

PEDAGOGY

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A Study of Youth Martial Arts Athletes' Engagement Motivations and Their Health Related Behaviors

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Abstract

Aim. Scientific studies concerning youth martial-arts athletes (YMAS) have become increasingly broader and deeper since the first Youth Olympic Summer-Games in 2010. This paper aims at examining the engagement motivations (EMs) that motivated the YMAS who engaged in martial-arts practices and competitions and their health-related behaviors.

Method. Participants were 163 YMAS (Ages =12-18; 84 boys, 79 girls; 71 American, 92 Chinese). Data collection was done by employing Adapted Youth Martial-arts Athlete' Motivations and Health-Relate Behaviors Questionnaire (AYMAMHRBQ). The AYMAMHRBQ contained 19 questions examining participants' EMs, 27 questions investigating health-relate behaviors. Data analyses included a 2 Gender (boy, girl) x 2 Ages (younger, older) x 2 Skill-levels (high, medium) x 2 Countries (PRC, USA) MANOVA, and other suitable methods.

Results. The top three mean-scores among the 19 EMs were: “Precious value” “Improving health” “Having fun”. The ‘Skill-levels’ did not have significant differences but ‘Gender’ ‘Ages’ and ‘Countries’ had. The follow-up MANOVA discovered that: boys scored higher in five EMs than girls, but girls scored higher in one EM than boys. “Older-age” scored significantly higher in ‘To establish prestige’ than “Younger-age”; but “Younger-age” scored significantly higher than “Older-age” in ‘To develop unique skills’. Eleven out of 19 comparisons reached significant differences in ‘Countries’ aspect. Precious features about these YMAS' health-relate behaviors were found and discussed.

Conclusion. When examining the YMAS' EMs, ‘Skill-levels’ factor was not a determinate aspect while ‘Gender’ ‘Ages’ and ‘Countries’ aspects were. Those features of the YMAS' health-relate behaviors possess important meanings for improving YMAS' coaching and management.

1. Introduction

Martial Arts or as popularly referred to as Chinese Gong-Fu or Wushu is a series of fighting styles which have developed over a very long historical period in China [Chinese Gong-Fu 2018]. It has been regarded as a traditional health activity and later become a type of competitive sport becoming more and more popular; even sometimes it is regarded as a representative of Chinese culture. Styles such as: Shaolin, Tai Chi and Qigong have many followers worldwide. Some westerners think that all Chinese people are good at Kung Fu [Chinese Gong-Fu 2018]. That might not be true, but this traditional cultural heritage has its unique existence and influence power in modern times and peoples' lifestyle [Chinese Gong-Fu 2018].

On the other hand, from a particular western perspective, martial arts were defined as: “codified systems and traditions of combat practices, which are practiced for a number of reasons: as self-defense, military and law enforcement applications, mental and spiritual development; as well as entertainment and the preservation of a nation's intangible cultural heritage” [Martial arts definitions 2017]. From a more common way, however, martial arts also are defined as: “traditional forms of Asian self-defense or combat that utilize physical skill and coordination without weapons, as karate, aikido, judo, or Kung Fu, often practiced as sport.” [Definition of martial arts, 2017].

Regarding the definitions of ‘martial arts’, a martial arts specialist Prof. Dr. Cynarski [2013] indicated that: “Martial arts are the forms of psychophysical activity

linked to a certain tradition of hand-to-hand fight or using weapons, aimed at personal development and merging educational methods with improvement in spiritual dimension. Ways of martial arts include certain forms of physical (psychophysical) culture, which, based on tradition of warrior cultures lead, through training of fighting techniques, to psychophysical improvement and self-realization [Cynarski 2013]. Cynarski [2004] also points out that: "At the same time, they are the processes of education and positive ascetics. The positive asceticism combines corporal exercise with conscious self-discipline and is oriented towards moral and spiritual progress". Correspondingly, Cynarski [2013] stated that: From the viewpoint of physical education, martial arts are various kinds of psychophysical activities connected with certain traditional of hand-to-hand or armed fight aiming at personal development which combines teaching methods with perfecting in a spiritual dimension. Martial arts are an effective way of developing one's ascetics and spiritual. From the standpoint of physical recreation, however, martial arts are an ideal form for people to rest and find recreation. All activities of movements or sports education contents within martial arts attracted people voluntarily participate, within their spare time and meet the needs of getting rest or recreation [Cynarski 2013].

Furthermore, with regard to how motivation factors impact on martial arts students and school physical education programs, Duricek and Cynarski [2017] indicated that in martial arts related activities, the motivational incentives should be "based on the capability to stage situations that are attractive, interesting, entertaining, competitive and playful (p. 10)". The activities provided by the martial arts programs should "involve atypical games, competitions, games, dance, etc. (p. 10)". They pointed out that the mentioned activities provided room for the participants who can make decisions on which activities they really want to take part in [Duricek, Cynarski 2017]. Hortiguera *et al.* [2017] also conducted a study in "Combat versus team sports: the effects of gender in a climate of peer-motivation, and levels of fun and violence in physical education students" by implementing two martial arts and combat sports (MA&CS) teaching units aim at improving the students' attitudes toward violence and produced higher peer motivational climate, and examining if they possess similar fun as two teaching units of team sports (football and basketball). Their findings showed that the two MA&CS teaching units did effectively improved students' attitudes toward violence and produced a slightly higher peer motivational climate. The two MA&CS teaching units also produced quite similar fun and enjoyment as the teaching units of football and basketball [Hortiguera *et al.* 2017]

Since the Youth Olympic Summer Games have become a global sports event in the year of 2010 and have been held every four years, this global sports event has added a new hope for those teenagers who have an 'Olympic Dream' of a sport start dream [Official Report 2010]. Because after all, for the teenagers, who are able

to compete in the Youth Olympic Games they have the opportunity to get recognition to compete in higher / or more professional arena, or get awards / scholarship, or extra credits to go to college / university. In other words, they will have a very bright future, etc. All of these, might be the reasons why in recent year research studies concerning youth martial-arts athletes (YMAS) have become increasingly broader and deeper [Official Report 2010]. Even though research literature in youth sports have attributed to, the goals and reasons of youth athletes engaged in sports practices and competitions were: 'enjoyment', 'physical health', 'having fun', 'foster self-esteem', 'friendship', 'passion or love the game', and 'peer acceptance', 'to contest winners', 'to become a coach', 'to satisfy family's will' [e.g., Breese 1998; Claver *et al.* 2017; Zeng 2018; Zeng *et al.* 2015, Zeng, Meng 2017].

Additionally, research findings accepted that: engagement motivations support successful sport performance; representing one of the most important psychological skills in the sport he/she is engaging in [Lippitt 2012; Miguel, Machar 2007]. Based upon those findings from the previous studies, however, we are still concerned about: whether or not nowadays the YMAS engage in their martial arts practices and competitions are really motivated by those factors/reasons as have been described above? After all, the facts showed that research studies involved in youth sports especially in YMAS' engagement motivations and health related behaviors were enormously inadequate.

