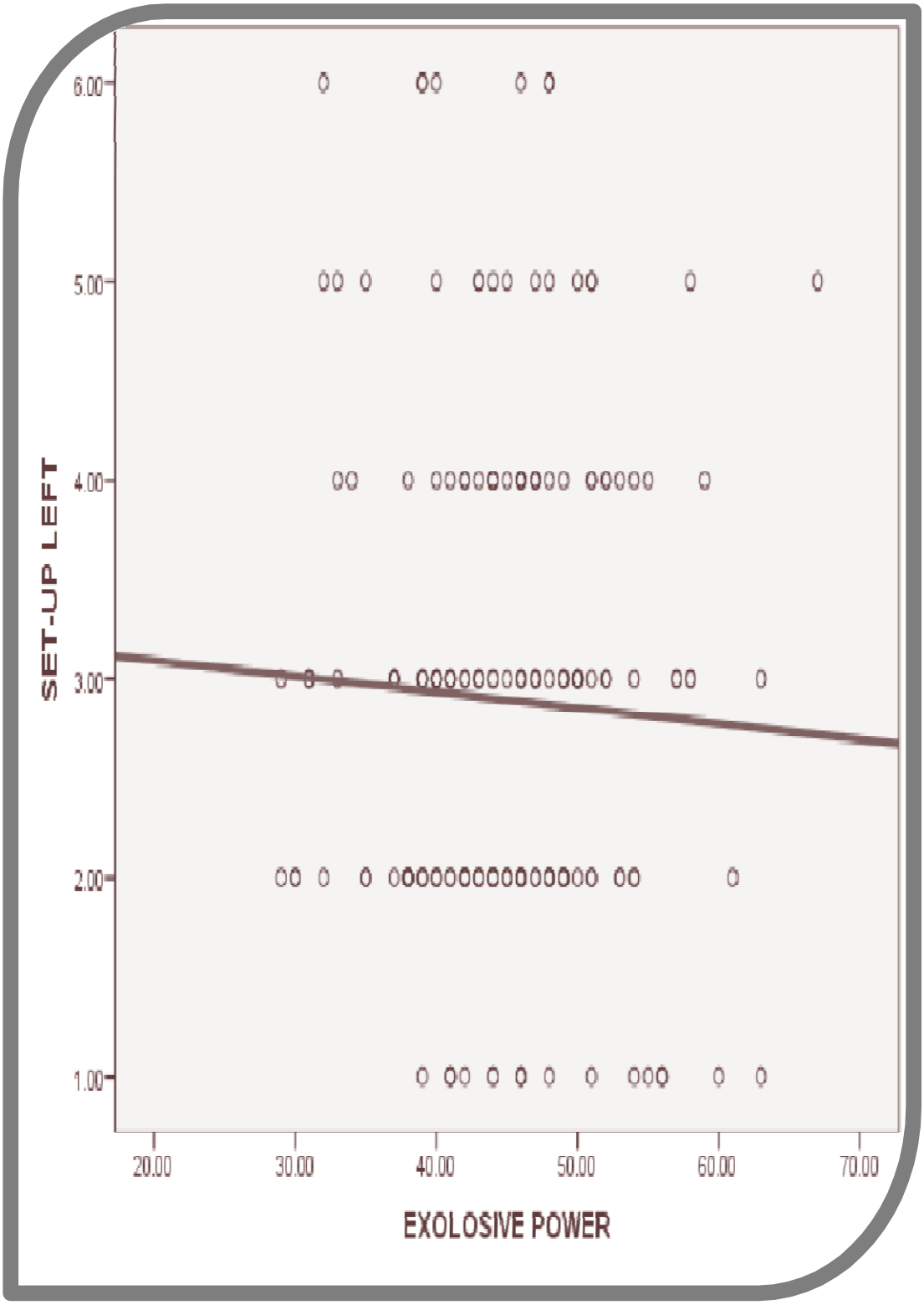


**Fig. 29 : Left Side Passing Ability and Explosive Power Relationship**

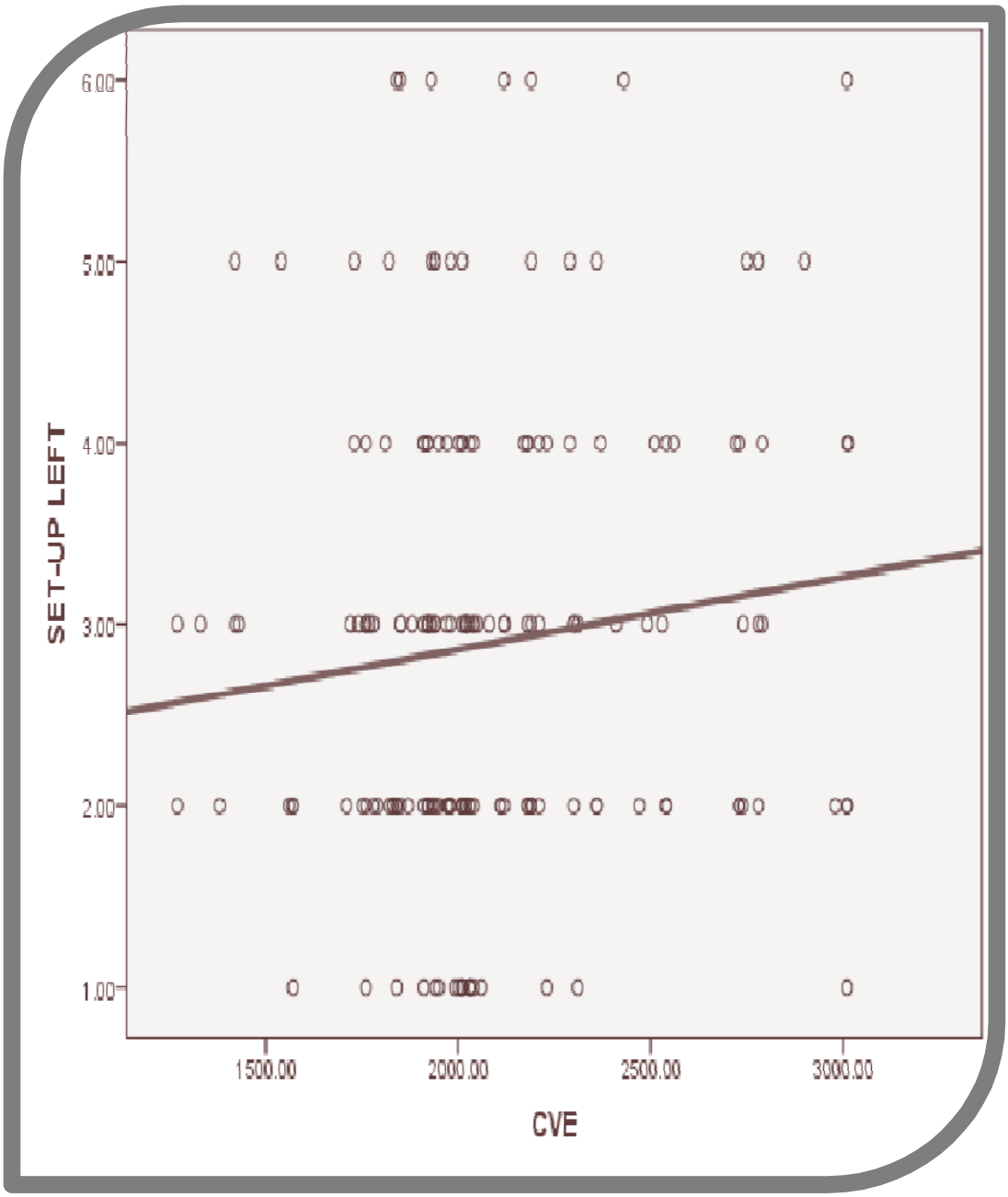


**Fig. 30 : Left Side Passing Ability and Cardio – vascular endurance Relationship**

The multiple correlation method yields correlations between a left side set-up ability (dependent variable) and the combined effect of the motor fitness components (independent variable), which are weighted to give maximum correlation. This allowed researchers to ascertain the combined contributions of specific motor fitness components (speed, agility, flexibility, explosive power and cardiovascular endurance) to left side set- up ability of volleyball players.

