

A comparative analysis of flow state in basketball performance: a psychological probe

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Abstract:

Purpose: The present study was conducted to examine the flow state in basketball performance. **Materials:** The investigator had selected Forty Five (N=45) female basketball players of 19 to 25 years of age to act as subjects. They were divided into three groups; (i.e., N₁=15; District, N₂=15; State and N₃=15 National). The purposive sampling technique was used to select the subjects. All the subjects, after having been informed about the objective and protocol of the study, gave their consent and volunteered to participate in this study. **Statistical Analyses:** To measure the level of dispositional flow state of the subjects, the flow state battery constructed by Jackson & Eklund (2004) was administered. One way Analysis of Variance (ANOVA) was employed to find out the intra-group differences. Where F values were found significant, LSD (Least Significant Difference) Post-hoc test was applied to find out the direction and degree of difference. For testing the hypotheses, the level of significance was set at 0.05. **Results & Conclusion:** The results revealed no significant differences were found among female basketball players on the sub-variables of Dispositional Flow Scale-2 i.e., Challenge Skill Balance, Action-Awareness Merging, Clear Goals, Unambiguous Feedback, Concentration on the Task at Hand, Sense of Control, Loss of Self-Consciousness, Time transformation and Autotelic experience.

Keywords:

flow, dispositional, state, basketball, players.

Нишан Сингх Деол, Давиндер Сингх. Сравнительный анализ характеристик структуры движений в баскетболе: психологический тест. Цель: настоящее исследование было проведено с целью изучения состояния характеристик движений в баскетболе. **Материал:** для исследования были выбраны сорок пять (N = 45) женщин баскетболисток возрастом от 19 до 25 лет. Они были разделены на три группы в соответствии с масштабом их участия в соревнованиях: (N1 = 15, район; N2 = 15, штат; N3 = 15 - страна). Была использована целенаправленная техника выборки, чтобы выбрать испытуемые. Все испытуемые были проинформированы о цели и содержании исследования и дал свое согласие и желание принять участие в этом исследовании. **Статистический анализ:** Для измерения уровня диспозиционного состояния испытуемых использована батарея тестов, предложенная Джексоном и Эклундом (2004). Был использован один из способов анализа дисперсии (ANOVA) для определения различий внутри группы. Если были найдены значительные значения F, тогда после специальной процедуры применялся тест LSD (наименее существенное различие) для определения направления и степени различия. Для проверки гипотез, уровень значимости был установлен на уровне 0,05. **Результаты и Выводы:** Результаты не показали существенных различий среди женщин баскетболисток на суб-переменных в диспозиционных движениях по Шкале-2: соревновательный баланс навыков, действия, информированность, объединение, четкие цели, однозначная обратная связь, концентрация на задаче, чувство контроля, потеря самосознания, преобразования во времени, жизненно важный опыт.

Нишан Сингх Деол, Давиндер Сингх. Порівняльний аналіз характеристик структури рухів в баскетболі: психологічний тест. Мета: дослідження було проведено з метою вивчення стану характеристик рухів у баскетболі. **Матеріал:** для дослідження були обрані сорок п'ять (N = 45) жінок баскетболісток віком від 19 до 25 років. Вони були розділені на три групи у відповідності з масштабом їх участі у змаганнях: (N1 = 15, район; N2 = 15, штат; N3 = 15 - країна). Була використана цілеспрямована техніка вибірки, щоб вибрати піддослідних. Всі піддослідні були проінформовані про цілі та зміст дослідження і дали свою згоду і бажання взяти участь у цьому дослідженні. **Статистичний аналіз:** Для вимірювання рівня диспозиційного стану випробуваних використана батарея тестів, запропонована Джексоном і Еклундом (2004). Був використаний один із способів аналізу дисперсії (ANOVA) для визначення відмінностей усередині групи. Якщо були знайдені значні значення F, тоді після спеціальної процедури застосовувався тест LSD (найменш істотна відмінність) для визначення напрямку і ступеню відмінності. Для перевірки гіпотез рівень значимості був встановлений на рівні 0,05. **Результати та Висновки:** Результати не показали істотних відмінностей серед жінок баскетболісток на суб-змінних в диспозиційних рухах за Шкалою-2: змагальний баланс навичок, дії, інформованість, об'єднання, чіткі цілі, однозначний зв'язок, концентрація на завданні, почуття контролю, втрата самосвідомості, перетворення в часі, життєво важливий досвід.

движение, диспозиционные, структура, баскетбол, игроки.

рух, диспозиційний, структура, баскетбол, гравці.