Purpose and Hypotheses

From the above introduction and background, although some of the reasons have been known in general, little is known about what kinds of factors/reasons that actually motivated those YMAS who actually have been engaged in martial-arts practices and competitions for years are. Therefore, the purposes of this study were: to explore and examine what (RFs) truly motivated the YMAS who have been engaged in practices and competitions for years. The following specific hypotheses guided our study: (a) no significant differences would be found on the motivation RFs between boys and girls participants; (b) no significant differences would be found on the motivation RFs between the participants' 'Ages (younger or older)'; (c) no significant differences would be found on the motivation RFs between the participants' skill-levels' (high or medium); (d) no significant differences would be found on the motivation RFs between the participants' 'Counties' (PRC or USA). To explore what would be the features of health related behaviors on 'Eating habits', 'Nutrition knowledge and status', 'Risk behaviors', and 'Hygiene behaviors' of the participants? Findings from the present study would reveal a set of fresh data and first-hand description into the youth athletes study literature, especially concerning youth martial-arts athletes'

engagement motivations and their health related behaviors during their practices and competitions.

Theoretical Framework

A comprehensive theoretical framework named 'self-determination theory' (SDT) [Deci, Ryan 2002] was employed as the theoretical frame of the present study. The SDT is comprised of two major branches: the theory of intrinsic motivation and the theory of extrinsic motivation. Ryan and Deci [2000] indicated that: humans are motivated by three basic psychological needs: competence, relatedness, and autonomy. The competence need in the SDT model is called effectiveness motivation; the relatedness need refers to people's need to belong and to feel accepted by others; the autonomy need, however, refers to people's need to feel self-determined, which is the source of their own action [Ryan, Deci 2000].

With respect to the organismic needs energizing intrinsic and extrinsic motivations, Harter [1981], Pintrich and Schunk [2002] had the same view: the concept of need in itself is too general and too ambiguous to illustrate the engagement in particular behaviors; using this concept to guide empirical research is difficult. Researchers, therefore, developed a few models describing how different motivations triggered by a need manifest in intrinsic and extrinsic motivation in specific aspects or activities [Pintrich, Schunk 2002]. Stipek [1996] indicated that the research literature is quite consistent with respect to the benefits of intrinsic motivation to learning and development; that is, engagement based on intrinsic motivation does not need external incentives or rewarding and is able to enhance the motivations necessary to engage in the same activity again and again in the future [Stipek 1996]. Based on that Kaplan [2010] further explained: engagements based on intrinsic motivations are connected with enhanced comprehension, creativity, cognitive flexibility, accomplishment, and so on [Kaplan 2010].

About this idea, Breese [1998] further clarified that athletics' initial motivation should be defined as intrinsic motivation (engagement in sport for enjoyment) or extrinsic motivation (engagement in sport to win rewards [Breese 1998]). He further illustrated that: athletics' initial motivation usually predicts athletes' attendance and adherence to a particular sport [Breese 1998]. Such as in the present study, a youth martial-arts athlete who is intrinsically motivated would be this who goes to play or practice his/her skills every other day for fun; whereas a martial-arts athlete who is extrinsically motivated would be the one who goes to practice his/her martial-arts skills to become a better athlete at the competition so that he/she could win rewards at competitions. It is interesting to know that intrinsic and extrinsic motivations have different effects on an athlete; whether or not he/she continues the sport he/she had chosen.

Similarly, researchers emphasized that individuals who were mainly motivated by competence (engaging in practices to improve skills) and enjoyment (desire to have fun and enjoyment) could be primarily defined as being motivated intrinsically. On the other hand, extrinsically motivated individuals are those behaviors performed in competitions aimed at obtaining rewards or consequences that are unconnected from the behavior itself [Breese 1998; Ryan, Deci 2000]. More specifically, Breese [1998] explained that, when athletes begin participation in a particular sport, they are motivated not only by intrinsic factors but also by extrinsic factors [Breese 1998]. Particular sports, however, may be more dependent on intrinsic motivation than extrinsic motivation [Ryan, Deci 2000]. The reasons are: different types of sports need different types of motivation [Child 1990; Ryan *et al.* 1997]. In the present study, we were trying to find evidence or factors that have actually motivated the youth athletes who have engaged in martial-arts competitions for numbers of years.

Furthermore, as regards how educators (coach or teacher) apply the 'Self Determination Theory' to enhance their coaching or teaching, Kaplan [2010] in his review of literature article described that: "While some important variation exists, there seems to be a wide-spread consensus among researchers and educators that enhancing intrinsic motivation among athletes or students is beneficial [Kaplan 2010]. He continued, "Kids' intrinsic motivation is enhanced when practices promote their sense of personal autonomy, when team or schoolwork are challenging and relevant to them, when social relationships are supportive, and when environments are physically and psychologically safe [Kaplan 2010]. Additionally researchers stressed that practices that promote these environmental characteristics include providing athletes / students with choices among activities and between ways of completing tasks, encouraging athletes / students to explore and pursue their ambition, building on their backgrounds and prior experiences in constructing tasks, encouraging them to collaborate, incorporating fantasy in activities, providing feedback that is informative and frequent, and reducing external rewards [Kaplan 2010; Ryan *et al.* 1997; Zeng, Meng 2017].

Likewise, in many cases, youth athletes are required to engage in tasks that they are not motivated in or do not understand why they have to do. Under such circumstances the extrinsic motivations should be implemented to those tasks. However, coaches / teachers should pursue the internalization of youth athletes' extrinsic motivation for these tasks. Such internalization can be promoted by employing as many of the descriptions specified previously as possible [Kaplan 2010; Ryan *et al.* 1997; Smith *et al.* 2006; Stipek 1996]. Further, coaches should make the value of the tasks explicit and clear. These can be done most effectively through modeling and by providing a clear and age-appropriate rationale for the youth athletes [Kaplan 2010; Ryan *et al.* 1997; Smith *et al.* 2006; Stipek 1996].

2. Methods

The participants in the current study were purposefully selected from 20 martial-arts schools / clubs wherein 12 were selected from the metropolitan of Shu Zhou, PRC and eight were selected from the city of New York, USA. Most schools / clubs selected from both PRC and USA belong to private education system, and all these martial-arts schools / clubs regular attend regional or citywide martial-arts competitions [Child 1990; China Middle School Sports Association 2017; Cynarski 2013; Cox 2011].

The Instrumentation

The Adapted Youth Martial-arts Athletes' Motivation and Health Related Behaviors Questionnaire (AYMAMHRBQ) was employed for data collection [Zeng, Meng 2017]. The reasons for using the AYMAMHRBQ were: a) an existing questionnaire with similar purposes is available; b) to develop a new questionnaire, time and funding are needed; c) specialists in martial-arts athletes' motivation and health-related behaviors study are available to revise the wordings to fit in using for youth martial-arts athletes; and d) research assistants and youth martial-arts coaches are available for distributing and collecting the questionnaires.

