

ORIGINAL ARTICLE



Motives for the Participation of Female Athletes in “Masculine” Sports and its Relation with Menstrual Disorder

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ABSTRACT

Background. There has been a continuous increase in the participation of female athletes in “masculine” sports competitions and this is in line with the amplifying debate of whether this activity is appropriate for women in Indonesia. **Objectives.** This study aims to determine women's athletic motives for participating in “masculine” sports and their relationship with the incidence of dysmenorrhea. **Methods.** This research is a quantitative study with a cross-sectional approach. The sample of this research is 137 female athletes by purposive sampling. The questionnaire was distributed to obtain data on extrinsic and intrinsic motives as well as the incidence of dysmenorrhea. The analysis used multinomial regression. **Results.** The results showed that there was an influence between the athlete's motivation and the incidence of moderate dysmenorrhea ($p=0.024$; $RRR=8.5$), there was a relationship between athlete's motivation and the incidence of severe dysmenorrhea ($p=0.024$; $RRR=21.5$), besides there was an influence between early menarche and the incidence of moderate dysmenorrhea ($p=0.005$; $RRR=0.3$) and there was an effect of early menarche with the incidence of severe dysmenorrhea levels ($p=0.022$; $RRR=0.02$). **Conclusions.** The extrinsic motivation variable is the most influential for the occurrence of dysmenorrhea, so it is necessary to increase the intrinsic motivation of athletes both by themselves and by the coach.

KEYWORDS: *Motives, Menstrual Cycle, Masculine Sports.*

INTRODUCTION

Currently, the performance of female participants in sports activities has significantly increased. However, the encroachment of “masculine” sports such as football, boxing, judo, wrestling, and others, is still considered negative in the sociology context (1). Although, in Indonesia, there has been a change of view, therefore true equality is increasingly visible in terms of the participation number and quality. Women's interest in obtaining high achievements in strenuous sports is not only shown by the increasing rate of participation but by the amplifying number of competitions that involve women, as well. The phenomenon of women's involvement in masculine sports is different from

the past, where they were mostly directed to 'ladylike' sports activities and did not require the dominance of strength, power, and masculinity. Presently, there is a change in the perception of some women groups that believe that all sports should be carried out, which is seen by the men as a big slap. Some doubts in society are reflected in the following sentence, "which woman is willing to partake in this kind of 'fierce' activity? What kind of woman can grapple with the world of 'freemen'? This question is certainly not easy to answer.

The involvement of female athletes in “masculine” sports in the context of achievement is not only constrained by the problem of

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community view, which places them in a cultural context (2) but often associated with physiological problems (menstruation). During menstruation, many women experience various disorders that may interfere with their activities, which include physical disorders such as pain in joints and muscles, as well as psychological obstacles such as sensitivity and feelings of laziness. The menstrual cycle is considered to be a disruption in the training and competition process because this condition tends to have an impact on their emotion and stimulates changes in movement as well. Furthermore, the existence of very strong pressure related to menstruation has been reported in various sources (3).

In Indonesian culture, parents often do not want their daughters to engage in strenuous sports that require dominant physical strength. They prohibit girls from participating in martial arts, although they are aware of the importance of equipping their children with martial arts to survive (4). Furthermore, there are still public opinions that view some sports as just for men and another related to the unnatural nature of women partaking in a challenging and masculine activities. Consequently, the involvement of women in “masculine” sports activities often faces various obstacles, including the emergence of negative reactions, one of which is women's football competition. This was due to the opinion that it is not suitable for them and the perception that it is capable of shifting men's popularity.

However, in the context of high-level sports, women are presumably lower in motivation compared to men (5). The source reference suggests that they are considered weak individuals that cannot surpass men. Furthermore, they are seen as a group that having various disadvantages compared to men (6). Another piece of information states that female athletes have better abilities, compared to men (7). Meanwhile, the desire for achievement by some women can overcome the fear of a negative impact on their body development due to participating in strenuous physical activity (8).

The presence of several athletes in boxing sports competitions opens the public's perception that this condition can provide sufficient tolerance towards feminists. This is because it allows clear boundaries between men and women

to be almost limitless. The issue of physiological barriers, especially concerning menstrual problems experienced by female athletes, is not in line with the statement that, there is no medical indication that a woman should stop physical activity during menstruation, even when such individual may wish to avoid it due to specific symptoms (9). This is because, women generally have their ability to respond to every menstrual symptom, therefore there is a balance between physical and psychological effects. The menstrual disorder has been reported to be common in female athletes, while there are little data on athletes without this syndrome (10). The perception of women's involvement in strenuous sports also raises an image that these activities will interfere with the reproductive system (11). Information regarding the impact of their physical activity as “masculine” athletes on menstrual disorders becomes a reference in designing activities during training and competition. The results of this study are expected to provide valuable contributions for athletes, coaches, and administrators so that the achievement of several “masculine” sports can be maximally implemented and the negative impact can be minimized. It is hoped that a large enough opportunity for them to achieve achievement will be able to overcome concerns about the negative impact that may arise. Research related to the prevalence of dysmenorrhea in athletes and the effect of moderate physical activity to decrease dysmenorrhea is also already established (12). However, little is known about the motives of female athletes to participate in “masculine” sport and their correlation with dysmenorrhea. Therefore, this study aims to examine the motives that lead female athletes into participating in “masculine” sports. Furthermore, it revealed to what extent the strenuous physical activity undertaken by athletes affects menstrual disorder.

