What Motivate Borneo International Marathon Runners?

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***Abstract*- The most obvious reason for participating in endurance or aerobic exercise is to obtain health and fitness benefits; however, marathon runners voluntarily expose themselves to stress and strain well beyond what is necessary to achieve these advantages. This study aims to examine the motivation of runner in marathon event. The instruments used in this study is The Motivations of Marathoners Scales (*α*=.71 to .86). It was administered to 240 runners (mean age 27.2 ± 7.3 years; mean BMI 22.76 ±4.21; 120 males and 120 females) who participating in Borneo Marathon 2018. Descriptive and Inferential statistics (t-test and one-way ANOVA) were employed to analyse the data. Psychological motives, Physical Health Motives, Social Motives and Achievement Motives were identified at a moderate level. No significant differences were observed between genders except for Physical Health Motives. The value of the mean difference shows that men Physical Health Motives are higher compared to women. There are significant differences between race categories except Achievement Motive and, no significant differences between race categories, except for Physical Health Motives and, no significant differences between BMI. In conclusion, the Physical Health Motives Future research should investigate the effectiveness of motivation interventions in enhancing community to participate in the future marathon event.**

***Keywords*: Marathon, runners, motivation, sport psychology.**

I. INTRODUCTION

The Results of the exercise benefits for physical and mental health have been documented in detail and physical training was recognized at the international level through improved infrastructure and recreational sports. Physical activity has been given great publicity and recognition followed some of the benefits of participation in sport, such as physiological, psychological and social benefits. Psychologically, sports participation is associated with a reduction in cardiovascular risk, avoid diabetes and prevent obesity. Psychologically, physical exercise is closely related to a decrease in anxiety and stress. Furthermore, sports participation heightens self-esteem and offers a tool for social contact (World Health Organization, 2010). These benefits are associated with a decline in medical care expenses, as well as with higher job productivity (Alexandris and Carroll, 1997).

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A mainstream of research has shown that the majority of individuals in the developed world are educated about the must of being active and have an impatience to be more active (Tsai, 2005).

Motivation of marathon runners has been broadly studied in order to identify what goals the runners are intrinsically oriented (e.g., Clough, Shepherd, & Maughan, 1989; Llopis & Llopis, 2006; Masters, Ogles, & Jolton, 1993; Ogles et al., 1993; Scholz, Nagy, Schüz, & Ziegelmann, 2008). In this sense, the Motivations of Marathoners Scales (MOMS) (Masters et al., 1993) has been greatly used in research and fit to other languages and sports (e.g., LaChausse, 2006; Loughren, 2010; Newcomer, 2009; Ogles & Masters, 2000; Ruiz Juan & Zarauz Sancho, 2011).

Suitable for the large amount of training time continuous over years, marathon runners probably show a larger obligation to the activity compared with other athletes (Carmack & Martens, 1979). Therefore, research has been also focused on the obsession to running (e.g., Clough et al., 1989; Masters & Lambert, 1989; Pierce, Rohaly, & Fritchley, 1997; Szabo, De la Vega, Ruiz-Barquín, & Rivera, 2013), assuming that obligation to running (see Carmack & Martens, 1979) in distance runners may be followed by negative an obsession to run (Sancho & Ruiz-juan, 2011). The social link, including fellow runners, co-workers, friends and family, may have a positive role related to social interaction during training, need for affiliation, self-actualization, need of exhibition, and self-esteem, especially in social-caused marathons or charity (Bennett, Mousley, Kitchin, & Ali-Choudhury, 2007; Fairer-Wessels, 2013).

II. RESEARCH PROBLEM

In the past era, the number of urban runners has noticeably raised, especially counting its health-related benefits (Baltich et al, 2014; Lopes et al, 2012). Mass participant sporting events have raised in reputation due to a selection of offerings that range from 5k running races to 42K run in marathons events. These events magnetize a mixture of participants and offer challenges for a multiple of skill levels and age groups. Murphy and Bauman (2007) recognize three categories of mass physical activity-related events: (1) major population-level health promotion events, (2) non-elite mass events with the likely for community expansive participation, and (3) elite sporting events. Added research on mass participant sporting events has shown these events can catalyse physical activity (Funk et al., 2011; Crofts, Dickson, Schofield, & Funk, 2012), offer benefits to the host through active sport tourism (Kaplanidou, Jordan, Funk, & Ridinger, 2012), and provide economic impacts to the

host (Coleman & Ramchandani, 2010). Subsequently, running events have become progressively well-liked, and the venue is becoming ever more congested, event organizers must segregate their offerings especially on their motivation motives.