As a result, the AYMAMHRBQ [Zeng, Meng 2017] contained three parts: Part I requested 'General Information', containing eight questions that covered participant's general information. Part II examined, "What reasons/factors motivated you to engage in martial-arts practices and competitions continually" with 19 reasons/factors (RFs) provided. For each RF, the participants could respond to a 5-points *Likert-type scale* (5-points represents "Very strong fit", 4-points represents "Strong fit", 3-points represents "Fit", 2-points represents "Somewhat-fit" and 1-points represents "Little-fit"). Part III checked 27 health related behaviors that under were the following four sub-categories: 'Eating habits', 'Nutrition Knowledge and Status', 'Risk Behavior', and 'Hygiene Behaviors'. To be clearer, these 27 health-related questions or behaviors in the part III belong to qualitative data, hence, the frequency and percentage were used for dealing with this data [Devine, Lepisto 2005; Zeng, Meng 2017].

In brief, Part II of the questionnaire contains ten intrinsic motivation factors (items 1, 2, 4, 7, 8, 10, 13, 14, 15, and 17) and nine extrinsic motivation factors (items 3, 5, 6, 9, 11, 12, 16, 18, and 19). In other words, it included the three basic psychological needs (competence, relatedness, and autonomy) that were described by Ryan and Deci [2000]. Part III contains 27 health related behaviors of the youth athletes, which is qualitative data [Devine, Lepisto 2005]. All questions/items in the AYMAMHRBQ can be found in Table 2 and Appendix A*. (*Due to words limitation, Appendix A has been omitted.)

Data Collection

The questionnaires were distributed to the participants during their regional / city martial-arts competitions by the research assistants or coaches under the supervision of their administrators. The participants had the right to participate or not participate and the 'confidentiality' of the survey was also informed in writing. An explanation about how to respond to the questions/items was also provided to the participants. After that the participants were asked "Please fill in the 'Informed Consent form' and then return it back to your coaches".

All coaches / administrators of selected martial-arts schools/teams were informed that, after all research works will be completed; they would be provided the overall findings or outcomes. As a result, among the 200 questionnaires delivered, 163 were correctly completed and returned to the researchers (92 from PRC, 71 from USA; return rate = 81.5%).

Research Design and Data Analyses

The research design and data analyses for the present study were: first, to look at the effects of four independent variables on the 19 dependent variables, which are 'Gender (boys, girls)', 'Ages (Younger, Older)', 'Skill-levels (High, Medium)', 'Countries (USA, PRC)' at the same time. Hence, a 2 x 2 x 2 x 2 MANOVA test was adopted. The descriptive statistics reflected the general effects of how these YMAS were motivated to engage in martial-arts practices and competitions; if there were significant difference to be found, a follow-up MANOVA test would be executed for determine where/what differences really exist among the independent variables associated with the 19 dependent variables. The statistical program used for the data analysis and processing was the SPSS 25.0 (Chicago, IL).

Secondly, as regards participants' health related behaviors that are the Part III in the questionnaire. The 'Eating habits', 'Nutrition Knowledge and Status', 'Risk Behaviors', and 'Hygiene Behaviors' four sub-categories were designed for reflecting the participants' present status of health related behaviors. Because of the structures and characteristics of these items / behaviors, frequency and percentage methods were utilized for data analyzing [Devine, Lepisto 2005].

3. Results

The aims of this study were to discover what reasons/factors actually motivated these YMAS to engage in martial arts; and to reveal their health related behaviors status. First, among the 200 questionnaires distributed, 163 were completed correctly and returned to the researchers; that was 81.5 percent return rate. Second, data in Table

Table 2. Motivation factors that motivated the Participants: Means score and Standard Deviations ($N = 163$, 92 Chinese, 71 American; Ages = 15.71 (± 3.05); Gender (84 Boys, 79 Girls); Skill-levels (65 High, 98 Medium)

Motivation Factors (MF)	Mean \pm S.D.	Sum	Rank
MF 1 Because martial-arts have high technical content and unique value.	4.534 \pm .705	739.000	1
MF 2 For the fun and get rid of boredom.	4.209 \pm .939	686.000	3
MF 3 In order to be healthier.	4.086 \pm 1.177	666.000	7
MF 4 In order to have fun and be happy.	4.024 \pm .867	656.000	9
MF 5 In order to meet friends.	3.994 \pm .996	651.000	10
MF 6 In order to make new friends.	4.172 \pm .920	680.000	4
MF 7 In order to win contests.	4.104 \pm 1.063	669.000	6
MF 8 In order to develop self-defense skills.	3.386 \pm 1.159	552.000	16
MF 9 In order to improve physical health.	4.227 \pm .957	689.000	2
MF 10 In order to become a martial-arts professional in the near future.	3.932 \pm 1.106	641.000	11
MF 11 In order to foster self-esteem.	4.117 \pm .952	671.000	5
MF 12 In order to improve my own reputation.	3.816 \pm 1.067	622.000	12
MF 13 In order to establish prestige among my classmates / friends.	3.576 \pm 1.134	583.000	15
MF 14 In order to get the recognition from my teacher / coach.	3.730 \pm 1.247	608.000	13
MF 15 In order to reduce the learning / working pressure.	4.037 \pm 1.191	658.000	8
MF 16 In order to reduce the troubles from learning / work.	3.675 \pm 1.216	599.000	14
MF 17 In order to develop unique skills	2.883 \pm 1.330	470.000	18
MF 18 In order to become a martial-arts coach in near future.	3.153 \pm 1.272	414.000	17
MF 19 In order to satisfy the will of family.	2.411 \pm 1.530	393.000	19

Note. a) The motivation factors (MF); b) 2, 4, 7, 8, 10, 13, 14, 15, and 17 are 'Intrinsic motivation factors'; c) the MF 3, 5, 6, 9, 11, 12, 16, 18, and 19 are 'Extrinsic motivation factors'.

Table 3. The 2 Gender (*Male, Female*) x 2 Ages (*Younger, Older*) x 2 skill-levels (*High, Medium*) x 2 Countries (*PRC, USA*) MANOVA for the youth martial arts athletes' motivation factors ($N = 163$. 92 from PRC, 71 from USA; Ages = 15.71 (± 3.05); Gender (84 Male, 79 Female); Skill-levels (High = 65, Medium = 98).

Source	Wilks' Lambda	F	Hypo <i>df</i>	Error <i>df</i>	P
Gender	.595	4.618 ^b	19.000	129.000	.000
Ages	.735	2.447 ^b	19.000	129.000	.002
Skill-levels	.820	1.494 ^b	19.000	129.000	.098
Countries	.547	5.622 ^b	19.000	129.000	.000

Note. ^b Exact statistic.

and what motivation factors that truly motivated these YMAS' engagement in their practices and competitions.

Data in Table 4 were from the follow up test, it determined where/what RFs really had differences and reflected the factors that truly motivated the YMAS be primarily and continually engaged in their martial arts practices and competitions.

