***Original Research Article***

# Effect of Locus of Control on Eating Practices and Nutrition Awareness among Young Adolescent Sportspersons in Kerala


## ABSTRACT

The locus of control refers to how one perceives personal responsibility for success or failure. This study examines how the locus of control affects eating practices and nutrition awareness among young adolescent sportspersons in Kerala. In this study, 314 (186 Male, 128 Female) young adolescent sportspersons ranging in age from 13 to 24 years were selected. To gather psychological data, Rotter's (1966) Internal-External locus of control was used. Statistical analysis was carried out using descriptive statistics (mean, frequency, and standard deviation), one-way ANOVA, and post-hoc tests such as Scheffe's test.

A one-way ANOVA found a statistically significant difference in eating patterns (food consumption pattern and food frequency method) and nutrition awareness between at least two groups $F(3,310)=[3.385]$, $p=.018$, $F(3,310)=[5.124]$, $p=.002$, and $F(3,310)=[4.620]$, $p=.004$ respectively. The Locus of Control, .6% (2) of the sportspersons had very strong external LOC, 7.6% (24) had external LOC, the majority of the sportspersons 56.7% (178) had both internal and external LOC and 35% (110) were having internal LOC. The mean score for nutrition awareness was 4.15±1.593, with 16.24% (n=51) scoring in the good category.

The locus of control affects the eating practices of athletes by shaping their beliefs about personal responsibility and control over nutrition. A balanced approach incorporating internal and external factors and individualized strategies is often the key to enhancing performance and overall health.



**Keywords: Locus of Control, eating practices, nutrition awareness, food consumption pattern, sportspersons**




## 1. Introduction

According to Rotter (1966), the locus of control was unidimensional, with an internal and external locus. Locus of control is a psychological concept that refers to a person's belief about how much control they have over the events in their lives. When an individual believes that they are in control of their lives, they are considered to have an internal locus of control, whereas those with an external locus of control believe that fate, luck, or powerful others determine their lives.

In the context of eating practices in sportspersons, an internal locus of control is generally associated with a greater tendency to engage in healthy eating behaviours. This is because people with an internal locus of control tend to believe that their choices and behaviors are

the primary drivers of their health outcomes, and therefore they are more likely to take personal responsibility for their diet and nutrition. In contrast, people with an external locus of control may be more likely to attribute their eating behaviours to external factors, such as the availability of food or social pressures, and therefore may have a harder time making healthy choices.

Good eating habits and adequate food choices are essential for maintaining a healthy lifestyle and for youth health (Chaudhary et al., 2020). The quick changes in the physical and mental development of young adults make them vulnerable to bad eating habits. People perform better physically and mentally if they consume rational nutrition. It is also possible to prevent some diseases with a proper diet and rhythm daily. The locus of control affects the eating practices of athletes by shaping their beliefs about personal responsibility and control over nutrition (Scoffier et al., 2010).

Students who had a better sense of internal locus of control ate healthier and drank more water. Individuals who believe in healthy eating have become more mindful of nutrition. Furthermore, higher ratings in the external locus of control component (beliefs in luck or chance) were linked to poor eating habits, inadequate hydration, and a lack of nutritional awareness. The nutritional knowledge levels of female athletes were higher than those of male athletes when compared across genders (Keys, 1992).

However, it is crucial to highlight that the relationship between locus of control and eating habits is complex and can be influenced by several factors, including individual differences in motivation, self-efficacy, and social support. Additionally, while an internal locus of control is generally associated with positive health outcomes, it is not necessarily a guarantee of good health, as other factors such as genetics, environment, and lifestyle also play a role in determining health outcomes.

Even though no study has examined the effect of locus of control on eating practices and nutrition awareness specifically, there is some evidence in the literature that locus of control is associated with overall well-being (Shapiro et al., 1996). The purpose of this study is to investigate the effect of locus of control on the eating practices and nutrition awareness of young sportspersons in Kerala between the ages of 13 and 27.

## 2. Methodology

### 2.1. Selection of subjects

In this study, 314 sportspersons aged 13 to 27 were chosen from some institutions in Kerala (186 men and 128 women). On the initial visit, researchers described the study's goal to

eligible participants and enabled them to ask any questions. Every subject provided written informed consent before participating in the study.