These prolonged race events (e.g., 2 hours race) place great physiological demands on the participants, demonstrated through decreased force production, altered excitation-contraction coupling, and neuromuscular fatigue (Martin et al., 2010; Millet et al., 2002; Millet and Lepers, 2004; Millet et al., 2011). Due to the rigorous nature of a marathon, it is not surprising that psychological techniques such as mental preparations, self-talk, imagery, and attentional focus strategies are adapted during these events (Simpson, et al., 2014). Motivation, a driving force to achieve personal goals (Dosil, 2004) has been linked to exercise adherence and to the capacity of keeping a healthy life (Azofeifa, 2006; Stonerock & Blumenthal, 2017). Many investigations have been conducted to study running motivations across runners (Ruiz-Juan & Zarauz, 2012; Zarauz, Ruiz-Juan & Flores-Allende, 2014; Zarauz & Ruiz-Juan, 2012) through different domains, such as health, personal goals, self-esteem, competition; founding a tendency from internal towards external factors among different experienced runners (Ogles, Masters & Richardson, 1995; Masters, Ogles & Jolton, 1993). Even though running is an easily accessible activity, the knowledge of underlying motivational factors among runners could enhance promotion of physical activity participation, regarding that urban life may reduce an individual's motivation for pursuing a better physical lifestyle. Therefore, the purpose of this study was to analyse motivations for sustaining a consistent running routine in different runner populations in Borneo Marathon 2018 using the Motivations of Marathoners Scales (MOMS-34). This is the first study examining the specific values of motivation in different runner groups in Borneo Marathon 2018.

Despite the psychological and physiological demands of these long runs, research that identifies factors that improve performance is limited. A better understanding of what motivates participants to compete in different sporting events will lead to more effective marketing communication, enhance the event experience and identify the key components participants base their decisions on (Kruger et al., 2011; Kruger et al. 2012; Kruger & Saayman, 2013) especially in promoting health. The current study aims to evaluate the motivation of marathon event runner's motives and the difference in gender, Body Mass Index (BMI) and race categories of runner's motivation motives.

III. LITERATURE REVIEW

The Motivations of Marathoners Scale (MOMS), developed by Masters, Ogles, and Jolton (1993), is one of the most comprehensive and widely used scales for measuring endurance event participant motives. Although many leisure motives apply to these event types (Beard & Ragheb, 1983), Masters et al. (1993) suggested a comprehensive measure was needed to assess the specific motives of individuals participating in and training for running events. Based on previous distance running research (Carmack & Martens, 1979; Masters & Lambert, 1989; Curtis & McTeer, 1981), Masters et al. (1993) identified four broad categories of running motives, each containing two or more sub dimensions: (1) physical health (i.e., general health orientation and weight concern), (2) social motives (i.e., affiliation and recognition), (3) achievement (i.e., competition and personal goal achievement), and (4) psychological motives (i.e., psychological coping, self-esteem, and life meaning).

Masters et al. (1993) found the motives for health, personal achievement, and self-esteem to be more important than social motives for event participation. Subsequent research using the MOMS has continued to provide evidence of the validity and reliability of the related motives (Masters & Ogles, 1995; Ogles, Masters, Richardson, 1995; Ogles & Masters, 2000, 2003; Havenar & Lochbaum, 2007), but researchers have yet to empirically examine the nuanced differences among different event types. Ogles and Masters (2000) found that marathon runner motives differed based on age, where older runners were more motivated by health concerns and affiliation, while younger runners were more motivated by achievement. Later, Ogles and Masters (2003) discovered that runners could be grouped into similar clusters based on motivation, and these clusters differed based on running experience, training patterns, and demographics. Havenar and Lochbaum (2007) used the MOMS to assess differences among first-time marathoners and found social motives to be higher for individuals who dropped out of competition compared to event finishers.

Further, the MOMS has been used to assess motivation in a variety of other sporting contexts including cycling (LaChausse, 2006), 5k running (Bell & Stephenson, 2014), ultra-running (Krouse, Ransdell, Lucas, & Pritchard, 2011), adventure races (Doppelmayr & Molkenthin, 2004), and triathlons (Rundio, Heere, & Newland, 2014). Although other scales have been developed to measure motives related to sport participation, the MOMS is the most comprehensive and applicable to running events. Other scales measuring sport participant motivation such as the Leisure Motivation Scale (Beard & Ragheb, 1983), the Sport Motivation Scale (Pelletier, Fortier, Vallerand, Tuson, & Bilas, 1995), and the Behavioral Regulation in Sport Questionnaire (Lonsdale, Hodge, and Rose, 2008) are quite general and fail to adequately measure motives related to health, weight loss, goals, and competition. Recently, Rundio et al. (2014) compared the motives of participants from cause-related events and no cause related events using the MOMS. The authors revealed that cause-related event participants rated motives related to self-esteem, personal goal achievement, competition, and recognition/approval

significantly higher than the participants from the non-cause related events.