MATERIALS AND METHODS

Study Methods. This research is a quantitative study with a cross-sectional approach. The population of this study was all of the best Indonesian female athletes from each province who had participated in the centralization training for the 2021 National Sports Week and who were prepared to take part in the ASEAN Games competition in 2022.

Participants. A total of 137 national athletes from 10 different sports, such as wrestling, kurash, drajat fighting, rowing, diving, football, futsal, weightlifting, water polo, judo, and

Muaythai, were used as samples. They were within the age range of 15 - 37 years, with a length of exercise 2 - 18 years. The following is the distribution of samples and sports (Table 1).

Table 1. Distribution of Samples and Sports

No	Sports	Sample	Age	Length of Exercise
1	Wrestling	4	22-26	9 – 11
2	Kurash	2	18-22	6-9
3	Drajat Fighting	16	15-28	2-10
4	Rowing	18	16-28	2 – 13
5	Sea diving (OBA)	10	15-32	7 – 18
6	Football	22	16-28	2-17
7	Futsal	19	19-29	3-16
8	Weightlifting	5	9-28	9-12
9	Water Polo	18	13-26	2-12
10	Judo	16	18-34	2-20
11	Muaythai	6	18-32	2-5
	Total sample	137		

Table 2. Content Validity Index (CVI)

Variable	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Number of agreements	I-CVI
Level of Dysmenorrhea	1	1	1	1	1	5	5/5=1,00
Motivation	1	1	0	1	1	4	4/5= 0,80
Early Menarche	0	1	1	1	1	4	4/5=0,80
Length of exercise	1	1	1	1	1	5	5/5=1,00
Age	1	1	1	1	1	5	5/5=1,00
Type of Sport	0	1	1	1	1	4	4/5=0,80

Table 3. Frequency distribution of Indonesian national female athletes

Variable	No.	Percentage (%)
Level of dysmenorrhea		
Low	17	12.4
Moderate	61	44.5
Heavy	59	43.1
Motivation		
Intrinsic	71	51.8
Extrinsic	66	48.2
Early Menarche		
No	76	55.5
Yes	61	44.5
Length of Exercise		
< 5 years	61	44.5
5-10 years	47	34.3
>10 years	29	21.2
Age		
< 21 years old	81	59.1
≥21 years old	56	40.9
Type of sport		
Measurable of sports	46	33.6
Sport games	47	34.3
Martial sports	44	32.1
Total	137	100

The sample achievement profiles include the best athletes from each province, that have participated in centralization exercises to prepare for competition at the national level (PON) in 2021, Sea Games in 2021, and Asian Games in

2022, as well as being prepared to participate in a single world championship event.

Data Collection. Data and information were obtained using several techniques such as observation, interviews, and questionnaires.

Furthermore, the proximity of the author to sports coaches and referees at the national level, as well as the social media existence, facilitated the study process without reducing the meaningfulness of the information obtained. A thematic analysis framework was included in the questionnaire, therefore the information obtained was following a theme to be revealed (13, 14).

The data was collected through interviews using a questionnaire that had previously been tested for validity. The validity test used is the Content Validity Index (CVI), which is validity involving more than 1 expert and by calculating the agreement of the experts' assessment of the question item. Lyne recommends using at least 3 experts and a maximum of 10 experts. In this study, 5 experts were used to assess whether the questionnaire was feasible or not to be used in research (15). The recommended measurement scale is ordinal, then for each item, the I-CVI is calculated as the number of experts who give a good rating, namely 3 or 4. Items that are considered sufficient or highly relevant by four out of five assessors will have an I-CVI of 0, 80 (16).

Table 2 shows that the questionnaire containing questions about the level of dysmenorrhea, motivation, length of exercise, age, and type of exercise is valid and can be used in research.

The dependent variable (level of dysmenorrhea) in this study uses a scale using The Numeric Rating Scale (NRS), namely a scale of 1-10 then dividing it into 3 categories by calculating the Quintile Plot so that 3 categories are obtained as follows:

- 0: quintile 1 (Low)
- 1: quintile 2 (Moderate)
- 2: quintile 3 (Heavy)

The independent variables used in this study are:

- Motivation
 - 0: Intrinsic (Chance, Hobby, health, interested)
 - 1: Extrinsic (economy, gifts, reward, parents, coach, friend invitation)
- Early Menarche
 - 0: No
 - 1: Yes
- Length of Exercise

- 0: < 5 years
- 1: 5-10 years
- 2: >10 years
 - Age (average age of female athletes = 21 years)
 - 0: <21 years old
 - 1: ≥21 years old
 - Type of sport
 - 0: Measurable of sports (rowing, diving, water polo, weightlifting)
 - 1: Sports games (Futsal, Soccer)
 - 2: Martial sport (Muaythai, Kurash, Tarung Drajat, Judo, Wrestling)

Data Analysis. The analysis step carried out in this study began with conducting descriptive statistical analysis. Then make submissions simultaneously using multinomial regression from the independent variable to the dependent variable. Then the model suitability test is carried out to determine whether the model is suitable for use. After that, the independent variables were tested simultaneously to determine which variables had a significant impact. From these significant variables, modeling is made. Furthermore, the relative risk ratio (RRR) is tested to determine the influence of the independent variable on the dependent variable. The last stage is interpreting the test results obtained. Analyzes were performed using STATA statistical software version 16.

