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## Mental skills assessment of Niger men and women's senior national volleyball teams

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### Abstract

The objective of this study is to evaluate the mental skills of the Niger Senior National Volleyball Teams' Athletes. To achieve this goal, 36 athletes (18 men and 18 women), of the national pre-selection of the 2015 season have been selected and subjected to the Ottawa Mental skills Assessment tool (OMSAT-3). The data collected were subjected to the Shapiro-Wilk normality test which revealed that the distributions do not follow a normal distribution. Consequently, the non-parametric Kruskal-Wallis test was performed to compare the scores of volleyball sportsmen and sportswomen with those of OMSAT-3. Those comparisons indicated that Nigeriens Volleyball Athletes scores are statistically lower ( $p < 0.05$ ) than those prescribed by that tool for high-level athletes. This shows that Athletes of the national volleyball teams of Niger have shortcomings in psychological skills. However, we notice that unlike psychosomatic skills (stress reaction, fear controls and activation) and cognitive skills (focusing, refocusing, imagery, mental practice, and competition planning) the foundation skills (goal setting, commitment and self-confidence) scores of the athletes (men and women) are close to the reference values. Besides apart from the sub-factors 'Fear control', 'Activation' and 'focusing' were sportsmen do better ( $p < 0.05$ ) than sportswomen, there is no significant gender difference ( $p > 0.05$ ) between volleyball athletes mental skills.

Ultimately, this study shows that the lack of results of Nigeriens volleyball athletes during international competition is mainly due to their deficiencies in mental skills and that females athletes have more challenges than male. It is therefore recommended that volleyball sport officials of Niger should manage to introduce a sustainable psychological education into the sports training centres and clubs of the countries in order to expect better outcomes in the future.

**Keywords:** Gender, mental skills, Niger, OMSAT-3, volleyball athletes

### 1. Introduction

Nowadays Sports performances are reaching exceptional levels. The quality of the workouts and the number of training hours required, push athletes to go beyond the limits of their physical abilities. Yet, the physical and technical abilities of an athlete are not the only factors that influence his performances in high level competitions. Results from a series of empirical studies have highlighted the importance of psychological skills in achieving optimal athletic performances (Bois, Sarrazin, Southon & Boiche, 2009) [4]. According Heuzé and Lévêque (1998) [14] results, these skills concern: goal setting, emotional control, concentration, etc. Mental abilities and their management appear unanimously as an important part of the fundamental elements of success in sport. Mental skills occupy a prominent place in the abilities of an athlete in sport competition and more especially in high performance sport (Calmels, 1998) [5]. Thus, during major competitions, an athlete can be technically ready, physically strong, and despite this, lose control of his movements if he fails to manage the emotions induced by the competition. He must use his own emotions and those of his opponents to improve his performances (Dosseville and Edoh, 2015, Dosseville, Laborde, Edoh and Garnarczyk, 2016) [8, 9]. Sometimes, the athlete may be out of the event even before having started due to a lack of good management of his emotions before competitions. His main opponents being himself if he fails to manage his stress at the moment in order to stay focus on the essential and keep his mind at a very optimal level (Heuzé *et al*, 1998) [14].

During the last editions of the international volleyball tournaments in zone III (2009 to 2014),

the results of the matches run by the national volleyball teams of the Republic of Niger have always been below the expectations of the staff and the athletes themselves. These findings have led the various actors to wonder why the volleyball national teams fail to achieve the performances expected from them. Reports show that matches are barely lost against opposing teams whose level are necessary not better. Data analysis of the lost matches revealed slight differences among the scores of lost sets.

More in-depth observations on the volleyball players' behaviour during matches along with interviews run by behavioural professionals come to the conclusion that the athletes failures is due to their lack of concentration at decisive moments of the matches. They do not always manage: to differentiate between training sessions and friendly matches; to adjust to the reality of international competitions and to all adapt to the pressure of their fans and hostile demonstrations of their opposing teams.