Introduction

Understanding the psychological factors that accompany successful athletic performance is a high priority for applied sport psychology, with a major area of focus being mental links to optimal performance. To advance knowledge in this area, it is important to examine specific psychological constructs with theoretical relevance to optimal performance in order to understand what psychological processes might be contributing to quality of performance. The first and primary construct examined was flow. Flow is an optimal psychological state that occurs when there is a balance between perceived challenges and skills in an activity [3]. According to Jackson, [8] flow experience during exercise can lead to high enjoyment, which, in turn, appears to play an important role in exercise adherence [9, 10, 14]. To advance knowledge in this area, it is important to examine specific

psychological constructs with theoretical relevance to optimal performance in order to understand what psychological processes might be contributing to quality of performance. Empirical research has substantiated this prediction [16]. Hence, an understanding of factors that promote flow states in exercise will inform the strategies of exercise practitioners who are interested in promoting enjoyment and adherence to exercise. Jackson and Eklund [18] developed and revised the dispositional flow scale (DFS-2) to assess athletes' experience of the nine flow characteristics. In addition, Kimiecik and Harris [13] suggested that flow leads to positive affective reactions, which they equate with enjoyment. Research has shown that each one of these dimension is part of the definition of flow [9, 10, 12]. Using in-depth interviews, Jackson [8], Sugiyama and Inomata [17], and Young [19] assessed athletes' responses regarding the importance of the nine dimensions of flow, as proposed by Csikszentmihalyi (1975). Sugiyama and Inomata [17] investigated the

flow experience among semi-professional and university athletes, who were between 18 and 29 years of age, representing three sports, namely, track and field, skating, and swimming. The investigations on flow during sport performance have focused on three main research topics. Firstly, to refine the understanding of the flow construct, as proposed by Csikszentmihalyi [2,3] in a sport context, several studies have analysed qualitative results and their connection to flow dimensions [8, 17,19]. The findings of these studies will be presented concurrently to point out similarities or differences in the flow experience between groups of elite athletes from various sports [6, 7] college and university athletes Sugiyama & Inomata, [17] and elite tennis players Young [19]. Flow is generally viewed as a peak performance state, and there is some support for this assumption [11, 15]. It appears that attaining flow during exercise may promote intrinsic motivation, which, in turn, has been shown to enhance persistence in participation Ryan et al. [16]. Brewer et al. [1] noted that the effect of performance outcome on self-report assessments of psychological states could be compromised by methods of retrospective introspection. The athletes are asked about general experiences of the flow experience in a particular activity the athlete chooses. Another scale developed by the same authors is the flow state scale-2 (FSS-2), which assesses the flow state right after completing an activity. As a result, the present study was conducted to determine the significant difference between Flow State in basketball players with regards to dispositional Flow Scale-2.

Method and Procedure

Sample: The investigators had selected Forty Five (N=45) female basketball players of 19 to 25 years of age to act as subjects. They were divided into three groups; (i.e., N₁=15; District, N₂=15; State and N₃=15 National). The purposive sampling technique was used to select the subjects. All the subjects, after having been informed about the objective and protocol of the study, gave their

consent and volunteered to participate in this study.

Instrument: To measure the level of Dispositional Flow State of the subjects, the Flow State Battery constructed by (Jackson & Eklund, 2004) was administered.

Statistical Analysis: One way Analysis of Variance (ANOVA) was employed to find out the intra-group differences. Where F values were found significant, LSD (Least Significant Difference) Post-hoc test was applied to find out the direction and degree of difference. For testing the hypotheses, the level of significance was set at 0.05.

Results

It can be seen from table-1 that insignificant differences were found with regard to the sub-variable Challenge Skill Balance among District, State and National female basketball players as the P-value (Sig.) .346 was found higher than the 0.05 level of significance (p>0.05).

It can be seen from table-2 that insignificant differences were found with regard to the sub-variable Action-Awareness Merging among District, State and National female basketball players as the P-value (Sig.) .499 was found higher than the 0.05 level of significance (p>0.05).

It can be seen from table-3 that insignificant differences were found with regard to the sub-variable Clear Goals among District, State and National female basketball players as the P-value (Sig.) .756 was found higher than the 0.05 level of significance (p>0.05).

It can be seen from table-4 that insignificant differences were found with regard to the sub-variable Unambiguous Feedback among District, State and National female basketball players as the P-value (Sig.) .813 was found higher than the 0.05 level of significance (p>0.05).

It can be seen from table-5 that insignificant differences were found with regard to the sub-variable Concentration on the Task at Hand among District, State and National female basketball players as the P-value (Sig.) .155 was found higher than the 0.05 level of significance (p>0.05).

Table 1. Significant differences in the results among Female Basketball Players with regard to dispositional Flow Scale-2 on the sub-Variable Challenge skill balance.