RESULTS

The data obtained were as many as 137 female athletes who were in sports. Based on these data, 44.5% of Indonesian national female athletes complained of moderate levels of dysmenorrhea, 51.8% of athletes had intrinsic motivation to train in sports, 55.5% of athletes experienced early menarche, 44.5% of female athletes were already pursuing sports. and started training less than five years, the age of the athletes in this study was 59.1% less than 21 years, and the type of sport that was most taken was sports, namely 34.3% (Table 3).

Multinomial regression analysis with 5 independent variables observed in this study was tested simultaneously by including all variables. At the initial testing stage, the results obtained whether the independent variables used to influence the dependent variable. The hypothesis used in this study are:

H0: $\beta_1 = \beta_2 = \dots = \beta_k = 0$ (there is no effect of the independent variable on the dependent variable)

H1: $\beta \neq 0$ (There is at least one independent variable that affects the dependent variable)

Table 4 shows if the p-value is 0.001. So by using $\alpha = 0.05$ where the p-value is smaller, then H0 is rejected, which means that at least one independent variable affects the dependent variable. Furthermore, the model suitability test is carried out. The results of these tests can be seen in Table 5.

Table 4. Likelihood Ratio Test Results

	X2	df	P-Value
Final	76.4	10	0.001

Table 5. Model Fit Test (Goodness of Fit)

	Chi-Square	df	P-value
Pearson	91.8	94	0.046
Deviance	81.5	94	0.818
Classification accuracy	69.3		

This model suitability test is conducted to determine the role of the independent variables in the model being tested simultaneously or together. The results of the suitability test of this model can be seen in Table 5, it can be seen that the test with Pearson's correlation statistic produces a p-value: 0.046 and Deviance with a p-value of 0.818. So it can be concluded that the model without certain independent variables is the best model and the logit model is feasible to use. In Table 4, 69.3% is obtained for

classification accuracy. This means that the independent variable can explain the dysmenorrhea level variable by 69.3%.

Table 6 shows that 54.9% of female athletes who experience severe dysmenorrhea have extrinsic motivation in themselves. 69.7% of female athletes with severe dysmenorrhea experience early menarche, 58.6% of female athletes with severe dysmenorrhea have been training as athletes for more than 10 years, most of the female athletes who have moderate dysmenorrhea are aged < 21 years and as many as 50 % of female athletes with severe dysmenorrhea follow measurable sports.

A variable is said to be influential if the p-value < α (0.05), while for other variables it does not significantly influence the dependent variable. The results of the multinomial regression test simultaneously obtained 2 variables from 5 significant independent variables, namely motivation and early menarche. The Relative Risk Ratio (RRR) value can be interpreted as follows, female athletes who have extrinsic motivation when participating in sports and participating in competitions have an 8.5 times risk of experiencing moderate dysmenorrhea compared to those with mild dysmenorrhea, as well as athletes who have extrinsic motivation at risk 21.9 times experienced severe dysmenorrhea than athletes with mild dysmenorrhea.

Table 6. Cross-tabulation of the dependent variable and the independent variable

Variable	Level of Dysmenorrhea					
	Low		Moderate		Heavy	
	N	%	N	%	N	%
Motivation						
Intrinsic	15	21.1	39	54.9	17	23.9
Extrinsic	2	3.0	22	33.3	42	63.6
Early Menarche						
No	14	23.0	41	67.2	6	9.8
Yes	3	20	20	26.3	53	69.7
Length of Exercise						
< 5 years	10	16.4	27	44.4	24	39.3
5-10 years	5	10.6	24	51.1	18	38.3
>10 years	2	6.9	10	10	17	58.6
Age						
< 21 years old	9	11.1	40	49.4	32	39.5
≥21 years old	8	14.3	21	39.5	27	48.2
Type of sport						
Measurable of sports	6	13.0	17	37.0	5	50.0
Sport games	6	12.8	21	44.7	23	42.6
Martial sports	17	11.4	23	52.3	16	36.4