As for sportswomen especially, they usually get the jitters which take possession of their body some time before the beginning of the matches. Their psychological status is therefore at the lowest level when it should be optimal. This shows that in high performance sport, the physical conditions of athletes and the different tactics that the coaches put in place are not enough anymore. In this case of the men and women's national volleyball teams, it is necessary to involve psychology experts to work alongside the coaches for an effective mental preparation of athletes in those teams. This psychological assistance must be a permanent task to integrate in the agenda of athletes in order to optimize their performances. To be able to reach the next level, the Niger volleyball professional teams require in addition to physical, technical and tactical preparation, a sustain mental preparation as it is the case in the world of high performance sports in general. In this sport especially, the mobility of the players on the field is very high and requires a lot of precisions and dexterities. This mobility requires a constant concentration and a flawless flexibility of the body in motion. All these qualities, which have a vital role, require a set of mental skills such as: self-confidence, maintaining of a positive mental image, constant motivation, etc. The acquisition and development of these mental skills requires appropriate qualitative training. The programming of a mental training will thus help the athletes of the national teams of volleyball of Niger to maintain at all times, the quality and effectiveness of their various technical gestures in order to optimize their performances during international competitions.

Results of many studies, like those of the qualitative study conducted by Orlick and Patington (1988) <sup>[16]</sup>, on athletes who participated to the Olympic Games in Sarajevo, suggest that the quality of mental preparation can predict success of high level athletes, unlike their physical and technical qualities. Based on their experience and observations, several sport psychology experts have indicated that the issue of psychological factors in the performance of athletes is of major importance. For 40% to 90% of sports performances are related to mental factors and this is even more important in high level competitions. Sanati, Monfared and Vaez (2006) <sup>[18]</sup> compared the mental abilities of 50 elite players (20 men and 30 women) to those of 54 non-elite players (30 men and 24 women) of the National Olympic and Para-Olympic Volleyball Academy of Iran using the OMSAT-3 questionnaire. The 50 Super League volleyball players scored higher results than the 54 amateur volleyball players taking part to the local competitions. This means that elite players

have better mental skills than those who are not at the elite level. As a result, physical talent alone cannot guarantee success in major competitions (Gucciardi, Gordon & Dimmock, 2008) <sup>[13]</sup>. To obtain an outstanding performances in the high performance sports, it is now essential to develop some psychological skills (Eronen *et al.*, 1998) <sup>[11]</sup>.

According to Ashwani (2015) <sup>[1]</sup>, in addition to physical abilities, psychological factors are the most important variables driving performances. To take into account this determining influence, it is necessary to appreciate the psychological potential of the athlete. It is a matter of evaluating the skills involved in the psychic control of the sporting situation, that is to say, the strengths and weaknesses in the psychic plane and the athlete's desire for accomplishment. This diagnostic evaluation enable to predict the athlete's adaptation to competition and his chances of success. Since it is recognised that the psychological dimension through the use of mental skills contributes to the achievement of sport performances and that it is possible to evaluate it, one can wonder whether or not the mental skills of the athletes of the Niger national volleyball teams are in tune with the requirements of high performance sport.

## 2. Hypothesis

Sportsmen and sportswomen of the Senior National Volleyball Teams of the Republic of Niger show low level of mental skills.

## 3. Objective

The objective of this study is to evaluate the mental skills of the volleyball athletes of the senior national teams of the Republic of Niger by comparing their skills to those that must have a high level athlete as defined by OMSAT-3.