Table 4.17 displays the multiple coefficients of correlation that were calculated between the independent and dependent variables.

**Table 4.17 : Multiple Correlation between Volleyball Players' Left Side Set-up Ability and Motor Fitness Components**

| Dependent Variables | Independent Variable | Multiple Coefficient of Correlation (r) | Multiple Correlation ANOVA F | Sig. |
|---|---|---|---|---|
| Left Side Set-up Ability | Speed | 0.033 | 1.205 | 0.31 |
| | Agility | | | |
| | Flexibility | | | |
| | Explosive Power | | | |
| | Cardio-vascular Endurance | | | |

***Statistical significant at 0.05 level**

According to Table 4.17, it has been shown that the combined effect of motor fitness components on volleyball players' left side set-up ability is statistically not significant **(r = 0.033; F = 1.205; p>0.05).** Therefore, it can be concluded from the research above that the selected motor fitness components listed above when combined do not affect a player's ability to left side set-up in volleyball.

## 4.3 Discussion of the Findings

In the sport of volleyball, physical health and talent are highly valued. A successful volleyball player needs to move around the court with good speed, power, and agility. For volleyball success, the most crucial physical attributes are strength, speed, endurance, flexibility, coordination, explosive strength, jumping ability, and game endurance. Furthermore, volleyball players must possess motor fitness, which is the capacity to compete successfully in the sport. Personality traits including self-motivation, concentration, and game comprehension are also critical to individual success. Success on a team is influenced by group dynamics, leadership, and having a solid technical foundation in volleyball. Training should concentrate on these areas since attack, serve, and reception are the three most crucial volleyball abilities

nowadays. In general, volleyball success requires a blend of technical skills, psychological factors, motor fitness, and physical fitness.

As volleyball is a team activity, playing well requires a combination of talent and fitness. To become good at volleyball, one must have a certain set of abilities and strategies. In volleyball, abilities including serving, passing, lifting, spiking, and blocking are frequently employed. The association between a particular physical fitness component and volleyball players' skill performance is the main subject of this study.

**Volleying Ability:**

- Among the selected motor fitness components, agility and flexibility showed a significant negative correlation with volleying ability, whereas speed showed a positive correlation. A significant relationship indicates that a rise in these skills corresponds with an increase in volleying performance.
- The volleying ability was significant contribution with all of the selected motor fitness components. This demonstrates that improved fitness levels are necessary for volleying success.
- The third model (agility, flexibility, and speed) accounted for 7.1% of the variability in volleying ability, according to stepwise multiple regression analyses. Agility explained 2.7% of the difference in volleying skill, flexibility explained 2.7%, and speed explained 2.4%.

**Service Ability:**

- Among the selected motor fitness components, explosive power showed a significant negative correlation with service ability. A significant relationship indicates that a rise in these skills corresponds with an increase in service performance.
- There was no contribution between the motor fitness components and service ability performance. This demonstrates that the performance in service ability is unaffected by the components of motor fitness.

**Passing Ability:**

- Among the selected motor fitness components, agility and flexibility demonstrated a strong positive link with the ability to pass on the right side and the left side, respectively.
- No contribution was observed between the motor fitness components and the ability to pass on the right and left sides. This proves that the components of motor fitness have no bearing on passing ability performance.

**Set-up Ability:**

- Among the selected motor fitness components flexibility showed a significant negative correlation with right side set-up ability. A significant relationship indicates that a rise in these skills corresponds with an increase in set-up performance.
- The right side set-up ability was significant contribution with all of the selected motor fitness components. This demonstrates that improved fitness levels are necessary for set-up success.
- The third model (flexibility and cardio-vascular endurance) accounted for 4.2% of the variability in right side set-up ability, according to stepwise multiple regression analyses, flexibility explained 2.6% of the difference in right side set-up ability, and cardio-vascular endurance explained 1.6%.
- No significant correlation were observed between the motor fitness components and left side set-up ability.