Table 7. Multinomial Regression

Variable	Coef	S.E	P-value	RRR
Low				
Motivation				
Intrinsic	Baseline	Baseline	Baseline	Baseline
Extrinsic	2.14	0.95	0.024	8.5
Early Menarche				
No	Baseline	Baseline	Baseline	Baseline
Yes	1.18	0.83	0.005	0.3
Length of Exercise				
< 5 years	Baseline	Baseline	Baseline	Baseline
5-10 years	0.99	0.70	0.158	2.7
>10 years	1.74	1.02	0.087	5.7
Age				
< 21 years old	Baseline	Baseline	Baseline	Baseline
≥21 years old	1.4	0.79	0.064	0.22
Type of sport				
Measurable of sports	Baseline	Baseline	Baseline	Baseline
Sport games	0.12	0.76	0.876	0.9
Martial sports	0.58	0.81	0.473	1.8
Cons	1.55	1.05	0.137	4.7
Heavy				
Motivation				
Intrinsic	Baseline	Baseline	Baseline	Baseline
Extrinsic	3.1	1.00	0.002	21.9
Early Menarche				
No	Baseline	Baseline	Baseline	Baseline
Yes	3.8	0.93	0.002	0.02
Length of Exercise				
< 5 years	Baseline	Baseline	Baseline	Baseline
5-10 years	1.0	0.82	0.213	2.8
>10 years	2.9	1.12	0.010	18.1
Age				
< 21 years old	Baseline	Baseline	Baseline	Baseline
≥21 years old	1.8	0.89	0.041	0.2
Type of sport				
Measurable of sports	Baseline	Baseline	Baseline	Baseline
Sport games	1.02	0.24	0.242	0.4
Martial sports	0.67	0.94	0.942	1.1
Cons	2.33	1.09	0.033	10.3

Female athletes who experience early menarche have an increased risk of 0.3 times experiencing moderate dysmenorrhea, while athletes who experience early menarche will have 0.02 times the risk of experiencing severe dysmenorrhea compared to athletes with moderate dysmenorrhea (Table 7).

DISCUSSION

The result of our study showed that 44.5% of Indonesian national female athletes complained of moderate levels of dysmenorrhea. Dysmenorrhea is the presence of painful cramps from the uterus that occur during menstruation, besides the other most common symptom that can be felt is pelvic pain (17). The data show that one

in four women experience dysmenorrhea (18). Menstrual pain is a very common problem, but of course, this can also affect the process of training in female athletes. Several studies mentioned moderate physical activity can decrease dysmenorrhea (19, 20).

51.8% of athletes had intrinsic motivation to train in sports. Several structural-functional theories that support the sexual division concept of labor assume that physical activity will cause harm to the development of females (21). In anthropology, it is still strongly felt that men have a much stronger authority compared to women (11). Furthermore, studies in economics still indicate that men's productivity is much stronger,

while the impression of women as reproductive creatures is still very strong. The depiction of the sexuality element on the women's involvement in sports activities still dominantly influences men's interest in watching sports activities involving women (22). Patriarchal culture positions women in domestic roles such as nurturing, educating, and guarding morals. Meanwhile, the men's role is as the household head, decision-maker, and breadwinner. The extension of the various roles attached to women has led to the assumption to date that they cannot be placed in certain positions and this is the basis of an argument that for certain activities, women are declared to be uncommon or inappropriate (23).

55.5% of athletes experienced early menarche. This finding contrasts with previous studies which stated that the incidence of menarche in athletes showed a significant delay in menarche, of about one year, in athletes compared to controls. Most of the research was conducted on elite athletes; however, studies of novice athletes also showed a significant delay of about half a year (24).

34.3% of female athletes choose sports games. Some of the behaviors often displayed by athletes that chose "masculine" sports have raised various questions in regards to the real motive behind them being involved in the sport. Encroachment on several "strenuous" sports started decades ago. Their lack of involvement in "male" sports activities in the public is an impact of the gender coverage inequality (25). Therefore, the perception that divides 'masculine' and 'feminine' sports is a serious obstacle that limits women's space in the world of sport (26). There are differences in the behavior of girls that participate in masculine sports such as karate and futsal with aerobics and volleyball (27).

The understanding of women versus men as many have described has implications for women's participation in sports activities (28). Some individuals still question the role of women, especially those involved in several sports such as boxing, weight lifting, rowing, wrestling, football, and others with strong, dominant characteristics and male characteristics. This condition is possible, because it is still influenced by past perceptions, where society places men to be very dominant, and there is a

"natural hierarchy" that places men as leaders and women dealing with domestic problems (11, 18). Sport is considered as a reflection that shows a masculine and feminine difference (29).

Furthermore, it is an activity that portrays men as masculine but does not portray femininity as a characteristic of a woman (30). Since 1980, several studies have focused on the description of sports activities that have constantly reconstructed hegemonic masculinity through symbolic strength (31). The emergence of few female athletes in "masculine" sports is believed to increase self-confidence and preparation for various challenges in society (4). Therefore, women's participation in sports has a very good impact on providing mental strength (32). Various reasons behind them were revealed not only to increase mental endurance but also to make their involvement in the world of "men" as part of efforts to improve welfare because of achievements today increase prestige. Van Heerden (2014) divides the motives of participating athletes in sports into two, namely intrinsic motives (opportunities, hobbies, health, character interests) and extrinsic motives (economics, parents, coaches, friend invitations) (33). The results showed that 51.8% of Indonesia's national female athletes had intrinsic motives to participate in sports championships.

The participation of females in it aims to reinforce masculine identity through physical activity that is strenuous, abusive, violent, aggressive, conquest, domination, and competitive. It is an ecstatic experience for them when imaged as macho, manly, and celebrated as a hero/champion. Meanwhile, women's participation in it is always faced with an ideal image of femininity, weakness, and lower status compared to men (34). This is because, there are differences in the perceptions between male and female athletes in response to body conditions, namely female athletes tend to be affected by body weight, which in turn affects anxiety and diet (35).