## 4. Methodology

For this study, 36 volleyball athletes (18 sportsmen and 18 sportswomen) from the National teams of Niger Republic were taken into account. They were  $28 \pm 1.04$  years old for men and  $24 \pm 0.92$  for women and have respectively for sportsmen and sportswomen  $44 \pm 6.27$  and  $26 \pm 2.98$  selections in the volleyball national teams. They were selected from the list of athletes playing in the Niger Republic National volleyball championship (2015 edition) and also Nigerien international volleyball athletes playing abroad and who have been selected in the National teams in 2015. It should be recalled that the federation of Niger Republic National volleyball championship count 266 licensed athletes including 146 men and 120 women. The 36 selected samples are volleyball athletes chosen to participate to the 2015 tournament in the Zone III. They were submitted to the Ottawa Mental Skills Assessment Tool (OMSAT-3) questionnaire of Salmela Durand-Bush and Green- Demers, 2001 <sup>[17]</sup>. The said questionnaire assesses the mental skills of athletes. It assessed the strengths and weaknesses of the volleyball athletes in the following skills: foundation skills (goal setting, self-confidence and commitment); psychosomatic skills (stress reaction, fear control, relaxation, and activation); cognitive skills (imagery, mental practice, focusing, refocusing, and competition planning).

## 5. Statistical Analysis

Data from the questionnaire administered to the subjects (the selected volleyball players) were collected and the scores of each subjects calculated. Those data were entered and their average and standard deviations were computed using 2013

Microsoft Office Excel Spreadsheet. Besides, the data were subjected to the Shapiro-Wilk normality test which revealed that the distributions do not follow a normal distribution. Consequently, the non-parametric Kruskal-Wallis test was performed to compare the scores of volleyball sportsmen and sportswomen with those of OMSAT-3. The significant effect of the scores were reported when  $p\text{-value} < 0.05$ .

**6. Results**

After submitting the 36 volleyball Athletes to the OMSAT-3 questionnaire, the average scores obtained according to the different factors are presented in the following order:

- a. The Foundation skill score which is composed of 3 sub-factors namely: 'Goal setting'; 'Self-confidence' and 'commitment'.
- b. The Psychosomatic skills subdivided into 4 sub-factors

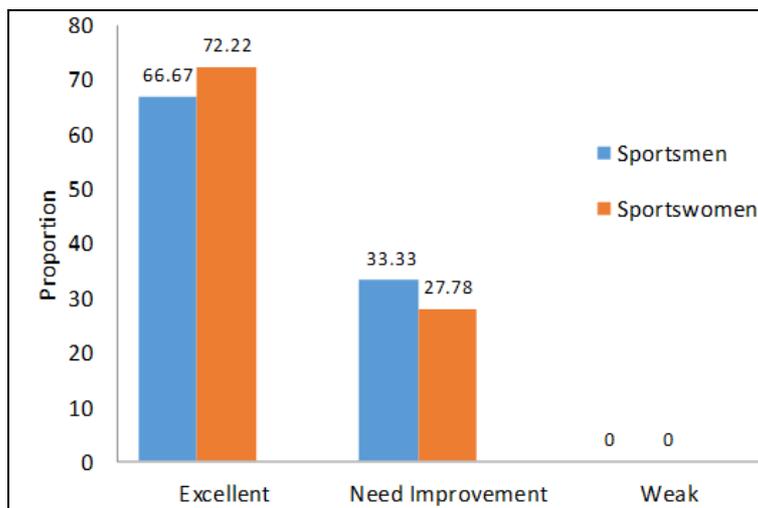
such as: 'stress reaction'; 'Fear control'; 'Relaxation' and 'activation'.

- c. And finally, the Cognitive skills which group five (5) sub-factors namely: 'Focussing'; 'Refocusing'; 'Imagery'; 'Mental practice' and 'Competition planning'.

**6.1 Comparison of strengths and weaknesses of mental skills between senior national volleyball sportsmen and sportswomen using OMSAT-3.**

**Comparison regarding foundation skills**

The analysis in Figure 1 shows that 66.67% of the volleyball sportsmen have excellent foundation skills and 33.33% require improvement in those skills. None of the sportsmen had low level of foundation skills. As for volleyball sportswomen, 72.22% of them show excellent foundation skills against 27.78% that require improvement in those skills while still none of them have weak foundation skills.

