



A Systematic Review of Psychological Studies Applied to Futsal

by

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This study presents a systematic review of psychological studies applied to futsal. A total of 23 studies were analyzed within five sections: a year overview and the name of journals, research designs, data collection, sample characteristics, and a focus category. This study found that the first psychological articles that were applied to futsal were published in 2008, and the number of publications gradually increased since then. The majority of examined studies were cross-sectional designs and conducted at the elite level in European and Asian countries. Most studies did not use mixed methods and did not specify the age of the subjects. Psychological research applied to futsal focused on athletes, non-athletes and several psychological factors. Critical and innovative reflections were made to highlight research gaps and present suggestions for further research.

Key words: futsal study, research design, data collection, sample characteristics.

Introduction

Futsal is one of the most popular sports worldwide at amateur, semi-professional and professional levels. Futsal continues to grow as a sport, and this trend has also increased the demand for futsal-related information to allow people to better understand the sport and its qualities as well as intricacies. There is a growing need for coaches, athletes, sport scientists and administrators to expand their knowledge and aid the development of this sport in their respective countries (Moore et al., 2014).

An athlete's performance is one of the many dimensions of futsal, and its development needs to employ several factors, including physical conditioning, sport specific skills, as well as psychological and strategy factors. Psychological factors are important in enhancing the performance and personal growth of the athlete, and this factor often distinguishes successful athletes at the highest level from less successful ones (Krane and Williams, 2006; Moris, 2000). Therefore, research should investigate and understand which psychological factors affect the

performance of futsal athletes. Psychological studies of futsal may be a guideline to help identify psychological factors that are related to the performance of futsal athletes and design appropriate psychological skill training programs for these athletes. Krane and Williams (2006) stated that it was necessary to know whether there was an optimal psychological state for peak performance before we could think of psychological skill training. If such a state can be identified for a program or a given individual, then there is a foundation for the development of a mental skills training program. The previous studies are also useful for scientists to conduct further research.

The development of any profession relies on research, training programs and innovations in practice (Gilbert and Trudel, 2004). Scientists are likely to use more resources for research if there are no limitations in traditional reviews or narrative summaries. Therefore, several authors (Khan et al., 2011; Petticrew and Robert, 2006) promoted the development of systematic methods

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(systematic reviews and meta-analysis) to overcome the limitations of traditional reviews or narrative summaries. Peat et al. (2002) stated that systematic reviews used highly developed methods to identify and critically appraise all the relevant literature and summarize the findings. Petticrew and Robert (2006) used systematic reviews to make sense of large bodies of information and find answers to questions about what works, what does not work, and many other questions. They constitute a method of mapping out areas of uncertainty and identifying where little or no relevant research has been performed, and where new studies are needed. They also indicate areas where spurious certainty abounds.

Conducting systematic reviews seems useful, particularly with regard to the ones that analyze research methods of psychological studies applied to futsal, which are clearly undeveloped. There are many different research designs (e.g., experimental or non-experimental, cross-sectional or longitudinal, qualitative or quantitative), and different designs offer different views and results on the same topic. Sample characteristics (e.g., the type of participants, a competition level, nationality, age and gender) and focus category (e.g., a studied target and psychological factors) are also important factors that may affect the study results. Knowledge of the advantages and disadvantages of each research design and “what was done” and “what needs to be done” for each factor may help identify current knowledge and decide the most appropriate research design and factors to answer research questions in future studies. Therefore, this study provides a systematic review of psychological studies applied to futsal and focuses on annual overviews and names of journals, research designs, data collection, sample characteristics, and focus category. This study examines various research strategies that have been employed in psychological articles examining futsal without intention of appraisal.

Material and Methods

Search strategy

The following electronic databases were searched: Google Scholar, Scopus, Web of Knowledge, PubMed, Sport discuss, and Descorberta. Reference lists were scanned to identify further studies that were missed by the

electronic search. The search term “psychology” was used in combination with “futsal” or “indoor soccer” or “indoor football” or “street soccer” or “street football”.

The following inclusion criteria were used for the present investigation: a) studies had to be focused on the relationship between psychological factors and futsal or indoor soccer or indoor football or street soccer or indoor football, b) written in English, and c) published in a peer-reviewed journal.

This study only searched studies published in journals as these studies represent “a record of an area’s scholarship and provide a foundation to understand research trends” (Silverman and Skonie, 1997). Other sources (e.g., dissertations, books, editorials, magazines and electronic resources) should not go unnoticed when seeking to understand or study an important subject (Freitas et al., 2013). However, “master’s theses and doctoral dissertations are not easily accessible, and a rigorous review process is not always required for books” (Gilbert and Trudel, 2004). Finally, based on the inclusion criteria of previous systematic reviews (Freitas et al., 2013; Goodger et al., 2007; Tod et al., 2011), this analysis did not include studies that were published as an abstract or conference proceedings or were not written in English.