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square	F-value	P-value (Sig.)
Between Groups	32.933	2	16.467		
Within Groups	635.067	42	15.121	1.089	.346
Total	668.000	44			

*Significant at 0.05

Table 2. Significant differences in the results among Female Basketball Players with regard to Dispositional Flow Scale-2 on the sub-Variable Action-Awareness Merging.

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square	F-value	P-value (Sig.)
Between Groups	22.711	2	11.356	.707	.499
Within Groups	674.533	42	16.060		
Total	697.244	44			

*Significant at 0.05

It can be seen from table-6 that insignificant differences were found with regard to the sub-variable Sense of Control among District, State and National female basketball players as the P-value (Sig.) .637 was found higher than the 0.05 level of significance ($p > 0.05$)

It can be seen from table-7 that insignificant differences were found with regard to the sub-variable Loss of Self-

Consciousness among District, State and National female basketball players as the P-value (Sig.) .249 was found higher than the 0.05 level of significance ($p > 0.05$).

It can be seen from table-8 that insignificant differences were found with regard to the sub-variable Transformation of Time among District, State and National female basketball players as the P-value (Sig.)

Table 3. Significant differences in the results among Female Basketball Players with regard to Dispositional Flow Scale-2 on the sub-Variable Clear Goals.

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square	F-value	P-value (Sig.)
Between Groups	16.044	2	8.022	.282	.756
Within Groups	1194.267	42	28.435		
Total	1210.311	44			

*Significant at 0.05

Table 4. Significant differences in the results among Female Basketball Players with regard to Dispositional Flow Scale-2 on the sub-Variable Unambiguous Feedback.

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square	F-value	P-value (Sig.)
Between Groups	5.644	2	2.822	.208	.813
Within Groups	569.333	42	13.556		
Total	574.978	44			

*Significant at 0.05

Table 5. Significant differences in the results among Female Basketball Players with regard to Dispositional Flow Scale-2 on the sub-Variable Concentration on the Task at Hand.

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square	F-value	P-value (Sig.)
Between Groups	41.378	2	20.689	1.952	.155
Within Groups	445.200	42	10.600		
Total	486.578	44			

*Significant at 0.05

Table 6. Significant differences in the results among Female Basketball Players with regard to Dispositional Flow Scale-2 on the sub-Variable Sense of Control.

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square	F-value	P-value (Sig.)
Between Groups	13.911	2	6.956	.456	.637
Within Groups	641.333	42	15.270		
Total	655.244	44			

*Significant at 0.05

Table 7. Significant differences in the results among Female Basketball Players with regard to Dispositional Flow Scale-2 on the sub-Variable Loss of Self-Consciousness.

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square	F-value	P-value (Sig.)
Between Groups	58.533	2	29.267	1.439	.249
Within Groups	854.267	42	20.340		
Total	912.800	44			

*Significant at 0.05

Table 8. Significant differences in the results among Female Basketball Players with regard to *Dispositional Flow Scale-2 on the sub-Variable Transformation of Time.*

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square	F-value	P-value (Sig.)
Between Groups	164.311	2	82.156	6.600	.133
Within Groups	522.800	42	12.448		
Total	687.111	44			

*Significant at 0.05

Table 9. Significant differences in the results among Female Basketball Players with regard to *Dispositional Flow Scale-2 on the sub-Variable Autotelic Experience.*

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square	F-value	P-value (Sig.)
Between Groups	141.911	2	70.956	3.225	.050
Within Groups	924.000	42	22.000		
Total	1065.911	44			

*Significant at 0.05

Table 10. Significant differences in the results among Female Basketball Players with regard to *Dispositional Flow Scale-2.*

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square	F-value	P-value (Sig.)
Between Groups	5.911	2	2.956	.012	.988
Within Groups	10408.667	42	247.825		
Total	10414.578	44			

*Significant at 0.05

.133 was found higher than the 0.05 level of significance ($p > 0.05$).

It can be seen from table-9 that insignificant differences were found with regard to the sub-variable Autotelic Experience among District, State and National female basketball players as the P-value (Sig.) .050 was found higher than the 0.05 level of significance ($p > 0.05$).

It can be seen from table-10 that insignificant differences were found with regard to the variable Dispositional Flow Scale-2 among District, State and National female basketball players as the P-value (Sig.) .988 was found higher than the 0.05 level of significance ($p > 0.05$).

Conclusion

Summarizing from the above findings we can say that no significant differences were found among female basketball players on the sub-variables of Dispositional Flow Scale-2 i.e., Challenge skill balance, Action-awareness merging, Clear goals, Unambiguous feedback, Concentration on the task at hand, Sense of control, Loss of self-consciousness, Time transformation and Autotelic experience.

Declaration of Conflicting Interests

The authors declare, that there are no potential conflicts of interest in respect to research, authorship, and/or publication of this article.

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