Interestingly, the limited significance of social motives uncovered in previous research (Havenar & Lochbaum, 2007; Ogles & Masters, 2003; Masters et al., 1993) may be indicative of long-time participant samples in which attitudes toward participation were directly tied to competitive preferences (e.g., winning and best times). Recent shifts in participant motivation factors have suggested a need to re-examine this complex element of sport participant psychology. Based on the lack of research on participant sport events and the need to better understand participant motivation for Borneo Marathon, the following research questions were developed to guide the study: RQ 1: What are the participation motives among Borneo Marathon runners? RQ 2: What are the differences participation motives between genders, BMI and race categories?

IV. RESEARCH OBJECTIVES

The objectives of this study are listed below in order to achieve the aim:

1. To identify the participation motives among Borneo Marathon runners.
2. To compare the participation motives between genders, BMI, status, and race categories.

V. METHOD

Participants

A sample of 240 runners in Borneo Marathon 2018 (aged M=27.2 years, SD=7.3, BMI M=22.8, SD=4.2, 132 males and 108 females) participated in this study. From them, 7.1% underweight, 72.1% Normal weight, 18.3% overweight, 2.1% obese and 4 % severely obese. Procedure Ethical approval was sought and granted by the institution of the authors for the present and subsequent studies. During the one days prior to the race, runners were contacted at the expo while they were requesting their bibs, and were asked to respond to a questionnaire. Runners were provided with all relevant information relating to the nature and methodology of the study and voluntarily accepted to participate. Participants were informed that there were no right or wrong answers and were encouraged to respond candidly. Complete confidentiality was assured.

Measures

The questionnaire comprised of two main sections: (1) demographics and (2) participant motivation items. Event data were collected at Borneo Marathon 2018. Demographic items were used to assess participant gender and body mass index and event category. Finally, Participant motivations were measured using the multidimensional MOMS comprising 56 items under nine motivational factors (Masters et al., 1993): health orientation (six items), weight concern (four items), affiliation (six items), recognition (six items), competition (four items), personal goal achievement by (six items), psychological coping (nine items), self-esteem (eight items) and life meaning by (seven items). All of the items were rated on a seven-point scale (1 = not a reason to 7 = most important reason), as to the degree the participant considered the item a reason for event participation. Adequate internal consistency (Cronbach's alpha range .71 to .86) and retest reliability (intraclass R range .71 to .84).

Statistical Analysis

Mean and standard deviations (SD) were calculated for each variable. Differences in genders of the participants were analyzed separately using an independent t-test. While differences in BMI and race categories were analyzed using one-way ANOVA. Statistical significance was accepted as $p \leq 0.05$. All statistical analyses were completed using SPSS 20.0 (SPSS Inc., Chicago, IL).

VI. RESULTS

Demographic and Anthropometric Characteristics

The group had a mean age of 27.2±7.3 years and BMI mean of 22.76 ±4.21. Demographics and anthropometric characteristics of participants are displayed in Table I.

TABLE I: DEMOGRAPHIC AND ANTHROPOMETRIC CHARACTERISTICS OF THE PARTICIPANTS

Characteristics	Males (n=132)	Females (n=108)	All Participant (n=240)
Age	28.20±7.87	25.97±6.27	27.19± 7.27
Weight (kg)	63.14±8.30	56.11±13.41	59.98 ±11.42
Height (cm)	167.05±8.16	156.62±6.61	162.36 ±9.12
BMI	22.70±3.15	22.83±5.25	22.76 ±4.21

Mean and Level of MOM

Psychology Motives, Physical Health Motive, and overall Motivation Motive are at the high level but Social Motive and Achievement Motive are in the Intermediate level. General Health Orientation is the highest meanwhile competition is the lowest benefit contributor to motivation motive. Mean and Level of MOM are displayed in Table II.