Procedure and analysis

Hard copies of the articles were gathered and evaluated against the inclusion criteria. The content of studies that were relevant to the inclusion criteria was analyzed based on similar systemic review procedures used by other authors (Freitas et al., 2013; Goodger et al., 2007; Sallis et al., 2000; Tod et al., 2011).

Each study was assigned a reference number, and they are indicated in the reference list with an asterisk (*) and listed alphabetically according to the first author. Year overviews, journal names, research designs, sample characteristics, and focus category are presented in data tables.

Results

General findings

The aforementioned search strategies identified 94 studies as related to the purpose of the present study. However, an initial screening procedure excluded sixty-six papers for the

following reasons: a) not full papers (5); b) non-English written papers (15); c) non-research, such as books, editorials, magazines and electronic resources (11); d) dissertations (1); and e) non-focused on the relationship between psychological factors and futsal or indoor soccer or indoor football or street soccer or indoor football papers (34). The latter studies focused on the physiology of futsal athletes, skill training of futsal, rehabilitation of futsal athletes, kinematics and biomechanics of futsal athletes, as well as psychopathology. After a closer examination of the remaining twenty-eight studies, five papers were excluded through lack of a relationship to psychological factors. These studies only focused on the behavioral movements of futsal athletes without any interest in psychological factors that occurred on the pitch. Consequently, this study analyzed twenty-three studies.

Overview of publication year and journal names

Table 1 presents an overview of publication year and journal names. Psychological studies applied to futsal were spread throughout several journals, and the first article was published in 2008. The number of published studies increased gradually since 2008, particularly in 2012, 2013, and 2014 (4, 8, and 5, respectively).

Research design

Table 2 displays the research designs employed in the psychological articles applied to futsal. There were no differences between experimental (7) and non-experimental studies (descriptive (1), correlation (6), and causal comparative (8)), but only one of the experimental studies included a control group. Most researchers applied cross-sectional designs (20), and longitudinal designs were applied in two studies only. Most of these studies used quantitative methods (18), and solely four studies used qualitative methods. This analysis did not identify the use of mixed methods in the examined studies.

Data collection

Table 3 shows the use of several instruments to collect data. Questionnaires (11) were used more than other instruments, such as interviews (3), observation (3), and focus groups (2). The Coaching behavior questionnaire (Martens and Barnes, 1971) and the Sport competition anxiety test (SCAT: Martens, 1971, 1990) were most often used in these investigations

(Table 3).

Sample characteristics

Table 4 provides features of the sample characteristics used in psychological research applied to futsal. The majority of the sample characteristics in research were athletes (18), non-specified mean age (14), both genders (9), at an elite/professional level (11), and in European countries (10). Table 4 identifies several gaps in these studies, such as unspecified mean age and gender, lack of study at youth and amateur levels, and lightly studied in Australia and North American countries.

Focus category

Table 5 presents the focus category of the psychological articles applied to futsal. These articles focused on futsal players (11), athletes (8), and non-athletes (3). We also found that several psychological factors were studied, however, the maximum number of factors that were discussed in these articles was two.

Discussion

This analysis provides a systematic review of psychological studies applied to futsal. Publication of these studies began in 2008 with one article. Interest in psychological studies gradually increased since then, particularly during 2012 – 2014. The aforementioned period was the highlight of research of psychology in futsal. This finding indicates that several psychological researchers began to pay more attention to futsal, what is a good sign for the development of futsal, particularly futsal athletes, in the psychology field as several psychological factors related to futsal will emerge. These factors may be used to enhance the performance and personal growth of athletes and distinguish successful athletes at the highest level from less successful ones (Krane and Williams, 2006; Moris, 2000). However, it also generates a challenge for researchers to understand the various factors that have been already studied and identify missing ones in this area. This finding potentially increases researchers' understanding and creates new knowledge and ideas necessary for further development. Therefore, the assessment of the methodologies used in previous research is an important tool that scientists should execute before a new study is initiated.