Major Findings:

As showed in Table 2, the highest score factors were the following six MFs: MF1 'Martial-arts content & value' ($M = 4.491 \pm .795$); MF9 'To improve health' ($M = 4.227 \pm .957$); MF2 'For the fun' ($M = 4.209 \pm .939$); MF6 'To make new friends' ($M = 4.172 \pm .920$); MF11 'To foster self-esteem' ($M = 4.117 \pm .952$); and MF7 'To win a contest' ($M = 4.104 \pm 1.063$). These six factors possessed the highest impact power on these YTPs' motivations.

The bottom seven factors' mean score were: MF14 'To get the recognition' ($M = 3.730 \pm 1.247$); MF16 'To

reduce the troubles' ($M = 3.675 \pm 1.216$); MF13 'To establish prestige' ($M = 3.576 \pm 1.134$); MF16 'To develop self-defense skills' ($M = 3.386 \pm 1.159$); MF18 'To become a martial-arts coach' ($M = 3.153 \pm 1.272$); MF17 'To develop unique skills' ($M = 2.883 \pm 1.330$); and MF19 'To satisfy the will of family' ($M = 2.411 \pm 1.530$); and these seven factors possessed less or lowest impact power on these youth martial-arts athletes' motivations.

The other six factors' mean scores were located the medium level. These MFs were: MF3 'For getting healthier' ($M = 4.086 \pm 1.177$); MF15 'To reduce pressure' ($M = 4.037 \pm 1.191$); MF4 'For having fun and happy' ($M = 4.024 \pm .867$); MF5 'For meet friends' ($M = 3.994 \pm .996$); MF10 'For become a martial-arts professional' ($M = 3.932 \pm 1.106$); and MF12 'For my reputation' ($M = 3.816 \pm 1.067$). These six factors possess medium impact power on these youth martial-arts athletes' participation motivations.

The findings from the Part III of the AYMAMHRBQ (27) were summarized in Table 5:

Table 4. Descriptive statistics for comparing the scores of youth martial arts students in nineteen MFs after significant differences were found in Gender (84 Male, 79 Female), 'Countries' (PRC, USA), and Ages = 15.71 (± 3.05); ($N = 163$).

Motivation Factors (MF)	Gender Mean (SD)		Ages Mean (SD)		Countries Mean (SD)	
	84 Male vs. 79 Female		98 ages 12-15 vs. 65 ages 16-18*		92 from PRC vs. 71 from USA	
MF1.	4.559 \pm .829	4.506 \pm .735	4.502 \pm .789	4.480 \pm .699	4.348 \pm .817	4.774 \pm .421
MF2.	4.273 \pm 1.010	4.139 \pm .858	4.153 \pm 1.008	4.292 \pm .823	4.217 \pm 1.003	4.197 \pm .855
MF3.	4.190 \pm 1.226	3.974 \pm 1.120	4.224 \pm 1.050	3.876 \pm 1.328	4.402 \pm .902	3.676 \pm 1.360*
MF4.	4.118 \pm .923	3.924 \pm .797	4.000 \pm .861	4.061 \pm .881	4.272 \pm .826	3.704 \pm .817*
MF5.	4.154 \pm .829	3.823 \pm 1.071*	4.000 \pm .994	3.984 \pm 1.004	4.152 \pm .837	3.788 \pm 1.145*
MF6.	4.417 \pm .829	3.911 \pm 1.002*	4.133 \pm .881	4.231 \pm .980	4.119 \pm 1.014	4.239 \pm .783
MF7.	4.238 \pm .952	3.962 \pm 1.159	4.081 \pm 1.109	4.138 \pm .998	4.054 \pm .953	4.169 \pm 1.195
MF8.	3.928 \pm 1.395	2.810 \pm 1.601*	3.469 \pm 1.587	3.261 \pm 1.613	3.489 \pm 1.278	3.253 \pm 1.349
MF9.	4.238 \pm .964	4.215 \pm .956	4.234 \pm 1.003	4.215 \pm .892	4.228 \pm 1.038	4.225 \pm .848
MF10.	4.023 \pm 1.029	3.835 \pm 1.181	3.918 \pm 1.099	3.953 \pm 1.124	4.272 \pm .973	3.493 \pm 1.119*
MF11.	4.202 \pm 1.027	4.025 \pm .861	4.183 \pm .912	4.015 \pm 1.007	4.271 \pm .826	3.915 \pm 1.065
MF12.	4.024 \pm .829	3.595 \pm 1.138*	3.745 \pm 1.058	3.923 \pm 1.079	4.022 \pm 1.022	3.549 \pm .967*
MF13.	3.428 \pm 1.450	3.734 \pm 1.140	3.387 \pm .952	3.861 \pm 1.171*	4.033 \pm 1.042	2.986 \pm 1.398*
MF14.	3.821 \pm 1.223	3.633 \pm 1.272	3.622 \pm 1.304	3.982 \pm 1.147	3.978 \pm 1.128	3.408 \pm 1.326*
MF15.	4.131 \pm 1.169	3.936 \pm 1.212	3.989 \pm 1.247	4.107 \pm 1.105	4.000 \pm 1.129	4.085 \pm 1.273
MF16.	3.952 \pm 1.118	3.379 \pm 1.253*	3.602 \pm 1.268	3.784 \pm 1.138	4.076 \pm 1.008	3.155 \pm 1.271*
MF17.	2.714 \pm 1.285	3.063 \pm 1.362	*3.031 \pm 1.327	2.661 \pm 1.314*	3.217 \pm 1.184	2.450 \pm 1.391*
MF18.	3.155 \pm .736	3.152 \pm .848	3.224 \pm .818	3.046 \pm .738	*2.967 \pm .601	3.394 \pm .933*
MF19.	*1.750 \pm 1.149	3.114 \pm 1.576*	2.357 \pm 1.466	2.492 \pm 1.631	*2.032 \pm 1.386	2.901 \pm 1.578*

Note. 1) This was the follow up test to determine what MFs actually exist significant differences within the 'Gender', 'Ages' and 'Countries' independent variables. 2) The results revealed that: there were 19 comparisons reached significant differences at $p < .05$ * level; wherein six in 'Gender', two in 'Ages' and xx in 'Countries'.

* = $p < .05$ level and 11 in 'Countries'.3) # = the score in left column greater than the score in right column.

Data presented in Table 5 reflected the unique features and current status of these youth martial-arts athletes' health-related behaviors. We considered these four sub-categories of health-related behaviors are very important to the youth martial-arts athletes and possess a positive relationship with whether they can develop into successful athletes or not. That is, the better their health-related behaviors, the more chances they can become elite athletes. Furthermore, from the educational perspective, coaches / instructors / administrators who work for the youth martial-arts athletes should educate their athletes / students to gradually develop these positive health related behaviors, so that they can eventually form those health related behaviors. The following were the significant factors worthy to pay attention: A. For the 'Eating habits' sub-category: 1) 86.5% of them described their eating habits are under the very regular or regular, but about 13.5% of them claimed their eating habits are not so regular; 2) 83.4% of them ate 3 meals per day; 3) 17.2% of them reported they add salt to their food / dishes; 4) 46.6% of them did not reduce the amount of sugars they eat; 5) 36.2% of them drink 3-4 cups of milk / yogurt / juice per day; and 6) 95.7% of them reported they never dine before and after strenuous exercise.