TABLE II: MEAN AND LEVEL OF MOM

Categories or Scales	Mean	Level
Psychology Motive	4.9417	High
• Psychological Coping	4.7046	High
• Self-Esteem	5.2880	High
• Life Meaning	4.8506	High
Physical Health Motive	5.4600	High
• General Health Orientation	5.8701	Very High
• Weight concern	4.8448	High
Social Motive	4.4750	Intermediate
• Affiliation	5.0056	High
• Recognition	3.9444	Intermediate
Achievement Motive	4.3400	Intermediate
• Competition	3.7573	Intermediate
• Personal Goal Achievement	4.7285	High
Overall Motivation Motive	4.8254	High

The Motivations of Marathoners Scale Between Genders

No significant differences were observed between gender for any of the categories or scales of the MOMS except Self-Esteem (t = 2.572, df = 238, p<.05). Physical Health Motives (t = 2.968, df = 238, p<.05), General Health Orientation (t = 3.067, df = 238, p<.05), Weight Concern (t = 1.968, df = 238, p<.05) and Recognition (t = -2.434, df = 238, p<.05). The value of the mean difference was showed that men Self-Esteem, Physical Health Motives, General Health Orientation and Weight Concern were higher compared to women except for Recognition. Table III displays the results of the MOMS between genders.

TABLE III: MOM INDEPENDENT SAMPLES TEST BETWEEN GENDERS

Categories or Scales	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Psychology Motives	.081	.776	.780	238	.436	.09526
• Psychological Coping	4.218	.041	.087	238	.931	.01291
• Self-Esteem	2.503	.115	2.572	238	.011	.33849
• Life Meaning	1.042	.308	-.536	238	.593	-.07684
Physical Health Motive	1.613	.205	2.986	238	.003	.39192
• General Health Orientation	2.995	.085	3.067	238	.002	.39520
• Weight concern	1.467	.227	1.968	238	.050	.38699
Social Motive	1.258	.263	-.866	238	.387	-.11700
• Affiliation	.065	.799	1.231	238	.219	.20090
• Recognition	1.875	.172	-2.434	238	.016	-.43490
Achievement Motive	5.669	.018	-1.047	238	.296	-.17643
• Competition	4.680	.032	-1.314	238	.190	-.28977
• Personal Goal Achievement	5.752	.017	-.618	238	.537	-.10087
Overall Motivation	4.121	.043	.264	238	.792	.02864

The Motivations of Marathoners Scale Between Race Categories

There were significant differences were observed between race categories for the categories or scales of the MOMS (Table IV) except Achievement Motive [F (df = 3,236, p>.05) = 2.630] and Competition [F (df = 3,236, p>.05) = 7.202]. Table IV displays the results of the MOMS between race categories.

Psychology Motives

There was a statistically significant difference between groups as determined by one-way ANOVA (F (3,236) = 10.806, p <.05). A Tukey post hoc test revealed that the Psychology Motives was statistically significantly higher in other race categories (5.11-5.16) compared to the 5K participants (4.38). There was no statistically significant difference between the 10K, 21K and 42K participants (p>.05). There was also a statistically significant difference between groups as determined by one-way ANOVA for Psychological Coping [F (df = 3,236, p<.05) = 6.478], Self-Esteem [F (df = 3,236, p<.05) = 9.194] and Life Meaning [F (df = 3,236, p<.05) = 8.103]. A Tukey post hoc test revealed that the Psychological Coping, Self-Esteem and Life Meaning was statistically significantly higher in other participant compared to the 5K participants. There was no statistically significant difference between the 10K, 21K and 42K participants (p>.05).

Physical Health Motives

There was a statistically significant difference between groups as determined by one-way ANOVA (F (3,236) = 36.088, p <.05). A Tukey post hoc test revealed that the Physical Health Motive was statistically significantly higher in other race categories (5.46- 5.87). compared to the 5K participants (4.47) There was no statistically significant difference between the 10K, 21K and 42K participants (p>.05). There was also a statistically significant difference between groups as determined by one-way ANOVA for General Health Orientation [F (df = 3,236, p<.05) = 12.714] and Weight concern [F (df = 3,236, p<.05) = 38.989]. A Tukey post hoc test revealed that the General Health Orientation and Weight Concern was statistically significantly higher in other participant compared to the 5K participants. There was no statistically significant difference between the 10K, 21K and 42K participants (p>.05).

Social Motives

There was a statistically significant difference between groups as determined by one-way ANOVA (F (3,236) = 36.088, p <.05). A Tukey post hoc test revealed that the Social Motive was statistically significantly higher in other race categories (4.48-4.73) compared to the 5K participants (3.96). There was no statistically significant difference between the 10K, 21K and 42K participants (p>.05). There was also a statistically significant difference between groups as determined by one-way ANOVA for Affiliation [F (df = 3,236, p<.05) = 12.714] and Recognition [F (df = 3,236, p<.05) = 38.989]. A Tukey post hoc test revealed that the Affiliation and Recognition concern was statistically significantly higher in other participant compared to the 5K participants. There was no statistically significant difference between the 10K, 21K and 42K participants (p>.05).