Table 1*Summary of studies by publication year and journal names*

Characteristics	Reference numbers	Articles: n (%)
<i>Year overview</i>		
2008	15	1 (4.34)
2009	13	1 (4.34)
2010	8,11,	2 (8.69)
2011	7,19	2 (8.69)
2012	1,16,18,20	4 (17.39)
2013	2,3,5,6,9,10,21,22	8 (34.78)
2014	4,12,14,17,23	5 (21.73)
<i>Name of journals</i>		
- Scholars Research Library Annals of Biological Research	1	1 (4.34)
- Pelagia Research Library European Journal of Experimental Biology	2,3,6,23	4 (17.39)
- International Journal of Academic Research	4,5	2 (8.69)
- Perceptual and Motor Skills	7	1 (4.34)
- Transformative Dialogues: Teaching & Learning Journal	8	1 (4.34)
- Psychology of Sport and Exercise	9, 19	2 (8.69)
- Iranian Journal of Psychiatry and Behavioral Sciences	10	1 (4.34)
- Procedia Social and Behavioral Sciences	11	1 (4.34)
- International Journal of Sports Science & Coaching	12	1 (4.34)
- European Journal of Social Sciences	13	1 (4.34)
- Journal of Research in Health, Physical Education	14	1 (4.34)
- Revista de Psicologia del Deporte	15	1 (4.34)
- Scholars Research Library Annals of Biological Research	16	1 (4.34)
- International Journal of Sports Science	17	1 (4.34)
- Human Movement Science	18	1 (4.34)
- International Journal of Applied Sports Sciences	20	1 (4.34)
- Journal of Sport Sciences	21	1 (4.34)
- International Journal of Therapy and Rehabilitation	22	1 (4.34)

Studies' reference numbers: 1 (Babadi et al., 2012); 2 (Bai et al., 2013); 3 (Bai and Dana, 2013); 4 (Can, 2014); 5 (Cengiz et al., 2013); 6 (Ghobadi et al., 2013); 7 (Gomez et al., 2011); 8 (Hubball et al., 2010); 9 (Morgan et al., 2013); Mottaghi et al., 2013); 11 (Nai and Besharat, 2010); 12 (Nikbin et al., 2014); 13 (Omar-Fauzee et al., 2009); 14 (Peachey et al., 2014); 15 (Reverter-Masia et al., 2008); 16 (Sepasi et al., 2012); 17 (Serrano et al., 2014); 18 (Travassos et al., 2012); 19 (Travassos et al., 2011); 20 (Vaez Mousavi and Shojaie, 2012); 21 (Vilar et al., 2013); 22 (Williams et al., 2013); 23 (Yucel, 2014)

Table 2*Summary of research designs employed in psychological studies applied to futsal*

Characteristics	Reference numbers	Articles n (%)
<i>Research design</i>		
Experimental	6*, 8,14,18,19,21,22	7 (30.43)
Descriptive	9	1 (4.34)
Correlational research	2,3,4,5,10,12,16	7 (30.43)
Causal-comparative	1,7,11,13,15,17,20,23	8 (34.78)
Cross-section	1,2,3,4,5,6,9,11,12,13,14,15,16,17,18,19,20,21,22,23	20 (86.95)
Longitudinal	7,8,10	3 (13.04)
Qualitative	8,9,14,22	4 (17.39)
Quantitative	1,2,3,4,5,6,7,10,11,12,13,15,16,17,18,19,20,21,23	19 (82.60)
Mixed	-	

* A study using experimental and control groups

Table 3*Summary of data collection methods*

Characteristics	Reference numbers	Articles n (%)
<i>Data collections</i>		
Interview	8,15,22	3 (13.04)
Observations	7,8,20	3 (13.04)
Focus group	9,14	2 (8.69)
Others	6,8,18,19,21	5 (21.73)
Questionnaire	1,2,3,4,5,10,11,12,13,16,17,23	12 (52.17)
<i>Name of questioners</i>		
- Inter-individual forgiveness scale (IFS)	1	
- Coaching behavior questionnaire	2,3	
- Sport competition anxiety test (SCAT)	2,10	
- Athletes' burnout questionnaire	3	
- Frost multidimensional perfectionism scale (FMPS)	4	
- Rosenberg self-esteem scale (RSES)	4	
- Communication skills scale	5	
- Maslach burnout inventory	5	
- Sports performance checklist	10	
- NEO personality inventory-revised (NEO-PI-R)	11	
- Sociotropy-autonomy scale (SAS)	11	
- Sport imagery questionnaire (SIQ)	13	
- Athletic coping skill inventory – 28 (ACSI – 28)	13	
- Eysenck personality questionnaire revised-short form (EPQR-S)	23	
- Not specified	12,16,17	
<i>Validity and Reliability</i>		
- Reported	1,2,3,4,5,10,11,12,13,16,17,23	
- Not reported	-	

Others: Cameras, laptop, TACTO software, program document.