B. For the 'Nutrition knowledge and status' sub-category: 7) 52.8% of them reported they possess good nutrition knowledge; 8) 47.8% of them said they eat fruit once per day; 9) 66.9% of them said they eat vegetables twice per day, 10) 57.1% of them reported they eat fish

once every other day; 11) 56.4% of them reported they do not eat bread but rice every day; 12) 54.6% of them reported they eat dinner with meat more than 4 times in a week; 13) as to their favorite meat, the order was: Pork, Chicken, Veal / Calf, and then Fish; 14) only 7.4% of them reported they did not eat fried foods.

C. For the 'Risk behavior' sub-category, 15) 6% of them said they never drink alcohol, 10% of them reported they seldom drink alcohol, 58% of them admitted they once in a while drink alcohol, and about 28% of them reported they drink alcohol whenever they obtain a reason; 16) 73% of them reported they never smoke cigarettes. Items 17 to 19, no need to highlight (see Table 5).

D. For the 'Hygiene behaviors' sub-category, 20) 61% of them claimed they use sun cream whenever they have an reason; 21) 88% of them said they take a shower after practicing or competition; 22) 59% of them claimed they wash their hands whenever it is needed to; 23) 100% of them claimed they brush their teeth twice to three times per day; 24) 93% of them claimed they use extra mouth hygiene, only 7% of them did not use extra mouth hygiene; 25) 60% of them claimed they had good or very good sleep after an intensive practice; 26) 35% of them reported after an intensive competition/game their sleep was good but 26% of them claimed their sleep was not so good; and 27) 58% of them said that whenever sweating they drink water immediately and 26% of them reported whenever sweating they drink beverages immediately.

Table 5. Summarize of youth Martial Arts Students' health-related behaviors in Part III of the questionnaire [N = 163, Ages = 15.71 (± 3.05); 92 Chinese, 71 American; Gender (84 Boys, 79 Girls); Skill-levels (65 High, 98 Medium)]

Sub-category one. The 'Eating habits' (6)

-
1. Do you eat regularly? – check one most fit your situation:
- | | |
|---|---|
| a) My eating is very regular (87 / 53.4%) | b) My eating is regular (54 / 33.1%) |
| c) My eating is unregular (15 / 9.2%) | d) My eating is very unregular (7 / 4.3%) |
2. How many meals do you eat a day?
- | | |
|---------------------------------------|----------------------------------|
| a) Less than 3 times per day (0 / 0%) | b) 3 times per day (136 / 83.4%) |
| c) 4-5 times per day (27 / 16.6%) | d) Others (0 / 0%) |
3. Do you add salt to your dishes?
- | | |
|--------------------------------|--------------------------------|
| a) Yes, always (9 / 5.5%) | b) Sometimes, yes (19 / 11.7%) |
| c) Sometimes - no (86 / 52.8%) | d) No, I don't (49 / 30.1%) |
4. Do you try to cut down on the amount of sugar you eat?
- | | |
|--------------------------------|---------------------------------|
| a) Yes (0 / 0%) | b) Sometimes - yes (29 / 17.8%) |
| c) Sometimes - no (58 / 35.6%) | d) No, I don't (76 / 46.6%) |
5. How many glasses of milk or dairy products (yogurt, juice) do you drink per day?
- | | |
|---------------------------------|---|
| a) 1-2 cups (36 / 22.1%) | b) 3-4 cups (59 / 36.2%) |
| c) More than 5 cups (13 / 8.0%) | d) I don't drink milk but I drink yogurt (55 / 33.7%) |
6. Do you dine before and after strenuous exercise?
- | | |
|---------------------------------|--------------------------------|
| a) Yes (0 / 0%) | b) Sometimes I do (0 / 0%) |
| c) I occasionally do (7 / 4.3%) | d) I never do so (156 / 95.7%) |

Sub-category two. The 'Nutrition knowledge and status' (8)

-
7. How is your knowledge status about nutrition?
- | | |
|---------------------------|---------------------------|
| a) Very good (59 / 36.2%) | b) Good (86 / 52.8%) |
| c) Ordinary (10 / 6.1%) | d) Not so good (8 / 4.9%) |
8. How often do you eat fruit?
- | | |
|---|--------------------------------------|
| a) Once per day (78 / 47.8%) | b) Twice per day (36 / 22.1%) |
| c) More than three times per day (7 / 4.3%) | d) Once every other day (42 / 25.8%) |
9. How often do you eat vegetables?
- | | |
|---|--------------------------------------|
| a) Once per day (26 / 15.9%) | b) Twice per day (109 / 66.9%) |
| c) More than three times per day (0 / 0%) | d) Once every other day (28 / 17.2%) |
10. How often do you eat fish?
- | | |
|---|--------------------------------------|
| a) Once per day (52 / 31.9%) | b) Twice per day (18 / 11.0%) |
| c) More than three times per day (0 / 0%) | d) Once every other day (93 / 57.1%) |
11. Do you eat wholemeal bread?
- | | |
|--|--------------------------------------|
| a) Once per day (54 / 33.1%) | b) Twice per day (47 / 28.8%) |
| c) I don't eat bread but rice every day (92 / 56.4%) | d) Once every other day (64 / 39.3%) |
12. How many times do you eat dinner with meat in a week?
- | | |
|-----------------------------------|-------------------------------------|
| a) 1-2 times (0 / 0%) | b) 3-4 times (0 / 0%) |
| c) More than 4 times (89 / 54.6%) | d) Every day in a week (74 / 45.4%) |
13. What is your favorite meat?
- | | |
|-----------------------------|----------------------|
| a) Chicken (51 / 31.3%) | b) Pork (52 / 31.9%) |
| c) Veal / Calf (33 / 23.3%) | d) Fish (27 / 16.6%) |
14. Do you eat fried foods?
- | | |
|---|--|
| a) I occasionally eat (61 / 37.4%) | b) I sometimes eat (39 / 23.9%) |
| c) Yes I like eating fried foods (51 / 31.3%) | d) No, I do not eat fried food (12 / 7.4%) |

Sub-category three. The 'Risk behavior' (5)

-
15. How often do you drink alcohol?
- | | |
|---------------------------------|--|
| a) Never (0 / 0%) | b) Seldom (0 / 0%) |
| c) Once in a while (78 / 47.9%) | d) Whenever I have a reason (85 / 52.1%) |
16. Do you smoke cigarettes?
- | | |
|---------------------------------|--|
| a) Never (19 / 11.7%) | b) Seldom (91 / 55.8%) |
| c) Once in a while (35 / 21.5%) | d) Whenever I have a reason (18 / 11.0%) |
17. Do you use any psychoactive substances?
- | | |
|-----------------------------|--------------------------------------|
| a) Never (0 / 0%) | b) Seldom (0 / 0%) |
| c) Once in a while (0 / 0%) | d) Whenever I have a reason (0 / 0%) |
18. Did you use anabolic steroid?
- | | |
|-----------------------------|--------------------------------------|
| a) Never (0 / 0%) | b) Seldom (0 / 0%) |
| c) once in a while (0 / 0%) | d) Whenever I have a reason (0 / 0%) |
19. Do you know what health consequences to applying prohibited anabolic steroid or different kind of doping substances?
- | | |
|---------------------------------------|--|
| a) Yes, I know them well (67 / 41.1%) | b) Yes, I know some of them (82 / 50.3%) |
| c) No, I am not sure (11 / 6.7%) | d) No, I don't know them at all (3 / 1.8%) |
-