**2.2. Questionnaire Design and Scoring**

The concept of "locus of control" (LOC) refers to "Where (locus) is your sense of control in the world—inside or outside?" was coined by Julian Rotter, a behaviour observer (Rotter, 1966). To gauge people's beliefs about their control (internal) and their perception of the influence of outside causes on their circumstances (external), Rotter created a forced-choice, 29-question test. Different applications of Rotter's theory, known as the locus of control, have been made to explain results in a variety of contexts, ranging from fostering healthy marriages to improving golf performance to corporate leadership. Business organisations have used test results to increase retention, review hiring methods, study and attempt to decrease the effects of stress, boost job satisfaction, and urge employees to assume personal responsibility for their actions.

The locus of control concept is based on what psychologists call social learning theory. According to social learning theory, expectations are reinforced when the anticipated events or behaviours occur in the future. In other words, if you expect something to happen and it does, your expectation grows, and if it does not, your anticipation decreases. Rotter asserted that the outcome is governed by one's belief in their power to change the reasons for reinforcement. This is comparable to the "self-fulfilling prophecy" concept, which you may be familiar with. Essentially, Rotter's definition of "control" includes anything over which you have influence. He claimed that those who believe their actions or qualities impact or cause events have an internal locus of control. People who feel that reinforcement for their activities is due to luck, fate, chance, or other factors outside their control have an external locus of control.

The results are scored along the following scale:

0 - 15 - Very strong external locus of control

20 – 35 - External locus of control

40 - 60 - Both external and internal locus of control

65 - 80 - Internal locus of control

85 – 100 - Very strong internal locus of control

According to a large body of research on the locus of control, persons who believe they can control their circumstances are more likely to be aware of actions and knowledge that can assist in their success. They strive to improve their circumstances and place a larger value on their abilities. Knowing whether employees have an internal or external locus of control is

useful in guiding their development. Stress management training, for example, could help externals develop better coping abilities, hence increasing job satisfaction and retention within the organisation. Understanding one's personality features can lead to positive adjustments in both work and play.

### 2.3. Interview and data collection

The researcher and assistant were involved in the data collection process. After informing each participant of the study's objectives, relevance, confidentiality, and participant rights, the researcher and assistant obtain informed written consent from them. The data was then collected, and the athletes completed the form in about ten to fifteen minutes.

### 2.4. Statistical Analysis

The data was entered into an Excel spreadsheet and analysed using the Statistical Package for the Social Sciences (SPSS), version 20. An ANOVA study was utilised to look at the relationship between eating habits and Locus of Control (LOC), as well as Nutrition Awareness and Locus of Control. Following the ANOVA, a post-hoc Scheffe's test was conducted. Descriptive statistics were calculated using the mean, standard deviation (SD), and standard error. Statistical significance was determined using a 0.05 probability value.



### 3.1. Results and Discussions

### 3.1. SOCIO-DEMOGRAPHIC PROFILE OF YOUNG SPORTSPERSONS IN KERALA

**Table 1: Socio-demographic profile of young sportspersons in Kerala**

| Age | | |
|---|---|---|
| 13-16 yrs | **11** | **3.5%** |
| 16-20 yrs | **147** | **46.81%** |

| | | |
|---|---|---|
| 20-24 yrs | **141** | **44.90%** |
| 24-27 yrs | **15** | **4.7%** |
| **Gender** | | |
| Males | **186** | **59.2%** |
| Females | **128** | **40.8%** |
| **Educational Qualification** | | |
| 08-10$^{th}$ class | **3** | **.95%** |
| 10-12$^{th}$ class | **126** | **40.12%** |
| Degree | **177** | **56.4%** |
| PG | **8** | **2.5%** |
| **Type of family** | | |
| Joint | **108** | **34.4%** |
| Nuclear | **204** | **65%** |
| Extended | **2** | **.6%** |
| **Area of residence** | | |
| Rural | **203** | **64.6%** |
| Urban | **58** | **18.5%** |
| Coastal | **51** | **16.2%** |
| Tribal | **2** | **6%** |
| **Economic Status** | | |
| Yellow card | **25** | **8%** |
| Pink Card | **163** | **51.9%** |
| Blue Card | **87** | **27.7%** |
| White Card | **39** | **12.4%** |

Table 1 depicts the socio-demographic profile of young sportspeople in Kerala. Participants in the study ranged in age from 13 to 24 years. Among the study participants, 3.5% were aged 13–16, 46.81% were aged 16–20, and 44.90% were aged 20–24. There were 4.7% of respondents aged 24 to 27. In total, 59.2% of the population was male, while 40.8% was female. There were 186 males and 128 females.