Table 4
Summary of sample characteristics of psychological studies applied to futsal

Characteristics	Reference numbers	Articles n (%)
<i>Participant type</i>		
- Athletes	1,2,3,4,5,7,8,9,11,12,13,16,17,18,19,20,21,23	18 (78.26)
- Staff coach	15	1 (4.34)
- Non-athletes	6,22	2 (8.69)
- Athletes and coaches	10	1 (4.34)
- Athletes, coaches and administrators	14	1 (4.34)
<i>Mean age</i>		
16 – 20	4	1 (4.34)
21-25	6,10,11,18,19,21	5 (21.73)
26-35	10	1 (4.34)
Not specified	1,2,3,7,8,9,12,14,15,16,17,20,22,23	14 (60.86)
Range Given	5,13	2 (8.69)
<i>Participant level</i>		
-Elite/Professional	1,2,3,7,9,15,16,18,19,21,23	11 (47.82)
- School/University	4,5,8,11,20	5 (21.73)
- Mixed	13,17	2 (8.69)
- Amateur	14	1 (4.34)
- Novice	6,22	2 (8.69)
- Not specified	10,12	2 (8.69)
<i>Gender</i>		
Male	10,17,18,19,21,22	6 (26.08)
Female	1,6	2 (8.69)
Both genders	4,5,9,11,13,14,16,20,23	9 (39.13)
Not specified	2,3,7,8,12,15	6 (26.08)
<i>Locations</i>		
North America	8,14	2 (8.69)
Europe	4,5,7,9,15,17,18,19,21,23	10 (43.47)
Asia	1,2,3,4,10,11,12,13,16,20	10 (43.47)
Australia	22	1 (4.34)

Table 5
Summary of focused categories of psychological studies applied to futsal

Characteristics	Reference numbers	Articles n (%)
<i>Studied target</i>		
- Futsal players	2,3,4,5,8,10,16,17,18,19,21,23	12 (52.17)
- Athletes	1,7,9,11,12,13,15,20	8 (34.78)
- Non-athletes	6,14,22	3 (13.04)
<i>Psychological factors</i>		
- Forgiveness	1	1 (4.34)
- Coaching behavior	2,3	2 (8.69)
- Competitive anxiety	2, 10	1 (4.34)
- Athletes' burnout	3,5	2 (8.69)
- Perfectionism	4	1 (4.34)
- Self-esteem	4	1 (4.34)
- Communication skills	5	1 (4.34)
- Model observation	6	1 (4.34)
- Home advantage	7	1 (4.34)
- Multi-media experience	8	1 (4.34)
- Team resilience	9	1 (4.34)
- Personality characteristics	11,23	2 (8.69)
- Perceived justice	12	1 (4.34)
- Commitment	12	1 (4.34)
- Trust	12	1 (4.34)
- Perceived performance	12	1 (4.34)
- Imagery	13,16	2 (8.69)
- Coping strategies	13	1 (4.34)
- Sport-for-development intervention	14	1 (4.34)
- The use of sport psychology consultant	15	1 (4.34)
- Self confidence	16	1 (4.34)
- Long-term sport development	17	1 (4.34)
- Self – organization	18	1 (4.34)
- Decision-making	19,21	2 (8.69)
- Aggressive behavior	20	1 (4.34)
- Experience of people with psychosis	22	1 (4.34)

There were no differences between experimental and non-experimental studies (descriptive, correlation, and causal comparative). This finding suggests that studies may be conducted in several ways based on different concepts, and more importantly, based on the research objectives (e.g., the use of experimental studies to describe the case - effect of factors, the use of descriptive

studies to indicate a new phenomenon, the use of correlation studies to examine a relationship between different factors, and the use of causal comparative studies to describe differences in factors). However, it should be highlighted that every researcher needs to know advantages and disadvantages of each design before deciding on one. Freitas et al. (2013) stated that researchers

must be critical about the advantages and disadvantages of each research methodology and decide on the most appropriate research tools to answer specific questions.

The use of experimental and non-experimental studies was balanced between cross-sectional and longitudinal designs, and the present analysis found that several researchers used cross-sectional designs more often than longitudinal designs. This result may lead to a restricted effect of these studies as the changes in behavior across the time span of interest were not observed in the same samples. Longitudinal designs are time-consuming, and this factor is likely one of the main reasons that researchers neglect this approach. Thomas et al. (2005) demonstrated that cross-sectional studies were generally less time-consuming to perform. Longitudinal studies may be very expensive to conduct, and there will likely be a high attrition rate over the study period. The acquisition of funding can also be problematic as there is little interest of research sponsors to invest large sums of money in a long-term project (Moris, 2000).