Women that choose to pursue hard or masculine sports are generally motivated by more open opportunities for achievement because the sport's characteristic matches their personality. Furthermore, encouragement from family and the environment, desire to increase their health status, as an outlet and obtain satisfaction due to

challenging experiences, as well as economic needs background are quite strong in influencing their involvement in this sport. Meanwhile, concerning the natural conditions experienced by each woman, a different response was seen. This is because, heavy physical activity both during training and competition affects menstruation with very severe, severe, and mild disorders. One of the disorders often experienced by female athletes is dysmenorrhea.

The results showed that 63% of Indonesian national female athletes who experienced severe dysmenorrhea had extrinsic motives. Female athletes with external motives were 21.9 times more likely to develop severe dysmenorrhea than athletes without or with moderate dysmenorrhea. The occurrence of severe dysmenorrhea in athletes who have extrinsic motives. The participation of athletes due to external motivation causes the pressure experienced more, this condition can affect various things, including eating disorders and body dissatisfaction (36), this condition can indirectly cause dysmenorrhea

Motivation sport is a total power mover (motives) in the individual that produces activities, guarantees training day and giving directions on training activities to achieve goals What is desired (37, 38). Intrinsic motivation is the encouragement that causes individuals to participate. Athletes who have intrinsic motivation will be following ability-building exercises or skills, or enter a competition, not due to artificial situations (external forces), it is because of their inner satisfaction. For the athlete, the satisfaction in him is obtained through high achievement not through giving gifts, compliments, or other awards. Athlete this diligent, hardworking, organized, and disciplined in undergoing training as well as not hanging yourself in other people. In general, this athlete has maturity, honesty, sportsmanship, diligence, self-confidence, discipline, and creativity. Activities that are based on intrinsic motivation last longer than motivation other (39). On the other hand, Extrinsic motivation is a drive that comes from outside the individual causing an individual to participate in sports. Encouragement this comes from coaches, teachers, parents, coach, gifts, certificates, awards or money. Motivation extrinsic in sports

includes also motivation competitive because of the motive for competing plays a bigger role than the satisfaction of being accomplished good.

Victory is the only goal so that there can be a tendency to do cheating, lack of sportsmanship, or lack of honesty and cunning. Athletes are extrinsically motivated, often disrespectful for others, their opponents, or match rules (40).

Another factor that affects the incidence of dysmenorrhea in female national athletes in Indonesia is early menarche. Early menarche is considered the most important sign of puberty, which predicts the process of adolescent puberty and the onset of fertility (41). Early menarche occurs before the age of 12 (42). The results showed 69.7% of Indonesian female national athletes who had early menarche experienced severe dysmenorrhea. The female athletes who get early menarche are 0.3 times more likely to experience severe dysmenorrhea than female athletes who don't get early menarche. The results of this study are in line with research conducted by (43) which states that early menarche affects the incidence of dysmenorrhea, it causes young women to be exposed to longer hormones prostaglandins, causing a higher incidence of uterine dysmenorrhea in adolescents with early menarche. Usually, dysmenorrhea occurs 1 to 2 years after menarche, which can be considered an indicator of disrupted psychosocial adaptation in Girls 13 to 19 years.

Different studies have reported inconsistent results regarding the relationship between menarche age and menstrual problems among young women. Ibitoye states there is no relationship between the incidence of menarche (42). The focus of the study has been carried out by researchers, especially concerning the incidence of menstruation experienced by normal women. Menstruation limits activity as evidenced by a study in the various possibilities posed by sports activities (44) and its impact on the performance of female athletes (45). Strenuous physical activity also affects the incidence of menarche, where athletes generally experience delayed menarche (46).

Although motivation and early menarche have an effect on dysmenorrhea events in Indonesian female national athletes, however, several previous studies have provided facts that women can generally enjoy their physical activities, both

in terms of recreation and achievement, even when menstruating. It also showed that their involvement in masculine sports activities did not show any physical changes (47). Furthermore, many achievements are obtainable even when a female athlete is menstruating because the results from some studies have shown that menstruation is not a contraindication for physical activity. This result is mainly shown through healthy sports activities (not strenuous sports). Proper sport is also believed to reduce various menstrual disorders (45), such as symptoms of pain or dysmenorrhea and feelings of anxiety, which usually increase in the period of pre-menstruation. Furthermore, with the addition of fluid in the body, the discomfort in the breast area generally reduces through adequate sports activities. The ability of sports activities to reduce various symptoms of pain is made possible by the influence of the central neurotransmitter. This is due to the emergence of endorphins among sports individuals and reduced pain-carrying media in the uterus (prostaglandins). Therefore, by understanding the symptoms and effects of menstruation, it is possible to minimize and carry out proper management while training female athletes in masculine sports (48).