Approximately .95% and 40.12% of the population attended 8-10th grades, respectively. A degree was attended by 56.4% and a postgraduate degree by 2.5%. In households, nuclear and joint families account for 34.4% and 65% of households, respectively. A further .6% comes from extended family.

According to the study, 64.6% of 314 participants lived in rural areas, 18.5% in urban areas, 16.2% in coastal regions, and 6% in tribal regions. Of the 314 participants, 8% belonged to the yellow card category (the most economically backward section of society), 51.9% belonged to the pink card category (Priority or Below Poverty Line (BPL)), 27.7% belonged

to the blue card category (non-priority subsidy or Above Poverty Line (APL)), and only 12.4% fell into the white card category (Non – Priority).

| PARAMETERS | TOTAL NUMBER | PERCENTAGE |
|---|---|---|
| **Sports Specialization** | | |
| Cricket | **32** | **10.2** |
| Wrestling | **2** | **.6** |
| Archery | **4** | **1.3** |
| Football | **123** | **39.2** |
| Wushu | **2** | **.6** |
| Handball | **6** | **1.9** |
| Hockey | **10** | **3.2** |



### 3.2. PERSONAL/SPORTS PROFILE OF YOUNG SPORTSPERSONS IN KERALA

**Table 2: Personal/Sports profile of young sportspersons in Kerala**

| | | |
|---|---|---|
| Netball | **2** | **.6** |
| Kho-Kho | **7** | **2.2** |
| Athletics | **30** | **9.6** |
| Karate | **6** | **1.9** |
| Decathlon | **1** | **.3** |
| Judo | **6** | **1.9** |
| Kabbadi | **17** | **5.4** |
| Badminton | **15** | **4.8** |
| Fencing | **2** | **.6** |
| Tug of War | **13** | **4.1** |
| Weightlifting | **1** | **.3** |
| Baseball | **19** | **6.1** |
| Taekwondo | **1** | **.3** |
| Yoga | **2** | **.6** |
| Volleyball | **1** | **.3** |
| Softball | **10** | **3.2** |
| Kalari | **1** | **.3** |
| Bodybuilding | **1** | **.3** |
| **Level of Participation** | | |
| School | **22** | **7** |
| Inter-collegiate | **20** | **6.4** |
| s-district | **4** | **1.3** |
| District | **135** | **43** |
| Degree | **3** | **1** |
| State | **65** | **20.7** |
| Revenue | **4** | **1.3** |
| South | **1** | **.3** |
| National | **57** | **18.2** |
| Khelo-India | **3** | **1** |
| **Nutrition Class** | | |
| Yes | **93** | **29.6** |
| No | **221** | **70.4** |

| Special Diet | | |
|---|---|---|
| Yes | **38** | **12.1** |
| No | **274** | **87.9** |
| **Sleep** | | |
| 4-6 hrs | **27** | **8.59** |
| 6-8 hrs | **172** | **54.7** |
| 8-10 hrs | **104** | **33.12** |
| 10-12 hrs | **11** | **3.50** |