We also found that quantitative methods were used more often than qualitative ones. The use of quantitative methods may allow researchers to acquire a wide range of information on the participants, but it is often broad and not sufficiently stringent. This factor simply means that the information obtained is often rather descriptive. In contrast, qualitative methods seek to understand the meaning of an experience to participants in a specific setting and how the components mesh to form a whole (Thomas et al., 2005), but these studies rarely acquire wide-ranging participant information. Therefore, the balance between quantitative and qualitative analyses using mixed methods may be a solution. Tashakkori and Teddie (2009) stated that the flexibility to use qualitative and quantitative approaches and methods would allow scientists to answer research questions in the most effective manner and provide a simultaneous global and in-depth exploration of the phenomenon. However, our findings did not identify psychological studies that had used mixed methods, which should be vitally considered for further studies.

The amount of quantitative methods applied in the studies analyzed here relied heavily

on questionnaires. However, the limitations of questionnaires are the type of results gathered, which are primarily comprised of what interviewees say they do, what they believe, and their preference (likes or dislikes) (Thomas et al., 2000). However, questionnaires are promising as they allow the collection of data from a large number of people, which is often advantageous compared to other instruments, such as interviews, observation, and focus groups. Nevertheless, these instruments have the ability to evoke responses that are meaningful and culturally salient to the participant, with answers that are rich and explanatory in nature (Mack et al., 2005). The above-mentioned instruments provide more holistic and contextual information than other instruments. Therefore, researchers should consider the combination of questionnaires with other instruments (e.g., interviews, observation, and focus groups) to overcome this limitation.

Certainly, the use of instruments is related to the use of sample characteristics. Our research found that the majority of sample characteristics that were adopted in these studies were athletes at elite/professional level of both genders. This strategy of research may be considered as a strong or weak strategy. The strong point of this strategy is the continuous effort of research conducted on athletes, particularly at elite/professional levels of both genders. However, the weak point of this strategy is basically the failure of solely separating youth and amateur levels, which is a point worth noting for future investigations. Participants at these levels can better respond to the psychological needs of youth and amateurs than the study at the elite/professional level as several factors are different, and younger participants can improve their performance to a higher level. Another likely weak point of these studies is that the mean age of subjects was not specified, which may affect the transparency of samples used and result in a missing age group in further research. Therefore, future studies should include this information and make it available for readership.

Moreover, this analysis found that psychological studies on futsal were rarely conducted in Australia and North America. One likely explanation for this result is that futsal may not be as popular in these regions. The Futsal

world ranking states that there are no names of countries from these regions in the World's top 20 (Futsal world ranking, 2015).

Another finding that should be noted was the target study groups, which consisted of futsal players, athletes, and non-athletes. Athletes implied and focused on futsal athletes, but it also included athletes from other sports (e.g., football, volleyball, basketball, etc.). In contrast, non-athletes implied the utilization of futsal as an intervention to find the effect of its execution (e.g., a preliminary finding of a sport-for-homeless intervention). The demarcation of the two target study groups, the futsal players and the athletes reflects two main arguments. The first argument is that several researchers are interested in futsal athletes and other athletes. Secondly, researchers may not really be interested in futsal athletes, but only the use of futsal athletes as one of their samples. However, this result demonstrated that futsal can be studied in several dimensions, and this fact is the highlight of the studies analyzed here.

Finally, this review also found that several psychological factors were analyzed in the examined research, however, the maximum number of factors considered in the studies was two, and this may be a promising sign to foster other psychological researchers who investigate futsal. There are many psychological factors that have not been studied in futsal, such as psychological characteristics, psychological skills,

mental toughness, and motivation. These factors should be considered in further studies to create and develop new knowledge that will be useful for futsal.

Conclusions

In conclusion, the number of psychological studies applied to futsal has increased in recent years, and a systematic review evinces the methodologies adopted in these studies (i.e., "what was done"). We also highlighted some limitations that should be considered in further investigations (i.e., "what needs to be done"). The following suggestions should be considered for further research: employing longitudinal designs and mixed methods, clearly identifying sample characteristics, focusing more on youth and amateur levels, and studying several psychological factors that are missing in this field, such as psychological characteristics, psychological skills, and mental toughness.

There are several limitations that are associated with this study that should be discussed for further investigation. Certainly, the search terms employed, the exclusion of the non-English studies, and the problem of access to full text studies may have neglected relevant, high-quality literature. Moreover, the exclusion criteria may have been too restrictive.

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