Achievement Motives

There was no statistically significant difference between groups as determined by one-way ANOVA but there was only a statistically significant difference between groups

as determined by one-way ANOVA for Personal Goal Achievement [F (df = 3,236, p<.05) = 7.202]. A Tukey post hoc test revealed that the Personal Goal Achievement concern was statistically significantly higher in other participants (4.65-5.18) compared to the 5K participants (4.19). There was no statistically significant difference between the 10K, 21K and 42K participants (p>.05).

Overall Motivation Motives

There was a statistically significant difference between groups as determined by one-way ANOVA F (df = 3,236, p<.05) = 11.899. A Tukey post hoc test revealed that the Overall Motivation Motive was statistically significantly higher in other race categories (4.92 -5.05) compared to the 5K participants (4.31). There was no statistically significant difference between the 10K, 21K and 42K participants (p>.05).

TABLE IV: MOM ANOVA TEST BETWEEN RACE CATEGORIES

Variables	Sum of Squares	df	Mean Square	F	Sig.
Psychology Motives	25.520	3	8.507	10.806	.000
• Psychological Coping	23.850	3	7.950	6.478	.000
• Self-Esteem	26.341	3	8.780	9.194	.000
• Life Meaning	27.210	3	9.070	8.103	.000
Physical Health Motive	79.442	3	26.481	36.088	.000
• General Health Orientation	33.947	3	11.316	12.714	.000
• Weight concern	184.092	3	61.364	38.989	.000
Social Motive	23.431	3	7.810	7.835	.000
• Affiliation	36.551	3	12.184	8.405	.000
• Recognition	18.645	3	6.215	3.303	.021
Achievement Motive	13.046	3	4.349	2.630	.051
• Competition	1.892	3	.631	.215	.886
• Personal Goal Achievement	31.651	3	10.550	7.202	.000
Overall Motivation	21.940	3	7.313	11.899	.000

The Motivations of Marathoners Scale between Participants BMI

There was no statistically significant difference between groups as determined by one-way ANOVA but there was only a statistically significant difference between groups as determined by one-way ANOVA for Weight Concern [F (df = 3,236, p<.05) = 3.383]. A Tukey post hoc test revealed that the Weight Concern was statistically significantly higher in overweight participant (5.28) compared to the underweight participant (3.97). Table V displays the results of the MOMS between participants BMI.

TABLE V: MOM ANOVA TEST BETWEEN PARTICIPANTS BMI

Variables	Sum of Squares	df	Mean Square	F	Sig.
Psychology Motives	1.833	3	.611	.689	.560
• Psychological Coping	4.464	3	1.488	1.136	.335
• Self-Esteem	1.705	3	.568	.537	.658
• Life Meaning	3.507	3	1.169	.958	.413
Physical Health Motive	4.824	3	1.608	1.531	.207
• General Health Orientation	.528	3	.176	.171	.916
• Weight concern	22.904	3	7.635	3.383	.019
Social Motive	.066	3	.022	.020	.996
• Affiliation	1.188	3	.396	.248	.863
• Recognition	1.869	3	.623	.319	.812
Achievement Motive	3.637	3	1.212	.716	.543
• Competition	9.995	3	3.332	1.151	.329
• Personal Goal Achievement	3.866	3	1.289	.814	.487
Overall Motivation	.546	3	.182	.258	.856

VII. DISCUSSION

Health-orientation was the dimension with the highest score and presents a great opportunity for promotion and encouragement to maintain adherence to exercise. On the other hand, the competition was always the dimension with the lowest score, which implies that there is a low achievement motivation. Different from previous studies, our research included a broad spectrum of runner categories and not only marathon runners. In the present study, we did not observe any significant differences in the MOMS analysis across age. In regards to genders, the MOMS results demonstrated that men were more concern for physical benefits (i.e., health and weight) achieved through marathon running event than women. As for the male, the present findings are in agreement with others who demonstrated males were more motivated by health orientation (Doppelmayr and Molkenthin, 2004; Stoll et al., 2000).

Previous findings also showed health orientation was the strongest motive for participation for both male and female in the marathon. In the past decade, the number of urban runners has considerably increased, especially considering its health-related benefits (Baltich, et al, 2014;

Lopes et al, 2012). Referring to General Health Orientation, the runners probably want to improve health, prolong life, become more physically fit, reduce the chance of having a heart attack, stay in physical condition and prevent illness. They also want to control body weight and to stay physically attractive. This finding is particularly salient in light of the Ziegler (1991) that studied gender differences. He examined the perceived benefits of marathon running in males and females, reported that men perceived running to be more beneficial than did women.