**This findings consonance with the studies:**

**Uslu et. al. (2021)** the results of the study demonstrate that there is a strong relationship between a few critical motor skills and volleyball-specific technical skills among both male and female volleyball players.

Men's volleyball players' playing ability and the following traits were positively correlated, according to **Govindaiah et al. (2019)** findings: flexibility, muscular strength, explosive power, agility, and cardiovascular endurance.

**Sudhakara (2018)** considering the constraints and results of the study, physical characteristics including flexibility, speed, endurance, strength, and leg power are

positively correlated with the capacity to play volleyball. The results of the study show that specific physical characteristics affect volleyball players' performance.

Physical attributes including flexibility, speed, endurance, strength, and leg power are positively connected with the ability to play volleyball, according to **Vileep and Virupaksha's (2017)** findings and study limitations. The study's findings indicate that certain physical attributes have an impact on volleyball players' performance.

The study conducted by **Gangey and Kerketta (2016)** revealed a noteworthy association between volleyball playing ability and agility, coordination, and response time.

In volleyball, agility and jump performance are correlated **(Sahin, 2014),** and producing high power, quick stretch shortening cycle motions and high-speed whole-body movements requires agility.

The findings of **Cox's (2013)** study showed a substantial relationship between team performance and the volleyball skills under investigation when taken as a whole. After a more thorough examination of the relationship, it was determined that spiking, spike defense, serving, receiving, setting, and free ball passing were the volleyball abilities most important in forecasting team success.

Volleyball players had an advantage in terms of flexibility, muscular endurance, power, and cardio-respiratory endurance, according to a 2013 study by **Taware et al.**

The volleyball playing skill was found to be highly influenced by strength measures of the leg, arm, abdominal, and legs, with leg strength outweighing arm and belly strength, according to **Bhadoria's (2003)** study.

**Sheela (1994)** based on the importance of the motor fitness component that underpins volleyball performance. Flexibility, cardiopulmonary endurance, and muscular endurance were further factors in the volleyball player's performance. In volleyball, agility demonstrated a substantial relationship with skill.

### 4.4 Discussion of Hypothesis

**$H_1$ - There would be significant relationship between selected motor fitness components with the volleyball skill test.**

- The volleying ability of volleyball players was found to be significantly correlated with motor fitness components like speed, agility, and flexibility; hence, the hypothesis about the aforementioned motor fitness aspects has been accepted. However, there is no significant relationship between the other motor fitness components; explosive power and cardiovascular endurance, so they are rejected.
- The service ability of volleyball players was found to be significantly correlated with explosive power hence, the hypothesis about the aforementioned motor fitness aspects has been accepted. However, there is no significant relationship between the other motor fitness components; speed, agility, flexibility and cardiovascular endurance, so they are rejected.
- The right side passing ability of volleyball players was found to be significantly correlated with agility hence, the hypothesis about the aforementioned motor fitness aspects has been accepted. However, there is no significant relationship between the other motor fitness components; speed, flexibility, explosive power and cardiovascular endurance, so they are rejected.
- The left side passing ability of volleyball players was found to be significantly correlated with flexibility hence, the hypothesis about the aforementioned motor fitness aspects has been accepted. However, there is no significant relationship between the other motor fitness components; speed, agility, explosive power and cardiovascular endurance, so they are rejected.
- The right side set-up ability of volleyball players was found to be significantly correlated with flexibility hence, the hypothesis about the aforementioned motor fitness aspects has been accepted. However, there is no significant relationship between the other motor fitness components; speed, agility, explosive power and cardiovascular endurance, so they are rejected.

- The not significant relationship was found between selected motor fitness components and left side set-up ability of the volleyball players. Therefore, hypothesis has been rejected.

**$H_1$ - There would be significant contribution of selected motor fitness components to the volleyball skill test.**

- The volleying ability and right side set-up ability of volleyball players was found to be significantly **contribution** with the selected motor fitness components; hence, the hypothesis about the aforementioned motor fitness aspects has been accepted. However, there is no significant **contribution** with the selected motor fitness components with service ability, right side passing ability, left side passing ability and left side set-up ability, so they are rejected.