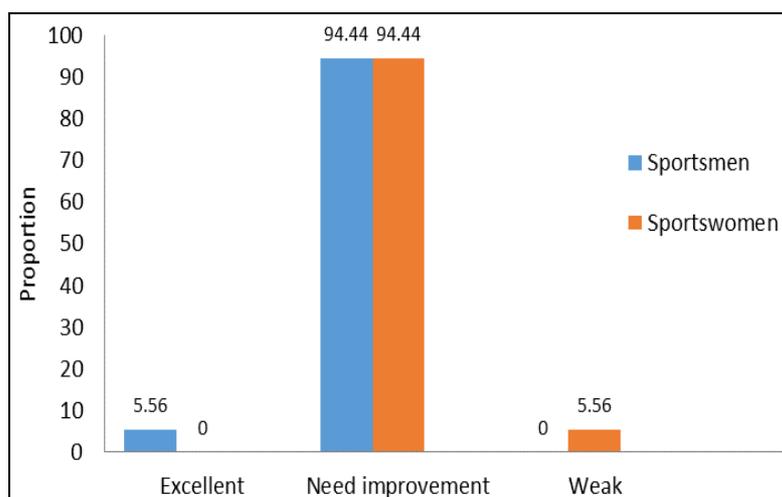


**Fig 1:** Variation in Strengths and Weaknesses of foundation Skills of the volleyball sportsmen and sportswomen

**Comparison regarding psychosomatic skills**

Figure 2 shows that 94.44% of volleyball sportsmen and sportswomen require improvement in psychosomatic skills, while only 5.56% of sportsmen demonstrate excellent

psychosomatic skills. No sportswoman shows excellent psychosomatic skills and 5.56% of the female athletes have low psychosomatic skills requiring special attention and specific intervention to help them improve those skills.



**Fig 2:** variation in Strengths and Weaknesses of psychosomatic Skills of the volleyball athletes

**Comparison regarding cognitive skills**

Figure 3 shows that 66.67% and 83.33% of volleyball sportsmen and sportswomen (respectively) need to improve their cognitive skills; also 27.78% and 11.11% of the male

and female athletes (respectively) bear excellent cognitive skills. Finally 5.56% of both sexes of volleyball athletes have low cognitive skill scores requiring great attention and specific training.

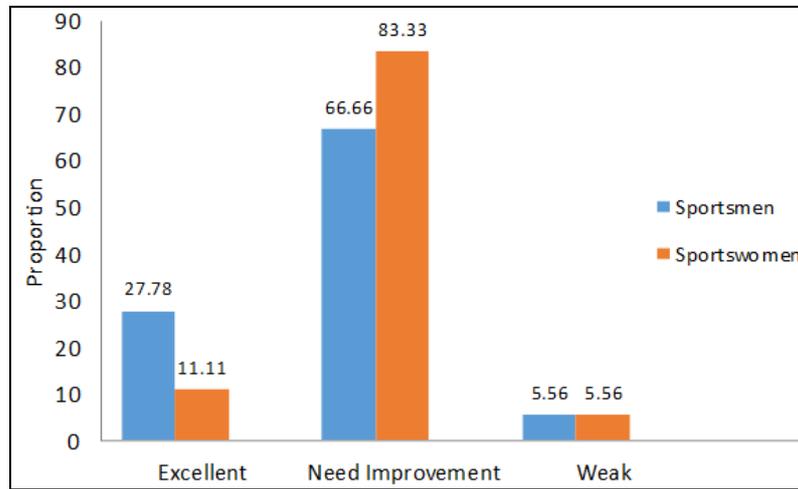


Fig 3: Variation in Strengths and Weaknesses of cognitive Skills of the sportsmen and sportswomen

**Comparison of mental skills of volleyball sportsmen and sportswomen with the OMSAT-3 standards**

It should be noted that the level of sports practice and the realities in which the volleyball athletes of the national senior teams of Niger perform are not the same. However, given that sport is a universal social fact and that athletes from Niger aspire to expatriate to meet other athletes around the world, it is always interesting to be compared to others in order to have an objective idea of one’s abilities. This is the main purpose of using OMSAT-3 for volleyball athletes of the national teams of Niger.