We also observed that the men more concern for Self-Esteem benefits but women were more concern about Recognition benefits. Men were more concern to feel more confident about themselves, positive emotional experience, proud, sense of achievement and like a winner. Meanwhile, women want to earn the respect of peers, make family or friends proud of her and rings me recognition. Different from previous studies by Ziegler (1991), women felt that running had a positive effect on self-image and that their lives were richer because of running more so than men. Deaner et al (2011) compared marathon performance as a predictor of competitiveness and training between men and women. Their results showed that the males reported significantly greater competitiveness than the females. Krouse et al (2011), study with female marathoners found that health orientation along with personal goal achievement was the strongest forms of motivation.

We reported there were significant differences in MOMS between race categories except for Achievement Motive and Competition. Psychological Motives, Physical Health Motives, and Social Motives were statistically significantly higher in 10K, 21K and 42K participants compared to the 5K participants. Participants in 10K, 21K and 42K categories want to compete with others, to see how high he or she can place in races, to get a faster time than their friends and to compete with themselves. Weight Concern was statistically significantly higher in overweight participant compared to the underweight participant. Underweight participant wants to control their body weight, reduce body weight, to look leaner and to stay physically attractive.

VIII. IMPLICATIONS

Knowing runner's habits and behaviours could help health-related professionals in choosing strategies that promote physical activity through running. A better understanding of what motivates participants to compete in different sporting events will lead to more effective marketing communication, enhance the event experience and identify the key components participants base their decisions on especially in promoting health.

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DISCLOSURE STATEMENT

The authors declare that they have no conflict of interest.

REFERENCES

Alexandris, K., and Carroll, B. (1997). An analysis of leisure constraints based on different recreational sport participation levels: Results from a study in Greece. *Leisure Sciences*, 19(1), 1-15.

Azofeifa, E.G. (2006). Reasons for participation and satisfaction in physical activity, physical exercise and sport. *Revista En Ciencias Del Movimiento Humano y Salud*, 3:1–16.

Baltich, J, Emery, C.A, Stefanyshyn, D, et al. (2014). The effects of isolated ankle strengthening and functional balance training on strength, running mechanics, postural control and injury prevention in novice runners: design of a randomized controlled trial. *BMC Musculoskelet Disord*. 15:407.

Beard, J. G., & Ragheb, M. G. (1983). Measuring leisure motivation. *Journal of Leisure Research*, 15, 219-228.

Bell, N., & Stephenson, A. L. (2014). Variation in motivations by running ability: Using the theory of reasoned action to predict attitudes about running 5k races. *Journal of Policy Research in Tourism, Leisure and Events*, 6, 231-247.

Bennett, R., Mousley, W., Kitchin, P., & Ali-Choudhury, R. (2007). Motivations for participating in charity-affiliated sporting events. *Journal of Customer Behaviour*, 6(2), 155–178. http://doi.org/10.1362/147539207X223375

Carmack, M.A. & Martens, R. (1979). Measuring commitment to running: A survey of runners' attitudes and mental states. *Journal of Sport Psychology*. 1, 25-42.

Clough, P. J., Shepherd, J., & Maughan, R. (1989). Motives for participation in recreational running. *Journal of Leisure Research*, 21(4), 297-309. Retrieved from http://www.sagamorepub.com/products/journal-leisure-research

Coleman, R., & Ramachandani, G. (2010). The hidden benefits of non-elite mass participation sport events: An economic perspective. *International Journal of Sport Marketing & Sponsorship*, 12, 24-36

Crofts, C., Dickson, G., Schofield, G., & Funk, D. (2012). Post-event behavioural intentions of participants in a women-only mass participation sporting event. *International Journal of Sport Management & Marketing*, 12, 260-274.

Curtis, J. & McTeer. W. (1981). The motivation for running. *Canadian runner*. 1, 18-19.

Deaner, R.O, Masters, K.S, Ogles, B.M. & LaCaille, R.A. (2011). Marathon performance as a predictor of competitiveness and training in men and women. *J Sport Behav*; 34:325–42

Doppelmayr, M, & Molkenthin, A, (2004). Motivation of participants in adventure ultramarathons compared to other foot races. *Biology of Sport*. 21, 319-323.

Dosil, J. (2004). *Psychology of Physical Activity and Sport. Motivation: the "motor" for sport*. Madrid: Mc Graw Hill.

Fairer-Wessels, F. A. (2013). Motivation and behaviour of serious leisure participants: the case of the Comrades Marathon. *South African Journal for Research in Sport, Physical Education and Recreation*, 35(2), 83–103.

Funk, D, Jordan, J, Ridinger, L., and Kaplanidou, K. (2011). Capacity of mass participant sport events for the development of activity commitment and future exercise intention. *Leisure Sciences*, 33: 250-268.