Sub-category four. The 'Hygiene behaviors' (8)

-
20. Do you use sun cream when you practice martial arts?
 a) Never (97 / 59.5%)
 b) Seldom (0 / 0 %)
 c) Once in a while (0 / 0 %)
 d) Yes, if I practice it out door (66 / 40.5%)
21. Do you take a shower after practicing or competition?
 a) Yes, of course I do (148 / 90.8%)
 b) No, just want to go home ASAP. (4 / 2.4%)
 c) Most of time I do (11 / 6.7%)
 d) No, because I do want to (0 / 0 %)
22. How often do you wash your hands daily?
 a) Once a day (0 / 0 %)
 b) Two to three times (0 / 0 %)
 c) Before every meal (56 / 34.3 %)
 d) Whenever it is need to (107 / 66.7%)
23. How often do you brush your teeth daily?
 a) Once per day (0 / 0 %)
 b) Twice per day (93 / 57.1%)
 c) Three times per day (70 / 42.9%)
 d) Never (0 / 0 %)
24. Do you use extra hygiene mouth? Yes! – circle the things you used, can be more than one:
 a) Dentist's threads (109 / 66.9%)
 b) Teeth Liquids to rinsing (136 / 83.4%)
 c) Dental floss (115 / 70.5%)
 d) No, I never use extra hygiene mouth (0 / 0 %)
25. After an intensive practice, how was the quality of your sleep?
 a) Very good (88 / 54.0%)
 b) Good (29 / 17.8%)
 c) Normal (41 / 25.1%)
 d) Not so good (5 / 3.1%)
26. After an intensive competition, how is the quality of your sleep?
 a) Very good (34 / 20.8%)
 b) Good (39 / 23.9%)
 c) Normal (56 / 34.4%)
 d) Not so good (34 / 20.8%)
27. When sweating, do you drink water or beverages immediately?
 a) Yes, I drink water immediately (76 / 46.6%)
 b) I don't drink any of them immediately (38 / 23.3%)
 c) I drink beverages immediately (45 / 27.6%)
 d) I drink water but not immediately (4 / 2.4%)
-

4. Discussion

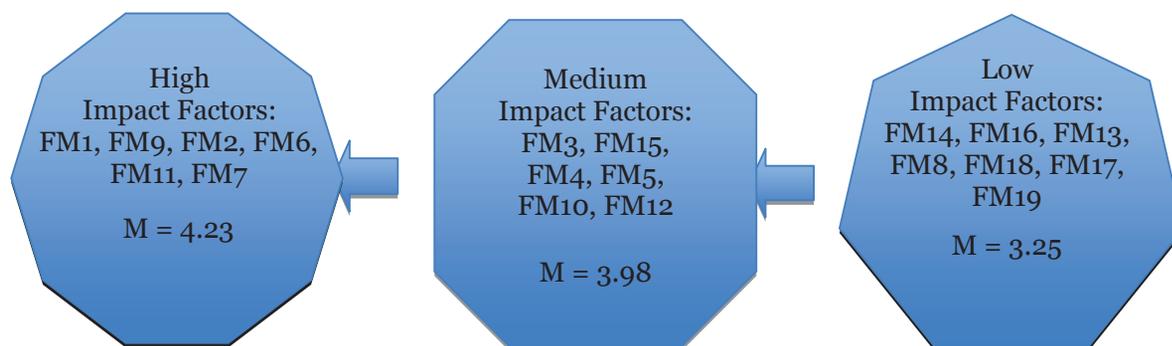
The present study aimed at: 1) investigating the current status and features of these YMAs' engagement motivations and their health related behaviors; and 2) examining whether or not differences exist between these YMAs' 'Gender (Boys, Girls)', 'Ages (Younger, Older)', 'Skills-levels (High, Medium)', and 'Countries (PRC, USA)' in their motivation factors. According to the data exhibited in Table 2, the "current status and features" can be described as the following: a) The high impact factors group, containing MF1, MF9, M2, MF6, MF11, and MF7 reflected the highest score and impact power on the motivations of this sample's YMAs. Amazingly, among these six MFs, the MF1, M2, and MF7 are within the 'Intrinsic factors' category, while the other three MFs are belong to the 'Extrinsic factors' category - MF9, MF6, MF11. b) The medium impact factors group with intermediate high scores, including MF3, MF15, MF4, MF5, M10 and MF12 reflected medium impact power on this sample's YMAs' motivations. Interestingly, among these six MFs there are four MFs are in the 'Intrinsic factors' category: including MF15, MF4, MF10, and MF14; but the other two MFs (MF3 & MF12) are belong to the 'Extrinsic factors' category. c) The lower impact factors group, comprising MF14, MF16, MF13, MF5, MF8, MF18, MF17 and MF19 reflected notably lower impact power on these YMAs' motivations. Unbelievably, there are four MFs in the 'Intrinsic factors' category - MF14, MF13, MF8, and MF17, but other three MFs are from the 'Extrinsic factors' category - MF16, MF18, and MF19. (See Table 2 and Fig.1).

In summary, 1) regarding these YMAs' motivation features, the 'Intrinsic factors' and the 'Extrinsic fac-

tors' appear to possess similar impact power on their engagement motivations; 2) the ten 'Intrinsic factors' from the AYTPMHRBQ [Zeng, Meng 2017] appear to possess slightly higher impact power than those of the then 'Extrinsic factors' and should be considered as the core motivation factors; and 3) there are some MFs possessed higher impact power than the other MFs, there are some MFs held less impact power than the others MFs as well; youth martial arts coaches, trainers or administrators should make careful diagnose and analyze their students' specific situation and implement our findings accordingly. The motivation features of this sample YMAs can be summarized as Fig. 1.

Second, for the four specific hypotheses of "examining if differences exist on the motivation factors among the four independence variables ('Gender', 'Ages', 'Skill-levels' and 'Countries'), the findings revealed that: the hypotheses for 'Skill-levels' was true. That was: no significant differences on the motivation factors between the YMAs who possessed "high skills" or "medium skills". The hypotheses for 'Gender', 'Ages', and 'Countries', however, were not true. That were: significant differences were found on the motivation factors between 'Gender (Boys, Girls)' 'Ages (Younger, Older)' and 'Countries (PRC, USA)' (See Table 3).