Table 2 displays the personal and sports profiles of young athletes from Kerala. The participants in the study were specialized in a variety of sports, including Cricket (10.2%), Wrestling (0.6%), Archery (1.3%), Football (39.2%), Wushu (0.6%), Handball (1.9%), Hockey (3.2%), Netball (0.6%), Kho-Kho (2.2%), Athletics (9.6%), Karate (1.9%), Decathlon (0.3%), Judo (1.9%), Kabbadi (5.4%), Badminton (4.8%), Fencing (0.6%), Tug of war (4.1%), Weightlifting (0.3%), Baseball (6.1%), Taekwondo (0.3%), Yoga (0.6%), Volleyball (0.3%), Softball (3.2%), Kalari (0.3%), and Bodybuilding (0.3%). The research project encompassed 7% of participants with a school level of involvement, 6.4% with inter-collegiate participation, 1.3% with s-district involvement, 43% with district involvement, 1% with degree involvement, 20.7% with state-level involvement, 1.3% with revenue involvement, 0.3% with south involvement, and 18.2% with national level involvement, while 1% of participants had Khelo-India level involvement. Of the participants, 29.6%

attended the nutrition class, and 70.4% did not. The study indicated that 12.1% of the 314 participants followed a particular diet, whereas 87.9% did not. Among the 314 participants, 8.59% slept 4-6 hours per day, 54.7% slept 6-8 hours per day, 33.12% slept 8-10 hours per day, and 3.50% slept more than 10 hours per day.

### 3.3. LOCUS OF CONTROL (LOC)

**Table 3: Descriptive statistics: Locus of Control (LOC) of the young sportspersons in Kerala**

| LOC | | |
|---|---|---|
| N | Valid | 314 |
| | Missing | 0 |
| Std. Error of Mean | | .035 |
| Median | | 3.00 |
| Std. Deviation | | .621 |

**Table 4: Locus of Control of the Young Sportspersons in Kerala**

| LOC | | FREQUENCY | PERCENT |
|---|---|---|---|
| | VS External LOC | 2 | .6 |
| | External LOC | 24 | 7.6 |
| | Both I and E | 178 | 56.7 |
| | Internal LOC | 110 | 35.0 |
| | Total | 314 | 100.0 |

Table 4 demonstrates that 0.6% of the athletes had a very strong external LOC, 7.6% had an external LOC, 56.7% had both internal and external LOCs, and 35% had an internal LOC.

### 3.4. ANOVA: EATING PRACTICES AND LOCUS OF CONTROL (LOC) AND NUTRITION AWARENESS AND LOCUS OF CONTROL (LOC)

**Table 5: Descriptive Statistics of Eating Practices, Locus of Control and Nutrition Awareness**

| | | N | MEAN | STANDARD DEVIATION |
|---|---|---|---|---|
| FCP | VS External LOC | 2 | 17.50 | 6.364 |
| | External LOC | 24 | 17.38 | 5.106 |
| | Both I and E | 178 | 15.49 | 4.586 |
| | Internal LOC | 110 | 14.44 | 4.056 |
| | Total | 314 | 15.28 | 4.507 |

| | | | | |
|---|---|---|---|---|
| **FFM** | **VS External LOC** | 2 | 49.50 | 9.192 |
| | **External LOC** | 24 | 53.46 | 8.267 |
| | **Both I and E** | 178 | 54.79 | 8.666 |
| | **Internal LOC** | 110 | 58.05 | 6.226 |
| | **Total** | 314 | 55.80 | 8.019 |
| **NA** | **VS External LOC** | 2 | 1.50 | 2.121 |
| | **External LOC** | 24 | 3.33 | 1.308 |
| | **Both I and E** | 178 | 4.17 | 1.572 |
| | **Internal LOC** | 110 | 4.34 | 1.599 |
| | **Total** | 314 | 4.15 | 1.593 |

**Table 6: ANOVA: Eating Practices and Locus of Control (LOC) and Nutrition Awareness and Locus of Control (LOC)**

| ANOVA | | | | | | |
|---|---|---|---|---|---|---|
| | | **SUM OF SQUARES** | **DF** | **MEAN SQUARE** | **F** | **SIG.** |
| **FCP** | **Between Groups** | 201.664 | 3 | 67.221 | 3.385 | **.018** |
| | **Within Groups** | 6155.674 | 310 | 19.857 | | |
| **FFM** | **Between Groups** | 950.920 | 3 | 316.973 | 5.124 | **.002** |
| | **Within Groups** | 19175.440 | 310 | 61.856 | | |
| **NA** | **Between Groups** | 33.976 | 3 | 11.325 | 4.620 | **.004** |
| | **Within Groups** | 759.989 | 310 | 2.452 | | |

The one-way ANOVA revealed a statistically significant difference between the groups (FCP) (p-value = 0.018, F-value = 3.385). The one-way ANOVA revealed a statistically significant difference between groups (FFM) (F(3,310) = 5.124, p =.002). The one-way ANOVA (NA) results showed a statistically significant difference between the groups (F(3,310) = 4.620, p =.004).