Havenar, J., & Lochbaum, M. (2007). Differences in participation motives of first-time marathon finishers and pre-race dropouts. *Journal of Sport Behavior*, 30(3), 270-279. Retrieved fromhttp://www.questia.com/library/p2171/journal-of-sport-behavior

Kaplanidou, K., Jordan, J.S., Funk, D., Rindinger, L.L. (2012). Recurring Sport Events and Destination Image Perceptions: Image on Active Sport Tourist Behavioral Intentions and Place Attachment, *Journal of Sport Management*, 26(3), 237-248

Krejcie, R. V., & Morgan, D. W. (1970). Determining the sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607–610.

Kruger, M., & Saayman, M. (2012). Creating a memorable spectator experience at the two oceans marathon. *Journal of Sport & Tourism*, 17(1), 63–77. doi:10.1080/14775085.2012.662391

Kruger, M., & Saayman, M. (2013). Why keep on paddling? Evidence from a South African canoe marathon. *African Journal for Physical, Health Education, Recreation and Dance*, 19(4), 1158–1173.

Kruger, M., & Saayman, M. (2014). How do mountain bikers and road cyclists differ? South African *Journal for Research in Sport, Physical Education and Recreation*, 36(2), 137–152.

Kruger, M., Saayman, M., & Ellis, S. (2011). A motivation based typology of open-water swimmers. South African *Journal for Research in Sport, Physical Education and Recreation*, 33(2), 59–79. doi:10.4314/sajrs. v33i2.69691

Krouse, R.Z, Ransdell, L.B, Lucas, S.M, & Pritchard, M.E (2011). Motivation, goal orientation, coaching, and training habits of women ultrarunners. *The Journal of Strength & Conditioning Research.* 25, 2835-2842.

LaChausse, R. G. (2006). Motives of competitive and non-competitive cyclists. *Journal of sport behavior*, 29(4), 304.

Llopis, G. D & Llopis, G. R. (2006). Reasons for participating in long distance races. A study with amateur runners. *Cultura, Ciencia y Deporte*. 2:33–40.

Lonsdale, C., Hodge, K., & Rose, E. A. (2008). The behavioral regulation in sport questionnaire: Instrument development and initial validity evidence. *Journal of Sport & Exercise Psychology*, 30, 323-355.

Lopes, A.D, Hespanhol, L.C, Jr, Yeung, S.S, et al. (2012). What are the main running-related musculoskeletal injuries? A systematic review. *Sports Med.* 42:891–905.

Loughren, E. A. (2010). *Motivation of first time marathoners to adherence to marathoning*. Dissertation Abstracts International: Section B: The Sciences and Engineering. ProQuest Information & Learning, US.

Martin, V, Kerhervé, H, Messonnier, L.A, Banfi, J.C, Geyssant A, Bonnefoy, R, Féasson, L, & Millet G.Y, (2010). Central and peripheral contributions to neuromuscular fatigue induced by a 24-h treadmill run. *Journal of applied physiology*, 108, 1224-1233.

Masters, K. S. & Lambert, M. J. (1989). On gender comparison and construct validity: An examination of the Commitment to Running Scale in a sample of marathon runners. *Journal of Sport Behavior*, 12(4), 196–202.

Masters, K. & Ogles, B. M. (1995). An investigation of the different motivations of marathon runners with varying degrees of experience. *Journal of Sport Behavior*, 18, 69-79.

Masters, K. S. Ogles, B. M. & Jolton, J. A. (1993). The development of an instrument to measure motivation for marathon running: the Motivations of Marathoners Scales (MOMS). *Research Quarterly for Exercise and Sport*, 64(2), 134-143.

Millet, G, Lepers, R, Maffiuletti, N, Babault, N, Martin, V, & Lattier, G, (2002). Alterations of neuromuscular function after an ultramarathon. *Journal of applied physiology*, 92, 486-492.

Millet, G.Y, & Lepers, R. (2004). Alterations of neuromuscular function after prolonged running, cycling and skiing exercises. *Sports Medicine*, 34, 105-116.

Millet, G.Y, Tomazin, K, Verges, S, Vincent, C, Bonnefoy, R, Boisson, R.C, Gergelé, L, Féasson, L, & Martin, V. (2011). Neuromuscular consequences of an extreme mountain ultra-marathon. *PLoS One*, 6, e17059.

Murphy, N. M., & Bauman, A. (2007). Mass sporting and physical activity events—Are they "bread and circuses" or public health interventions to increase population levels of physical activity? *Journal of Physical Activity & Health*, 4, 193-202.

Newcomer, B. D. (2009). *Motives of marathon runners in training: Investigating the differences between gender, experience level and age*. Dissertation Abstracts International: Section B: The Sciences and Engineering. ProQuest Information & Learning, US.