CONCLUSION

This study aimed to reveal the facts with regards to the reason for the participation of female athletes in masculine sports and its impact on them. It was seen that the eastern culture in Indonesian society is still strong in restricting women from determining their choice of sports. The open opportunities, due to the few numbers of women in “strenuous” sports, are

REFERENCES

1. Blodgett AT, Ge Y, Schinke RJ, McGannon KR. Intersecting identities of elite female boxers: Stories of cultural difference and marginalization in sport. *Psychol Sport Exerc.* 2017;**32**:83-92. doi: [10.1016/j.psychsport.2017.06.006](https://doi.org/10.1016/j.psychsport.2017.06.006)
2. Stronach M, Maxwell H, Pearce S. Indigenous Australian women promoting health through sport. *Sport Manag Rev.* 2019;**22**(1):5-20. doi: [10.1016/j.smr.2018.04.007](https://doi.org/10.1016/j.smr.2018.04.007)
3. Mohamed Y, Durrant K, Huggett C, Davis J, Macintyre A, Menu S, et al. A qualitative exploration of menstruation-related restrictive practices in Fiji, Solomon Islands and Papua New Guinea. *PLoS One.* 2018;**13**(12):e0208224. doi: [10.1371/journal.pone.0208224](https://doi.org/10.1371/journal.pone.0208224) pmid: [30507969](https://pubmed.ncbi.nlm.nih.gov/30507969/)
4. Hayhurst LMC, MacNeill M, Kidd B, Knoppers A. Gender relations, gender-based violence and sport for development and peace: Questions, concerns and cautions emerging from Uganda. *Women's Stud Int Forum.* 2014;**47**:157-167. doi: [10.1016/j.wsif.2014.07.011](https://doi.org/10.1016/j.wsif.2014.07.011)
5. Deaner RO, Balish SM, Lombardo MP. Sex differences in sports interest and motivation: An evolutionary perspective. *Evolution Behav Sci.* 2016;**10**(2):73-97. doi: [10.1037/ebs0000049](https://doi.org/10.1037/ebs0000049)

one of the strong reasons for their high achievements. Another motive for their involvement in the context of high-level sport is an achievement. The characteristics of the sports activities provide enough role and have become a reason to be involved as a choice of achievement. The dominant role of parents is also a determinant of their achievement. Opportunities to obtain health and economic rewards through the activities undertaken are also another way to attract the attention of women choosing masculine sports. The limitation of this study only discusses female athletes who participate in masculine sports. The psychological factors studied are only related to motives. Menstrual disorders associated with female athlete motives are also simply dysmenorrhea.

APPLICABLE REMARK

- The information obtained in this study is usable as a reference for developing women's potential in achievement sports.
- Furthermore, the results obtained are useful for coaches, management, physical education teachers, and the government to carry out activities in the field that are following the nature of Indonesian women but do not limit women's potential sports achievements.

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CONFLICT OF INTEREST

There was no conflict of interest concerning the study carried out.

