

EXPERT VALIDATION OF A QUESTIONNAIRE ON NUTRITIONAL KNOWLEDGE AND SUPPLEMENT HABITS AMONG DISABLED ATHLETES IN MALAYSIA

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Abstract

Disability sport is becoming more popular worldwide as shown by increased participation from athletes. The increase participation exerted pressure on the athletes to achieve better sports performance. One of the factors in enhancing sports performances is nutrition. A proper diet is needed for athletes, as it is an essential component in optimizing physical development and sports performance. Identifying the nutritional knowledge and supplement habits among disabled athletes will help maximize the benefits of nutrition. Despite the importance of nutrition, there is no validated questionnaire for identifying nutritional knowledge and supplement habits among disabled athletes in Malaysia. Thus, this study aims to develop and validate a questionnaire on nutritional knowledge and supplement habits among Malaysian disabled athletes and to examine the reliability of the questionnaire. This paper intends to discuss the validation of the developed questionnaire specifically on expert validation. The target population of this study is Malaysian disabled athletes. Firstly, the questionnaire is developed and adapted from previous literature on both nutritional knowledge and supplement habits for disabled athletes. Then, the developed questionnaire undergoes translation process before proceeding with validation and reliability process. Expert validation requires a panel of experts in sports nutrition, nutrition and dietitian fields. The questionnaire will be analyzed in terms of content validity ratio (CVR). The expected result of this study is a questionnaire validated by an expert panel on nutritional knowledge and supplement habits among Malaysian disabled athletes. In future research, the reliability of the questionnaire will be tested on 23 Malaysian disabled athletes, and their nutritional status will be identified. Hence, this study will help to promote the growth of disability

sports in Malaysia and enhance the sports performance of disabled athletes in Malaysia through nutrition.

Keywords: Malaysian disabled athletes, nutritional knowledge, questionnaire, supplement habits, validation

Introduction

Disability sports have been widely recognized over the years. Participation in disability sports tournament such as Paralympic Games involves athletes from all around the world and has been increasing according to International Paralympics Committee. For instance, the number of participants in Rio Paralympic Games 2016 was higher than in Beijing Paralympics Games 2008, which is 4328 to 4011 according to International Paralympic Committee. In order to gain success, the athletes must give their best performance (Kiertscher & DiMarco, 2013). In elite sports, as a slight difference in second, the last dash or a conclusive play would differentiate the winner and the losing team, the crucial aspect of better sports performance is nutrition (Innocencio da Silva Gomes, Ribeiro, & de Abreu Soares, 2006). Through sufficient and personalize-adapted nutrition intake, athletes' performance can be boosted (Sousa, Fernandes, Moreira, & Teixeira, 2013). Not only that, high energy and nutritional requirements can be met by the athlete's body only if they consume sufficient nutrition, which assists in all-out adaptation to physical loads (Baranauskas et al., 2015). Variations of health problems in disabled athletes in particular can be prevented through the key element of adequate nutrition, as they are slightly more susceptible towards exhaustion, pressure and reduced performance compared with able-bodied athletes (Rastmanesh, Taleban, Kimiagar, Mehrabi, & Salehi, 2007). To compensate for any insufficient nutrition, nutritional supplements are taken. The intake of nutritional supplement is widely used throughout the world. Dietary supplements are used by athletes to enhance energy, stabilize strength, improve performance, reduce nutritional insufficiencies and maintenance of health and immune system (Heikkinen, Alaranta, Helenius, & Vasankari, 2011). Among disabled athletes, 58% have taken a supplement at least once within the last six months (Graham-Paulson, Perret, Smith, Crosland, & Goosey-Tolfrey, 2015). In the Athens Paralympic 2004, more than half of the athletes under doping-control claimed that they consume medication supplement or food supplement, at a percentage of 64.2% (Tsitsimpikou, Jamurtas, Fitch, Papalexis, & Tsarouhas, 2009).

With the common intake of supplement habits and the importance of fundamental nutritional knowledge, the athletes' level of nutritional knowledge and supplement habits need to be identified. Furthermore, identifying the nutritional knowledge and supplement habits of the disabled athletes would help maximize nutrition's benefits to sports performance. Higher nutritional knowledge could lead to superior dietary intake as most of the nutrition-education programs are based on this concept (Heaney, O'Connor, Michael, Gifford, & Naughton, 2011). This concept has been proven by a study from Wardle, Parmenter & Waller (2000) in which the relationship between nutritional knowledge and high intake of vegetables and fruits and decrease intake of fat among their participants, a large community in the United Kingdom has been shown (Heaney et al.,

2011). The relationship between the nutritional knowledge and nutritional intake is complex and involves numerous contributing factors such as taste, preference and culture in foods, faiths and family conviction (Heaney et al., 2011). Stronger relationships between nutrition knowledge and nutritional intake can be recognized if the instrument use is able to exactly measure the knowledge of nutrition and more accurately evaluates the dietary intake regardless of the complex relationship between nutritional knowledge and dietary intake (Heaney et al., 2011). Currently, in Malaysia, there is no existent of validated and reliable questionnaire focusing on both nutritional knowledge and supplement habits among disabled athletes. Thus, this study aims to develop a validated and reliable questionnaire on knowledge in nutrition and supplement habits among Malaysian disabled athletes. This paper will present the results obtained upon validating the developed questionnaires on nutritional knowledge and supplement habits among disabled athletes through expert validation.