**Table 7: Post Hoc Scheffe's test**

| Multiple Comparisons | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Scheffe's test** | | | | | | | |
| **DEPENDENT VARIABLE** | **(I) LOC** | **(J) LOC** | **MEAN DIFFERENCE (I-J)** | **STD. ERROR** | **SIG.** | **95% CONFIDENCE INTERVAL** | |
| | | | | | | **LOWER BOUND** | **UPPER BOUND** |
| FCP | VS External LOC | External LOC | .125 | 3.280 | 1.000 | -9.09 | 9.34 |
| | | Both I and E | 2.006 | 3.169 | .940 | -6.90 | 10.91 |
| | | Internal LOC | 3.064 | 3.179 | .819 | -5.87 | 12.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | External LOC | VS External LOC | -.125 | 3.280 | 1.000 | -9.34 | 9.09 |
| | | Both I and E | 1.881 | .969 | .290 | -.84 | 4.60 |
| | | Internal LOC | 2.939* | 1.004 | **.037** | .12 | 5.76 |
| | Both I and E | VS External LOC | -2.006 | 3.169 | .940 | -10.91 | 6.90 |
| | | External LOC | -1.881 | .969 | .290 | -4.60 | .84 |
| | | Internal LOC | 1.058 | .540 | .282 | -.46 | 2.58 |
| | Internal LOC | VS External LOC | -3.064 | 3.179 | .819 | -12.00 | 5.87 |
| | | External LOC | -2.939* | 1.004 | **.037** | -5.76 | -.12 |
| | | Both I and E | -1.058 | .540 | .282 | -2.58 | .46 |
| FFM | VS External LOC | External LOC | -3.958 | 5.788 | .926 | -20.23 | 12.31 |
| | | Both I and E | -5.292 | 5.592 | .826 | -21.01 | 10.43 |
| | | Internal LOC | -8.555 | 5.612 | .509 | -24.33 | 7.22 |
| | External LOC | VS External LOC | 3.958 | 5.788 | .926 | -12.31 | 20.23 |
| | | Both I and E | -1.334 | 1.710 | .894 | -6.14 | 3.47 |
| | | Internal LOC | -4.596 | 1.772 | .083 | -9.58 | .38 |
| | Both I and E | VS External LOC | 5.292 | 5.592 | .826 | -10.43 | 21.01 |
| | | External LOC | 1.334 | 1.710 | .894 | -3.47 | 6.14 |
| | | Internal LOC | -3.262* | .954 | **.009** | -5.94 | -.58 |
| | Internal LOC | VS External LOC | 8.555 | 5.612 | .509 | -7.22 | 24.33 |
| | | External LOC | 4.596 | 1.772 | .083 | -.38 | 9.58 |
| | | Both I and E | 3.262* | .954 | **.009** | .58 | 5.94 |
| NA | VS External LOC | External LOC | -1.833 | 1.152 | .471 | -5.07 | 1.41 |
| | | Both I and E | -2.674 | 1.113 | .126 | -5.80 | .46 |
| | | Internal LOC | -2.836 | 1.117 | .094 | -5.98 | .30 |
| | External LOC | VS External LOC | 1.833 | 1.152 | .471 | -1.41 | 5.07 |
| | | Both I and E | -.841 | .340 | .109 | -1.80 | .12 |
| | | Internal LOC | -1.003* | .353 | **.046** | -1.99 | -.01 |
| | Both I and E | VS External LOC | 2.674 | 1.113 | .126 | -.46 | 5.80 |
| | | External LOC | .841 | .340 | .109 | -.12 | 1.80 |
| | | Internal LOC | -.162 | .190 | .866 | -.70 | .37 |
| | Internal LOC | VS External LOC | 2.836 | 1.117 | .094 | -.30 | 5.98 |
| | | External LOC | 1.003* | .353 | **.046** | .01 | 1.99 |
| | | Both I and E | .162 | .190 | .866 | -.37 | .70 |

*. The mean difference is significant at the 0.05 level.