6. Ottogalli-Mazzacavallo C, Szerdahelyi L. The Fight Against Gender Inequality in French Physical Education in the Late Twentieth Century: The Career and Pedagogical Innovation of Annick DAVISÉ—Regional Teaching Inspector for Physical Education. *Int J History Sport*. 2019;**35**(6):606-622. doi: [10.1080/09523367.2018.1544124](https://doi.org/10.1080/09523367.2018.1544124)
7. Comeig I, Grau-Grau A, Jaramillo-Gutiérrez A, Ramírez F. Gender, self-confidence, sports, and preferences for competition. *J Busin Res*. 2016;**69**(4):1418-1422. doi: [10.1016/j.jbusres.2015.10.118](https://doi.org/10.1016/j.jbusres.2015.10.118)
8. Lunde C, Gattario KH. Performance or appearance? Young female sport participants' body negotiations. *Body Image*. 2017;**21**:81-89. doi: [10.1016/j.bodyim.2017.03.001](https://doi.org/10.1016/j.bodyim.2017.03.001) pmid: 28365534
9. Ozbar N, Kayapinar FC, Karacabey K, Ozmerdivenli R. The Effect of Menstruation on Sports Women's Performance. *Stud Ethno-Med*. 2017;**10**(2):216-220. doi: [10.1080/09735070.2016.11905490](https://doi.org/10.1080/09735070.2016.11905490)
10. Stefani L, Galanti G, Lorini S, Beni G, Dei M, Maffulli N. Female athletes and menstrual disorders: a pilot study. *Muscle Ligament Tendons J*. 2019;**06**(02). doi: [10.32098/mltj.02.2016.03](https://doi.org/10.32098/mltj.02.2016.03)
11. Dashper K. Strong, active women:(Re) doing rural femininity through equestrian sport and leisure. *Ethnography*. 2016;**17**(3):350-368.
12. Matthewman G, Lee A, Kaur JG, Daley AJ. Physical activity for primary dysmenorrhea: a systematic review and meta-analysis of randomized controlled trials. *Am J Obstet Gynecol*. 2018;**219**(3):255 e251-255 e220. doi: [10.1016/j.ajog.2018.04.001](https://doi.org/10.1016/j.ajog.2018.04.001) pmid: 29630882
13. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*. 2006;**3**(2):77-101.
14. Dunn C. The impact of the supporters' trust movement on women's feelings and practices of their football fandom. *Soccer & Society*. 2015;**18**(4):462-475. doi: [10.1080/14660970.2014.980729](https://doi.org/10.1080/14660970.2014.980729)
15. Lynn MR. Determination and Quantification Of Content Validity. *Nurs Res*. 1986;**35**(6). doi: [10.1097/00006199-198611000-00017](https://doi.org/10.1097/00006199-198611000-00017)
16. Polit DF, Beck CT. The content validity index: are you sure you know what's being reported? Critique and recommendations. *Res Nurs Health*. 2006;**29**(5):489-497. doi: [10.1002/nur.20147](https://doi.org/10.1002/nur.20147) pmid: 16977646
17. Vannuccini S, Fondelli F, Clemenza S, Galanti G, Petraglia F. Dysmenorrhea and Heavy Menstrual Bleeding in Elite Female Athletes: Quality of Life and Perceived Stress. *Reprod Sci*. 2020;**27**(3):888-894. doi: [10.1007/s43032-019-00092-7](https://doi.org/10.1007/s43032-019-00092-7) pmid: 32046446
18. Grandi G, Ferrari S, Xholli A, Cannoletta M, Palma F, Romani C, et al. Prevalence of menstrual pain in young women: what is dysmenorrhea? *J Pain Res*. 2012;**5**:169-174. doi: [10.2147/JPR.S30602](https://doi.org/10.2147/JPR.S30602) pmid: 22792003
19. Sutar A, Paldhikar S, Shikalgar N, Ghodey S. "Effect of aerobic exercises on primary dysmenorrhoea in college students". *IOSR J Nurs Health Sci*. 2016;**05**(05):20-24. doi: [10.9790/1959-0505052024](https://doi.org/10.9790/1959-0505052024)
20. Findlay RJ, Macrae EHR, Whyte IY, Easton C, Forrest Nee Whyte LJ. How the menstrual cycle and menstruation affect sporting performance: experiences and perceptions of elite female rugby players. *Br J Sports Med*. 2020;**54**(18):1108-1113. doi: [10.1136/bjsports-2019-101486](https://doi.org/10.1136/bjsports-2019-101486) pmid: 32349965
21. Harmon KG, Drezner JA, Gammons M, Guskiewicz KM, Halstead M, Herring SA, et al. American Medical Society for Sports Medicine position statement: concussion in sport. *Br J Sports Med*. 2013;**47**(1):15-26. doi: [10.1136/bjsports-2012-091941](https://doi.org/10.1136/bjsports-2012-091941) pmid: 23243113
22. Kane MJ, LaVoi NM, Fink JS. Exploring Elite Female Athletes' Interpretations of Sport Media Images. *Commun Sport*. 2013;**1**(3):269-298. doi: [10.1177/2167479512473585](https://doi.org/10.1177/2167479512473585)
23. Menevşe A, Emin Ablay M. An Investigation of the Attitudes of Sports Media towards Women's Sports. *Univ J Edu Res*. 2019;**7**(1):87-94. doi: [10.13189/ujer.2019.070112](https://doi.org/10.13189/ujer.2019.070112)
24. Calthorpe L, Brage S, Ong KK. Systematic review and meta-analysis of the association between childhood physical activity and age at menarche. *Acta Paediatr*. 2019;**108**(6):1008-1015. doi: [10.1111/apa.14711](https://doi.org/10.1111/apa.14711) pmid: 30588652
25. Trolan EJ. The Impact of the Media on Gender Inequality within Sport. *Procedia - Soc Behav Sci*. 2013;**91**:215-227. doi: [10.1016/j.sbspro.2013.08.420](https://doi.org/10.1016/j.sbspro.2013.08.420)
26. Hardin M, Shain S. Female Sports Journalists: Are we there Yet? 'No'. *Newspaper Res J*. 2019;**26**(4):22-35. doi: [10.1177/073953290502600403](https://doi.org/10.1177/073953290502600403)
27. Zamani L, Taghi Aghdasi M, Shojaei M. Comparison of femininity and masculinity traits among athletes of selected sports. *Europ J Exper Biol*. 2012;**2**(4):965-968.