Table 1 and Figure 4 show that the results of the volleyball sportsmen and sportswomen of the National team of Niger have lower scores ( $p < 0.05$ ) compared to OMSAT-3 standards for an average high performance sportsman. Besides, apart from the sub-factors 'Fear control', 'Activation' and 'focusing' ( $p < 0.05$ ), there is no significant difference ( $p > 0.05$ ) between the sportsmen and sportswomen skills (Table 1). However, for all mental skills sub-factors, we generally find that sportsmen's average scores are slightly higher than those of sportswomen except for 'commitment' and 'stress reaction' sub-factors.

Table 1: Comparison of mental abilities of the volleyball athletes with the high level standards defined by OMSAT-3.

Mental skills	OMSAT-3 Norms	Men’s scores	Women’s scores	P-value
Goal setting	6.99 <sup>a</sup>	5.89±0.15 <sup>b</sup>	5.77±0.15 <sup>b</sup>	0.001
Self confidence	6.97 <sup>a</sup>	6.07±0.14 <sup>b</sup>	5.93±0.22 <sup>b</sup>	0.001
Commitment	6.93 <sup>a</sup>	6.26±0.18 <sup>b</sup>	6.43±0.15 <sup>b</sup>	0.001
Stress reaction	6.87 <sup>a</sup>	4.87±0.26 <sup>b</sup>	4.91±0.22 <sup>b</sup>	0.001
Fear control	6.91 <sup>a</sup>	4.58±0.24 <sup>b</sup>	3.75±0.31 <sup>c</sup>	0.001
Relaxation	6.96 <sup>a</sup>	5.61±0.19 <sup>b</sup>	5.51±0.20 <sup>b</sup>	0.001
Activation	6.87 <sup>a</sup>	6.09±0.16 <sup>b</sup>	5.31±0.21 <sup>c</sup>	0.001
Focusing	6.92 <sup>a</sup>	6.20±0.17 <sup>b</sup>	5.40±0.20 <sup>c</sup>	0.001
Refocusing	6.87 <sup>a</sup>	5.58±0.20 <sup>b</sup>	5.67±0.13 <sup>b</sup>	0.001
Imagery	6.97 <sup>a</sup>	4.91±0.32 <sup>b</sup>	4.44±0.26 <sup>b</sup>	0.001
Mental practice	6.89 <sup>a</sup>	5.15±0.32 <sup>b</sup>	5.06±0.23 <sup>b</sup>	0.001
Competition Planning	6.97 <sup>a</sup>	5.51±0.30 <sup>b</sup>	5.16±0.23 <sup>b</sup>	0.001

<sup>a,b,c</sup> Means with unlike superscripts in the same row differ significantly ( $P < 0.05$ ).

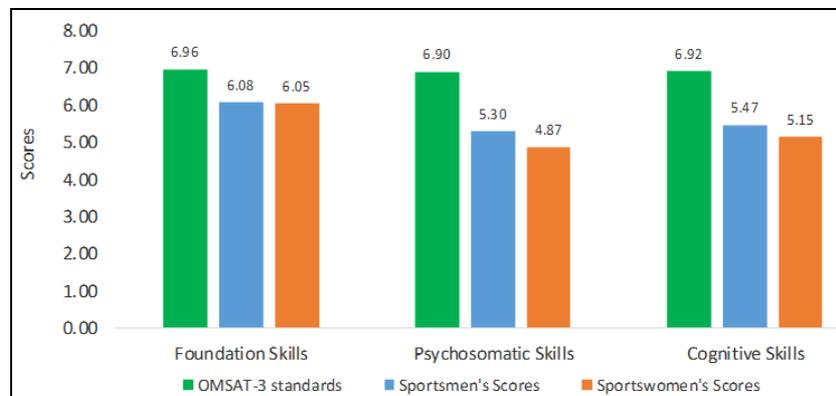


Fig 4: Comparison of the average scores of the three levels of mental skills of volleyball sportsmen and sportswomen with the high level standards defined by OMSAT-3

**Discussion**

The objective of this study is to appreciate the potential of the athletes of the senior national volleyball teams of Niger to see

if their psychological skills are in adequacy with the requirements of the high performance sport (Salmela *et al.*, 2001) [17].