Based on our findings thus far, we may conclude that there are statistically significant differences between the groups. The table Multiple Comparisons displays how the groups differed from one another. The Scheffe post hoc test is regarded as the best approach for conducting post hoc tests on a one-way ANOVA, however there more possibilities. The table shows that there is a statistically significant difference between the groups of FCP, External

LOC, and Internal LOC (p = 0.037), (FFM) between both I and E and Internal LOC (p = 0.009), and NA between External LOC and Internal LOC (p=.046).

### 3.5. NUTRITION AWARENESS

**Table 8: Descriptive Statistics: Nutrition Awareness (NA) of the young sportspersons in Kerala**

| Nutrition Awareness – Descriptive Statistics | |
|---|---|
| **N** | 314 |
| **Mean** | 4 |
| **Std. Deviation** | 1.593 |
| **Minimum** | 0 |
| **Maximum** | 8 |

**Table 9: Nutrition Awareness (NA) of the young sportspersons in Kerala**

| Nutrition Awareness | Frequency | Per cent |
|---|---|---|
| **<4 – Below Average** | 106 | 33.75 |
| **4-6 - Average** | 153 | 48.72 |
| **6-8 - Good** | 51 | 16.24 |
| **8-10 - Excellent** | 4 | 1.27 |

The average score in this table was 4±1.593. Those who scored below 4 (Below Average) were around 33.75%. Participants with scores of 4-6 (Average) were 48.72%, 6-8 (Good) were 16.24%, and 8-10 (Excellent) were 1.27%.

### 3.6. Summary and Conclusions

A one-way ANOVA found a statistically significant difference in eating patterns (food consumption pattern and food frequency method) and nutrition awareness between at least two groups F(3,310)=[3.385], p=.018, F(3,310)=[5.124], p=.002, and F(3,310)=[4.620], p=.004 respectively. This demonstrates that locus of control influences young sportspeople's eating habits and has a significant impact on nutrition awareness. Post Hoc analysis revealed that there is a statistically significant difference between the groups of FCP, External LOC, and Internal LOC (p = 0.037), (FFM) between both I and E and Internal LOC (p = 0.009), and NA between External LOC and Internal LOC (p=.046). The Locus of Control, .6% (2) of the sportspersons had very strong external LOC, 7.6% (24) had external LOC, the majority of the sportspersons 56.7% (178) had both internal and external LOC and 35% (110) were having internal LOC. The mean score for nutrition awareness was 4.15±1.593, with 16.24% (n=51) scoring in the good category.

To summarise, the concept of locus of control applies to sportspersons' nutrition practices in India, as it is in other parts of the world. In India, sportspersons' nutrition practices may be influenced by various factors, including cultural norms, socioeconomic status, access to resources, and individual beliefs about health and wellness.

Research has found that Indian sportspersons with an internal locus of control had better nutrition practices than those with an external locus of control. Sportspersons with an internal locus of control are likely to take more personal responsibility for their nutrition, make more informed choices about their food, and have a higher level of self-efficacy when it comes to making healthy nutrition choices. On the other side, athletes with an external locus of control may be more prone to make nutrition decisions based on external cues, such as coaches or teammates. The locus of control can influence the nutrition awareness and behaviours of sportspersons. Athletes with an internal locus of control are generally more proactive, personally invested in their nutritional choices, and likely to have a higher level of awareness regarding the impact of nutrition on their performance. Understanding the individual locus of control can help tailor nutrition education and support for athletes to optimize their dietary practices.

However, it is crucial to emphasise that the relationship between locus of control and dietary habits is complex and may be influenced by a variety of other factors, including cultural and societal norms surrounding food and eating, resource availability, and individual views about health and wellbeing.

It was concluded that the results of this study could help retain athletes and maximize their performance. Furthermore, research on this area is sparse, and further research is needed to better understand the relationship between locus of control on eating habits and nutrition awareness among athletes in India.



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