Third, the following up 2 'Gender (Boys, Girls)' x 2 'Ages (Younger, Older)' x 2 'Countries (PRC, USA)' MANOVA test determined where and what MFs that truly motivated these YMAs engaged in martial arts practices and competitions. The findings were: 1) six out of 19 comparisons showed significant differences within the 'Gender' aspect; wherein 5 comparisons at significant $p < .05$ level; and one comparisons at significant $p < .01$ level.

Fig. 1. Motivation features of the participants [$N = 163$, Ages = 15.71 (± 3.05), 84 Boys, 79 girls, 92 from PRC, 71 from USA].

Note. a) The motivation factor (MF) 1, 2, 4, 7, 8, 10, 13, 14, 15, and 17 are 'Intrinsic motivation factors'; b) the MF 3, 5, 6, 9, 11, 12, 16, 18, and 19 are 'Extrinsic motivation factors'; c) The grand mean for all three groups = $M_{\text{Grand}} = 3.82$, and d) These 19 factors reflected the 'Competence Needs', the 'Relatedness Needs' and the 'Autonomy Need' in the 'Self-Determination Theory' model interpreted by Ryan and Deci [2000].

2). In 'Ages' aspect, however, there were only two out of 19 comparisons reached significant differences ($p < .05$) level with one comparison 'Younger' group scored higher than the 'Older' group, and one comparison 'Older' group scored higher than the 'Younger' group (See Table 4). 3) 'Countries' aspect, 11 out of 19 comparisons showed significant differences at ($p < .05$) level; wherein nine out of the 11 were the YMAs from the PRC scored higher than the YMAs from the USA; while there were also two out of the 11 were the YMAs from the USA scored higher than the YMAs from the PRC (See Table 4).

This finding implies that even if there were 19 out of 57 comparisons reached significant ($p < .05$) level, it does not mean those 19 MFs play much important roles in the participants' engagement motivations and other MFs can be ignored. To better develop or improve the participants' motivations, educators still need to implement the "three needs", that are the 'Competence Needs', 'Relatedness Needs' 'Autonomy Need' as a whole process interpreted by Ryan and Deci [2000].

Moreover, from the other perspective, although no one can exactly tell what the reasons behind these are. It probably relates to those YMAs who are financially 'Supported by-parents' were a lot more serious on their engagement in their practices, and might more care about their family will. This was supported by the findings of a previous study in youth athletes' motivation, stated that: "motivation need support and need satisfaction" [Lippitt 2012], and "among the sources of supporting, parents' supporting was rated on the top; while among the sources of satisfaction factors, satisfy family's will was rated as one of the important factors as well [Lippitt 2012]. Additionally, from the other perspective, although no one can exactly identify the reasons behind those findings, but it may logically relate to those YMAs who being supported by their parents were more seriously engaged in their practices and competitions, and take their family's will more seriously.

As to why the motivations score exist such obviously differences between the YMAs who from the PRC or the USA? According to the inside sources of the participants' teams or schools, the truth was: there are many more children in the PRC than in the US practice martial arts. The YMAs from the PRC participated in the present study have been selected from many other students. These YMAs are the winners of multiple levels competition. Before they got into their martial arts school or were able to represent the school they were studying in, they had had lots of experiences / practices in order to accomplish their current skills level. This is why they possess higher motivation to become elite martial-arts athletes. When their goal will be accomplished, they will obtain a lot more opportunities than other regular students to win the extra credits to go to college/university, or get a pretty good job after high school graduation.

In comparison, a) kids engaged in martial arts practices and competitions in the US were mainly motivated by the following factors: MF1 (martial-arts' technical content & unique value), MF6 (To make new friends), FM7 (To win contests), MF9 (For physical health), MF15 (To reduce pressure), MF18 (To become a martial-arts coach), and MF19 (To satisfy the will of family) – See table 4. b) With respect to young people's future, the US has much more opportunities to go to college/university, not only the population problem but also the colleges/universities quantity issues. c) Even in case of getting a good job after high school graduation, young people in the US have more options and opportunities to get the one they want. d) The last factor may relate to the fact that almost all the martial arts schools/clubs in the USA are run by private business owners, as long as the athletes pay for their practices hours or rank of competition their will get what they want to. All the stated above may be the reasons why the YMAs from the USA score lower than those of the YMAs from the PRC.

Then, what else can be discussed? Besides certain differences existing between the present study and those previous studies, there are some similarities as well. For example, using the previous studies' findings from the sport of basketball and soccer, such as: "Research studies in youth athletes' participation motivations in soccer, and basketball" by Zeng *et al.* [2017; Zeng 2018]. It is not hard to find out that differences and similarities exist in the same time. First, Zeng and Meng [2017] summarized that: the top six factors for the youth basketball players were "Technical content and unique value", "To develop a extraordinary skills", "To get healthier", "for enjoyment and happiness", "To improve my own-biography", and "To improve physical fitness" [Zeng, Meng 2017]. Second, in another youth athletes' motivation research study, Zeng [2018] and Zeng *et al.* [2018] indicated that: the highest six factors that truly motivated the youth soccer athletes' engaged in practices and competition were "Technical content & unique value", "To become a soccer coach", "To meet friends", "To make new friends", "To establish prestige", and "To build my biography".

Moreover, Miguel and Machar [2017] in their review of literature "Motivation in Tennis" summarized that: 1) 'Enjoyment', 'Having fun', and 'Passion on the sport' were rated as top three important motivation factors for the success of youth martial-arts athletes, 2) 'To improve performance', 'Keeping fit' and 'Socializing' were rated as their basic reasons for them keep involved in the sport, 3) 'Feeling important and popular', and 'Earning rewards' were ranked as lower influence motivations, 4) School / club / team atmosphere and having a good relationship with the coach were also ranked as less or lower important factors on players' motivation [Miguel, Machar 2007]. Additionally, Miguel and Machar [2007] indicated that, team atmosphere has positive relationship with players' engagement motivations, means that: the closer team atmosphere, the higher engagement motivations.

By comparing the findings on the top six motivation factors from three different research projects (Note. using the grand mean scores only), we found that: Soccer $M_{grand} = 4.40$ (30); Volleyball $M_{grand} = 4.25$; Tennis $M_{grand} = 4.23$. With Soccer ranked No. 1, Volleyball No. 2, and Tennis No. 3 [Zeng 2018; Zeng, Meng 2017, Zeng *et al.* 2018]. What is this means? In our point of view, this may relate to their "School / club / team atmosphere". Obviously, soccer and volleyball are team sports and possess stronger team atmosphere than martial arts. Hence, martial arts athletes possess weaker team atmosphere than those of team sports is understandable.

On the other hand, due to lack of study has covered the 'Health-related behaviors' in the youth martial arts athletes topic that we will not make comparison about it. The present study did an exploring survey in this concern. To the results presented in Table 5, we are not in the position to make judgment about how good or

not so good about their 'Health-Related Behaviors', but the findings in Table 5 did reflect the current status of 'Health Related Behaviors' of the participants. Generally speaking, information presented in Table 5 belongs to a set of qualitative data; each item provided four options; participant can circle the option that best matches his/her situation. Frequency and percentage in each item was used for reflecting the results.