The scores of the volleyball athletes indicate that most of them have excellent foundation skills according to scores obtained for the sub-factors 'commitment' and 'self-confidence' as shown by the marks obtained at the beginning of each set and generally at the beginning of matches. Foundation skills are the essential factors on which other skills are built. They must therefore be formally integrated into the training. For this reason, they are essential for the regularity of performance. Bota (1993) & Orlick (1992, 1996) consider them like the building blocks for the development of other mental skills. In view of these results, it can be said that the volleyball athletes of the senior national teams of Niger have predispositions to have a good psychological profile though their average scores is slightly below OMSAT-3 standards.

In terms of cognitive skills, only 27.78% and 11.11% of male and female's athletes showed excellent skills. They manage to stay well focused, control their distractions and well plan their competitions. These latter are mostly international athletes playing in developed countries championship. This shows that the cognitive management of a competition at a high level is acquired through the experiences accumulated during the different meetings with experienced teams.

Moreover, these results show that the volleyball athletes of the senior national teams of Niger have lower psychological potentials based on OMSAT-3 definition for high level athletes. Actually, analysis of the scores of the 12 skills of OMSAT-3, show significant difference ( $P < 0.05$ ) between the standards defined for top athletes and those of sportsmen and sportswomen of Niger national volleyball teams. These results are similar to those got by Gould *et al* (2002) <sup>[12]</sup>, who showed that the link between the level of practice and the psychological profile of Athletes tends to highlight the psychological difficulties that these teams encounter during competitions (bad management of matches). According to Bernier (2009) <sup>[2, 3]</sup>, it is not necessary to be a great champion to work on the psychological aspects in order to improve performances. Athletes of all levels need to be committed to improving their mental skills. Like specific technical gesture distinctive to each sport, these skills need to be learned, developed and integrated to the training of athletes from an early age (Cox, 2013).

Comparison of foundation skills (goal setting, commitment and self-confidence) scores between sportsmen and sportswomen show no significant differences. On the other hand, some psychosomatic skills (Fear control and Activation) and cognitive skills (focusing) show significant gender differences. The sportswomen of the national volleyball team which are younger with fewer experiences are more stressed to play international matches. Especially when they are to face more experienced and talented teams like those from Nigeria, Ghana, and Côte d'Ivoire who like Niger and other West African countries are part of the Zone III. These results corroborate those of Dominique (2009) <sup>[7]</sup> who studied the relationships between interpretations of anxiety in Hockey players and found that there are differences between males and females players in 'goal setting', 'fear control', 'activation', 'mental practice', and 'competition planning'. But there is no difference in the sub-factors of self-confidence and commitment. Sanati *et al.* (2006) <sup>[18]</sup> showed in their work that the mental abilities of elite athletes are better than those of non-elite athletes regardless the gender.

Although having obtained encouraging scores in terms of foundation skills, male and female volleyball players from Niger, as shown by their scores in the other skills, do not have

sufficient mental skills to face high performance competitions yet. These deficiencies in their mental skills may explain their results in international competitions.

## 8. Conclusion

It is important to know the psychological potential of an athlete in order to appreciate their relevancies during high performance competitions. This was the main objective of this study by submitting the national volleyball teams of Niger to the OMSAT-3 questionnaire designed to evaluate mental skills of Athletes in high performance sports. This study has made it possible to access the mental abilities of Nigerians' volleyball sportsmen and sportswomen based on international standard.

While the benchmark (OMSAT-3) are close to 7 points, those of the Niger's Athletes submitted to the OMSAT-3 questionnaire are below with an overall average of about 5 points. deficiencies in mental skills of the Nigerians male and female volleyball players justifies their lack of results during international challenging competitions showing that they need further training and psychological preparation for more efficiencies.

Nigerien sport officials at the national level can seize the opportunity of this study to start introducing into the sports training centers of the country, an axis related to psychological preparation. This will improve the way that their athletes currently manage their emotions during international sports competitions and consequently help them to have better outcome in the future.

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