Methodology

This study is a cross-sectional study using the quantitative method. This study involves four stages: literature search and questionnaire items developing, translation process, validation questionnaire process and testing the reliability of the questionnaire. The validation of the questionnaire involved content validation. In determining the reliability of the questionnaire, test-retest questionnaire and internal correlation reliability have been conducted and analyzed using Cronbach Alpha and the Pearson Correlation method. This paper focuses on the validation process of the questionnaire, which is expert validation through content validity including both content validity ratio (CVR). The operational meaning of content validity is the degree to which commonality or overlap occurs between (a) performance on the test under inquiry and (b) capacity to function in the distinct job performance area (Lawshe, 1975). In content validation, six experts in sports nutrition, nutrition and dietetics, including a nutritionist, have participated. The panel of experts rated, commented and reviewed the developed questionnaire as translated into Malay from English. The data obtained by the seven experts were analyzed using content validity ratio based on Lawshe formula. Each of the questionnaire items was rank and categorized by the experts using a 3-point scale of 1) essential, 2) useful but not essential and 3) not essential. For content validity ratio, any of the questionnaire items having a value less than +0.99, the minimum CVR value involving six experts according to Lawshe, will be either disregarded or revised from the questionnaire. Questionnaire items with negative and zero values were deleted from the questionnaires. The comments and reviewed form the panel of experts would also take into account to improve the questionnaire. After finishing the expert validation process, a pilot study will examine the reliability of the questionnaire with 23 participants from Malaysian disabled athletes.

Results and discussion

This questionnaire had forty-seven items excluding the sub-questionnaire items. With the inclusion of sub-questionnaire items, the total of questionnaire items is one hundred and nineteen. Out of one hundred and nineteen, two questionnaire items were removed as they

obtained zero and negative value of CVR, -0.333, which were questions number 16 and 47 respectively. Although question number 11 obtained 0 as CVR value, it remains in the final questionnaire as it is needed to justify whether the respondent is an elite or non-elite athlete. Question number 11, however, has been modified according to the experts' critics which is to paraphrase the answer options. Ninety-nine questionnaire items received +1.00 as CVR value out of one-hundred and nineteen questionnaire items with the percentage of 83.2%. 10.1% of the questionnaire items received +0.667 as CVR value, and 4.2% of them obtained +0.333 as the CVR value. All of these questionnaire items that received CVR value less than +0.99 will be revised and modify according to the experts' critics which mainly because of the wording and context of the answer options. The mean CVR value of the whole questionnaire is 0.909, meaning that almost all of the questionnaire items in this questionnaire are concluded as essential from the expert panel.

This questionnaire has four domains: demographic data, nutritional knowledge, supplement knowledge and awareness, and supplement habits. The questionnaire items in domain demographic data include age, ethnicity, religion, household income and sports disability classification. One of the questionnaire items in this domain is removed due to having zero value of CVR, which is Question number 16, "How does disability affect your nutritional requirements?". For domain nutritional knowledge, it focused on major macronutrients which are carbohydrates, protein and fat. Not only this domain focused on major macronutrients, but it also focused on vitamins, minerals and hydration. For this domain, two critics suggested adding questionnaire items regarding knowledge on Malaysian food pyramid. The third domains emphasize on the knowledge on a nutritional supplement and on banned substance for a doping test. Lastly, the fourth domain was developed to identify the reasons for taking a supplement, type of supplement taken, and dosage of the supplement intake. The last questionnaire items in this domain, question number 47, "what is the dosage of the supplement taken?", was removed due to majority of the experts stating that this question should be removed or merged with question focusing on types and ways of taking the supplement. Each of the domains' CVR value is shown in Table 1 below.

Table 1: CVR value for each of the four domains in the questionnaire

	DOMAIN	CVR
1	Demographic data	+0.569
2	Nutritional knowledge	+0.973
3	Supplement knowledge and awareness	+0.984
4	Supplement habits	+0.926

The highest CVR value for domains is +0.984, which is supplement knowledge and awareness. This is because 95.2% of the questionnaire items in this domain received a full score in CVR value, which is +1.00. Per the experts' review, this domain has the fewer critics from the experts in terms of structure and relevancy. The lowest CVR value for domains is +0.569, which is demographic data. One of the reasons demographic data domains has the lowest CVR value among domains is because it has the lowest number of questionnaire items that received +1.00 as their CVR score as compared to other domains with four questionnaire items, for a total percentage of 23.5%. Another reason for the low score of CVR in this domain is the structure and the relevance of the questionnaire items

in this domain. Three experts commented that three of the questionnaire items in this domain should be put into a second domain, which is nutritional knowledge as these questionnaire items, are more related to nutritional knowledge. One expert stated that one of the questionnaire items, an open-ended question, should be in multiple-choice types of question to help the participants in answering the question.

Overall, the experts review that this questionnaire is suitable and acceptable to be used for identifying the nutritional knowledge and supplement habits among disabled athletes in Malaysia. The most notable critics among the experts in this questionnaire are that some technical or scientific terms in Malays do not represent the meaning of the terms in English. However, it only applies to some of the questionnaire items. In addition to critics, experts also give constructive reviews and comments, suggesting the addition of more questionnaire items, especially in the nutritional knowledge domain, so that the data may be obtained more accurately and comprehensively.

Conclusion

Nutrition plays a vital role in enhancing the sports performance among athletes, including disabled athletes. In maximizing the advantages of nutrition in sports, the athletes require fundamental nutritional knowledge and a better understanding of supplements. Thus, it is important to have valid and reliable instruments, including a questionnaire that able to identify the level of nutritional knowledge and supplement habits among the disabled athletes in Malaysia, to ensure that any data obtained is comprehensive and accurate. Based on this research, the developed questionnaire specifically for Malaysian disabled athletes has undergone expert validation, and the results show that the developed questionnaire is valid.

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