The big picture is, these results means: 1) during their practices and competitions these youth martial-arts athletes obtained suitable education in 'Eating habits', 'Nutrition knowledge', 'Risk behaviors', and 'Hygiene behaviors' from their coaches / instructors. 2) There is room for improvement regarding their 'Health-Related Behaviors' although their scores in all items were quite positive. 3) These results have also indirectly reflected these youth martial arts schools / clubs have established strict regulations to manage their youth students' daily life. From health education perspective, we believe that this positive and attractive thing deserves to be endorsed and praised. From this perspective, our findings are consistent with the point view from a literature review by Geidne *et al.* [2013]; which stated that: building up healthy public policy in youth sports is important, organizations of youth sports should recognize and match up with the changes in health regulations at a central level, and then implement these regulations to different types youth sports schools / clubs. Concerning all the changes in regulations or policies, there is one thing in common: that is, youth athletes' health must be put in the management agenda [Geidne *et al.* 2013].

Conclusions

In conclusion, (a) the following reasons/factors are crucial and play important roles in the youth martial arts athletes / students' engagement motivations. Note: 'Technical content & unique value', 'To improve health', 'To have fun', 'To make new friends', 'To foster self-esteem', 'To win contests', 'To get healthier', 'To reduce pressure'. Although the other MFs in AYAMHRBQ [Zeng, Meng 2017] are essential, they are not as powerful as the above nine MFs. (Note. see Fig. 1 for details).

(b) The findings of this research revealed that: 'the skill-level' is not a determining aspect; but 'Gender', 'Ages', and 'Countries' aspects are. Which means that in order to maintain and improve the YMAS' engagement motivations level, coaches and instructors who work in the youth martial arts schools/clubs need to make sure there is enough support from parents and schools; especially the support from their parents.

(c) The findings showed that: the 'Intrinsic factors' possess slightly higher impact than the 'Extrinsic factors'. Such as: 'Technical content & unique value', 'To have fun', 'For enjoyment and to feel happy', 'To win contests' and

'To become a martial-arts professional' are curtail to form these YMAS' motivations.

(d) Other MFs possess less impact power, but it does not mean these MFs can be ignored. Youth martial arts educators need to base on careful diagnosis and analysis of their athletes / students' situations and employ these research findings correspondingly.

(e) As to the health related behaviors, it can be concluded that the score of this sample's YMAS was in the position between 'Very good - 4' and 'Good' - 3', if using a four points assessment scale.

Recommendations

The present study investigated the youth martial-arts athletes' engagement motivations and health related behaviors. From other standpoint, pleasant and active relationship between coaches and athletes/students also influenced YMAS' engagement motivations. Although the values of YMAS' engagement motivations have been recognized by many youth sports researchers [e.g., Kaplan 2010; Lippitt 2012; Miguel, Machar 2007; Pintrich, Schunk 2002; Zeng 2018; Zeng *et al.* 2018], further studies, however, are definitely needed, especially in the area of how the intrinsic motivations and extrinsic motivations impact on different types of youth martial-arts athletes, in particular: 1) athletes/students who are fully supported by their parents or who lack the support from their parents; 2) athletes/students who want to become a martial art professional or non-professional; and 3) those engaged in martial arts competitions for a long time (e.g., five years or longer) or not so long (2 years of less). Furthermore, those health-related behaviors which have been investigated in the present study could be another research topic, it deserves more attention from researchers to find out many details and relationships among the four sub-categories, because only those youth athletes/students who develop their positive health-related behaviors during their youth years have a chance to become future elite martial-arts athletes and make their sport-star dream come true.

Application in youth sports

The findings of this study added a set of fresh data and information regarding the essential reasons / factors that truly motivated the youth martial-arts athletes engaged in practices and competitions; and precious features about youth martial-arts athletes' health related behaviors. These findings can be lively examples and meaningful evidence to apply to youth sports educational programs / curriculum. If this can be done, better and more systematic teaching, coaching and managing in youth sports will soon be realized.

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Badanie motywacji do uprawiania sztuk walki przez młodzieżowych zawodników oraz ich zachowania związane ze zdrowiem

Słowa kluczowe: sport młodzieżowy, praktyka, zawody, coaching, zarządzanie

Abstrakt

Cel. Naukowe badania dotyczące młodzieżowych zawodników sztuk walki (YMA) stały się coraz bardziej powszechne i dogłębne od czasu pierwszych Młodzieżowych Igrzysk Olimpijskich w 2010 roku. Celem niniejszego artykułu jest zbadanie motywacji do zaangażowania się w sztuki walki, młodzieżowych zawodników, ich treningi i zawody oraz zachowania związane ze zdrowiem.

Metoda. Uczestnikami badania było 163 młodych adeptów sztuk walki (w wieku = 12-18 lat, 84 chłopców, 79 dziewcząt, 71 Amerykanów, 92 Chińczyków). Zbieranie danych odbywało się za pomocą kwestionariusza „Motywacje i zachowania behawioralne związane z zdrowiem” zawierającym 19 pytań badających uczestników w związku z ich motywacją oraz 27 pytań dotyczących zachowania związanego ze zdrowiem. W analizie danych pojawiły się następujące kryteria: 2 x Płeć (chłopiec, dziewczynka), 2 x Wiek (młodszy, starszy), 2 x Poziomy umiejętności (wysoki, średni), 2 x Kraje (ChRL, USA). Zastosowano analizę MANOVA i inne stosowne metody.

Wyniki. Trzy najlepsze wyniki wśród 19 czynników motywacyjnych to: „Cenna wartość”, „Poprawa zdrowia”, „Dobra zabawa”. „Poziomy umiejętności” nie różniły się znacząco, w przeciwieństwie do kategorii „Płeć”, „Wiek” i „Kraje”. Analiza MANOVA wykazała, że: chłopcy uzyskali wyższe wyniki w pięciu czynnikach motywacyjnych niż dziewczęta, a dziewczęta osiągnęły wyższe wyniki w jednym punkcie niż chłopcy. Osoby „Starsze wiekiem” uzyskały znacznie wyższe wyniki w punkcie „Prestiż” niż osoby „Młodsze wiekiem”; ale osoby

„Młodsze wiekiem” uzyskały znacznie wyższą ocenę niż osoby „Starsze wiekiem” w „Rozwijaniu unikalnych umiejętności”. Jedenaście spośród 19 porównań osiągnęło znaczne różnice w aspekcie „Kraje”. Opisano i omówiono cenne cechy związane z zachowaniami związanymi ze zdrowiem młodzieżowych zawodników sztuk walki.

Wniosek. Podczas badania poziomu motywacji młodzieżowych zawodników sztuk walki „Poziomy umiejętności” nie były determinującym aspektem, w przeciwieństwie do kategorii „Płeć”, „Wiek” i „Kraje”. Cechy zachowań zdrowotnych młodzieżowych zawodników mają ważne znaczenie dla poprawy coachingu i zarządzania.