Ogles, B. M., & Masters, K. S. (2000). Older vs. younger adult male marathon runners: Participative motives

and training habits. *Journal of Sport Behavior*. 23(2), 130–143.

Ogles, B. M., & Masters, K. S. (2003). A typology of marathon runners based on cluster analysis of motivations. *Journal of Sport Behavior*. 26(1), 69-75. Retrieved from http://www.questia.com/library/p2171/journal-of-sport-behavior.

Ogles, B. M., Lynn, S. J., Masters, K. S., & Hoefel, T. D. (1993). Runners' cognitive strategies and motivations: Absorption, fantasy style, and dissociative experiences. *Imagination, Cognition and Personality*. 13(2), 163–174.

Ogles, B. M, Masters, K., Richardson, S. (1995). Obligatory running and gender: an analysis of participative motives and training habits. *International Journal of Sport Psychology*. 26, 233-248.

Pelletier, L. G., Fortier, M. S., Vallerand, R. J., Tuson, K. M., Brière, N. M, & Blais, M. R. (1995). Toward a new measure of intrinsic motivation, extrinsic motivation, and amotivation in sports: The Sport Motivation Scale (SMS). *Journal of Sport & Exercise Psychology*, 17, 35-53.

Pierce, E. F., Rohaly, K. A., & Fritchley, B. (1997). Sex differences on exercise dependence for men and women in a marathon road race. *Perceptual and Motor Skills*, 84(3, Pt 1), 991–994. Retrieved from 10.2466/pms.1997.84.3.991

Ruiz-Juan, F & Zarauz, A. (2012). Variables that makes negative addicted to run at Spanish marathoner. *Retos: nuevas Tendencias En Educacion Fısica, Deporte y Recreaci*. 21: 38–42.

Rundio, A., Heere, B., & Newland, B. (2014). Cause-related versus noncause- related sport events: Differentiating endurance events through a comparison of athlete's motives. *Sport Marketing Quarterly*, 23, 17-26.

Sancho, A., & Ruiz-Juan, F. (2011). Compromiso y adicción negative al entrenamiento y competición de los maratonianos. *International Journal of Medicine and Science of Physical Activity and Sport*, 11(44), 817-834.

Scholz, U., Nagy, G., Schüz, B., & Ziegelmann, J. P. (2008). The role of motivational and volitional factors for self-regulated running training: Associations on the between- and within-person level. *British Journal of Social Psychology*, 47(3), 421–439. Retrieved from 10.1348/014466607X266606

Simpson, D, Post, P.G, Young, G. & Jensen, P.R. (2014). "It's not About Taking the Easy Road": The Experiences of Ultramarathon Runners. *Sport Psychologist,* 28, 176-185.

Stoll, O., Wurth, S., & Ogles, B. (2000). Teilnahmemotive von Marathon-und Ultramarathonlaufern. *SPORTWISSENSCHAFT*. 30, 54-67.

Stonerock, G.L, & Blumenthal, J.A. (2017). Role of counselling to promote adherence in healthy lifestyle medicine: strategies to improve exercise adherence and enhance physical activity. *Prog Cardiovasc*. 59:455–462.

Summers, J. J., Sargent, G. I., Levey, A. J., & Murray, K. D. (1982). Middle-aged, non-elite marathon runners: A profile. *Perceptual and Motor Skills*, 54(3), 963-969. doi:10.24 66/pms. 1982.54.3.963

Szabo, A., De la Vega, R., Ruiz-Barquín, R., & Rivera, O. (2013). Exercise addiction in Spanish athletes: Investigation of the roles of gender, social context and level of involvement. *Journal of Behavioral Addictions*, 2(4), 249–52. http://doi.org/10.1556/JBA.2.2013.4.9

Tsai, E. H. L. (2005). A cross-cultural study of the influence of perceived positive outcomes on participation in regular active recreation: Hong Kong and Australian university students. *Leisure Sciences*, 27(5), 385-404.

World Health Organization (2010). *Physical Activity and women*. Retrieved from: http:// www.who.int/dietphysicalactivity/factssheet_women/en/

Zarauz A, Ruiz-Juan F. (2012). Super-adherence of the marathoner: predictor variables and gender differences. *Universitas Psychologica*. 1:895–907.

Zarauz A, Ruiz-Juan F, Flores-Allende G. (2014). Commitment to training and competition of marathoners as socio-demographic variables. *Retos: nuevas Tendencias En Educacion Fısica, Deporte y Recreacion*. 26:118–121.

Ziegler, S.G. (1991). Perceived benefits of marathon running in males and females. *Sex Roles*. 25:119–27.