28. Bandy SJ, Gorib G, Jinxiac D. From women and sport to gender and sport: Transnational, transdisciplinary, and intersectional perspectives: Taylor & Francis; 2012.
29. Chinurum JN, Ogunjimi LO, O'Neill CB. Gender and Sports in Contemporary Society. *J Edu Soc Res*. 2014;**2**(1):128-139. doi: [10.5901/jesr.2014.v4n7p25](https://doi.org/10.5901/jesr.2014.v4n7p25)
30. Antunovic D. "We wouldn't say it to their faces": online harassment, women sports journalists, and feminism. *Feminist Media Stud*. 2018;**19**(3):428-442. doi: [10.1080/14680777.2018.1446454](https://doi.org/10.1080/14680777.2018.1446454)
31. Chinurum JN, Ogunjimi LO, O'Neill CB. Gender and Sports in Contemporary Society. *J Edu Soc Res*. 2014;**6**(2):215-230. doi: [10.5901/jesr.2014.v4n7p25](https://doi.org/10.5901/jesr.2014.v4n7p25)
32. Berdahl JL, Uhlmann EL, Bai F. Win-win: Female and male athletes from more gender equal nations perform better in international sports competitions. *J Experiment Soc Psychol*. 2015;**56**:1-3. doi: [10.1016/j.jesp.2014.08.003](https://doi.org/10.1016/j.jesp.2014.08.003)
33. Van Heerden C. The relationships between motivation type and sport participation among students in a South African context. *J Phys Edu Sport Manag*. 2014;**5**(6):66-71.
34. Allen KR, Kaestle CE, Goldberg AE. More Than Just a Punctuation Mark: How Boys and Young Men Learn About Menstruation. *J Famil Issu*. 2010;**32**(2):129-156. doi: [10.1177/0192513x10371609](https://doi.org/10.1177/0192513x10371609)
35. Herrero CP, Jejurikar N, Carter CW. The psychology of the female athlete: how mental health and wellness mediate sports performance, injury and recovery. *Annal Joint*. 2020;**2**(1):1-7. doi: [10.21037/aoj-20-53](https://doi.org/10.21037/aoj-20-53)
36. Peden J, Stiles BL, Vandehey M, Diekhoff G. The Effects of External Pressures and Competitiveness on Characteristics of Eating Disorders and Body Dissatisfaction. *J Sport Soc Issue*. 2008;**32**(4):415-429. doi: [10.1177/0193723508325638](https://doi.org/10.1177/0193723508325638)
37. Healy L, Tincknell-Smith A, Ntoumanis N. Goal Setting in Sport and Performance. Oxford Research Encyclopedia of Psychology. London: Oxford University Press; 2018. p. 1-23.
38. Moradi J, Bahrami A, Dana A. Motivation for Participation in Sports Based on Athletes in Team and Individual Sports. *Physic Cult Sport Stud Res*. 2020;**85**(1):14-21. doi: [10.2478/pcssr-2020-0002](https://doi.org/10.2478/pcssr-2020-0002)
39. Ahmed J, Jamshaid F. Intrinsic motivation: An analysis for elite Pakistani athletes of various major sports and games. *J Manag Info*. 2014;**1**(3):14-17. doi: [10.31580/jmi.v3i1.10](https://doi.org/10.31580/jmi.v3i1.10)
40. Sérgio LCdS, Luiz FCJ, Miguel AT, Jose LLL. Olympic and world champion judo athletes: Motivational aspects. *J Physic Edu Sport Manag*. 2017;**8**(2):24-31. doi: [10.5897/jpesm2016.0286](https://doi.org/10.5897/jpesm2016.0286)
41. Akbarzadeh M, Tayebi N, Abootalebi M. The Relationship between Age at Menarche and Primary Dysmenorrhea in Female Students of Shiraz Schools. *Shiraz E-Med J*. 2017;**18**(9). doi: [10.5812/semj.14520](https://doi.org/10.5812/semj.14520)
42. Ibitoye M, Choi C, Tai H, Lee G, Sommer M. Early menarche: A systematic review of its effect on sexual and reproductive health in low- and middle-income countries. *PLoS One*. 2017;**12**(6):e0178884. doi: [10.1371/journal.pone.0178884](https://doi.org/10.1371/journal.pone.0178884) pmid: 28591132
43. Charu S, Amita R, Sujoy R, Thomas GA. 'Menstrual characteristics' and 'Prevalence and Effect of Dysmenorrhea' on Quality of Life of medical students. *Int J Collab Res Int Med Pub Health*. 2012;**4**(4):0-0.
44. Matin Homai H, Sehati Shafai F, Zoodfekr L. Comparing Menarche Age, Menstrual Regularity, Dysmenorrhea and Analgesic Consumption among Athletic and Non-athletic Female Students at Universities of Tabriz-Iran. *Int J Women's Health Reprod Sci*. 2014;**2**(5):307-310. doi: [10.15296/ijwhr.2014.50](https://doi.org/10.15296/ijwhr.2014.50)
45. Köse B. Analysis of the Effect of Menstrual Cycle Phases on Aerobic-Anaerobic Capacity and Muscle Strength. *J Edu Train Stud*. 2018;**6**(8). doi: [10.11114/jets.v6i8.3207](https://doi.org/10.11114/jets.v6i8.3207)
46. McNulty KL, Elliott-Sale KJ, Dolan E, Swinton PA, Ansdell P, Goodall S, et al. The Effects of Menstrual Cycle Phase on Exercise Performance in Eumenorrhic Women: A Systematic Review and Meta-Analysis. *Sports Med*. 2020;**50**(10):1813-1827. doi: [10.1007/s40279-020-01319-3](https://doi.org/10.1007/s40279-020-01319-3) pmid: 32661839
47. Little AC, Jones BC. Variation in facial masculinity and symmetry preferences across the menstrual cycle is moderated by relationship context. *Psychoneuroendocrinology*. 2012;**37**(7):999-1008. doi: [10.1016/j.psyneuen.2011.11.007](https://doi.org/10.1016/j.psyneuen.2011.11.007) pmid: 22172641

48. Armour M, Parry KA, Steel K, Smith CA. Australian female athlete perceptions of the challenges associated with training and competing when menstrual symptoms are present. *Int J Sport Sci Coaching*. 2020;**15**(3):316-323. doi: [10.1177/1747954120916073](https://doi.org/10.1177/1747954120916073)