



Original Article

Physical Condition of Archery Athletes: Geographic and Demographic

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ABSTRACT

This study aimed to investigate the ability of the physical condition of PORPROV XIV athletes in archery in the KONI CIMAH I environment from demographic and geographical characteristics. The research method used was a quantitative descriptive method with a survey approach. The sample in the study was 16 athletes consisting of 8 female athletes and 8 male athletes with athlete characteristics in terms of gender, athlete age, domicile, and parental income. The sampling technique used is to use the saturated sample technique. Research instruments include yoyo tests to measure aspects of endurance; vertical jump test kits to measure limb power, to examine speed (speed) using a maximum speed of 30 meters and Sit and rich to examine flexibility. The results of this study are to have an average score of physical condition where athletes who are male (510.09), female (498.91), athletes living in rural areas (504.67), Urban (492.20), athletes with parental income of Rp. 71,200-Rp. 144,220 / day (517.81), >Rp.288,400 / day (516.32), Rp. 28,480-Rp. 56,960 / day (497.47), Rp. 158,620-Rp.288,400 / day (477.03), athletes aged 13-16 years (479.39), 17-20 (523.58), 17-24 (516.87), 28-30 (474.20). Thus, in this study, there is an average amount of different physical conditions of each KONI Cimahi archery athlete competing in the PorProv XIV West Java event in terms of gender, age, parental income, and domicile area.

Keywords: Physical Condition, Archery, Age, Gender, Parental Income, Rural and Urban

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INTRODUCTION

Archery is a sport that is not in demand. However, now archery has become a type of sport starting to be enjoyed by all groups, from children to

adults (Pratama et al., 2022). The increase in public interest in archery is due to the many events at the regional, national and international levels (Sari et al., 2020). One example of an archery sports event at the regional level, namely Porprov (Pekan Olahraga Provinsi or provincial sports week). Archery is one of the sports competed in a prestigious sports event in the West Java region, namely Porprov XIV. It was held in November 2022 by involving 16 archery athletes from Cimahi. Archery at the XIV Proprov event was held in Bekasi regency by competing for 54 medals consisting of 18 medals on *compound* numbers, 18 medals from *recurve* numbers and 18 medals from national numbers. The total number of gold medals contested in each was 6 gold medals, 6 silver medals and 6 bronze medals (KONI West Java, 2022). In the Porprov XIV event, a contingent of athletes under the auspices of KONI CIMAHI, totalling 18 athletes, strived to be able to attain achievements by maximizing their best *performance*, starting from preparing their physical, technical, tactical and mental conditions starting from early 2022, considering that without the support of all these aspects, the target of obtaining medal at the West Java provincial sports week event will be difficult to achieve (Mansur, 2016).

In essence, sports are physical activity activities with various specific goals, including aiming to improve physical fitness (Firman et al., 2018), building physical literacy for children at an early age and adolescents (Lundvall, 2015), establishing aspects of the character (Juditya, 2018), in addition to other objectives of sports, namely to form and coach in the field of achievement. (Zawawi & Burstiando, 2020) . The success of the achievement of formation and coaching in the field of achievement is inseparable from the role of a coach (Guntoro, 2014) and an athlete's fighting power and commitment (Asmawi et al., 2015). Even the achievement of an athlete's achievements needs to be supported by the ability of a forgiving physical condition in order to able to help maximize performance when competing (Supriyoko & Mahardika, 2018), as well as athletes in the sport of archery. The physical skills possessed by archery athletes are certainly the initial foundation in achieving achievements at the XIV Porprov event, besides that the physical condition of archery athletes is an absolute

requirement or the main need in improving their performance when competing later (Pujianto, 2015); (Zhannisa & Sugiyanto, 2015).

The fulfillment of physical conditions in each sport, in principle, has differences based on the characteristics of each sport. In archery, the dominant physical component used as a basis and is needed in maximizing the performance of athletes, namely they must be able to have and even be able to develop not only aspects of technique and tactics but also the presence of physical elements such as strength, flexibility, balance, endurance and strength that must be able to be improved and developed as a foundation in the achievement of his achievements (Putranto et al., 2018), (Lee et al., 2005).

The ability of an athlete's physical condition to be a source of strength in maximizing performance requires a long training process (Bompa, 2004); (Harsono, 2016). In archery sports, the element of arm muscle strength becomes a physical element that is important considering that this sport needs a push and pull that is done by an athlete continuously (Ramadhany & Faruk, 2014), while for the element of endurance, it is the basis or foundation of archery athletes which will have a significant influence on the rhythm of bow pulling (Dahrial, 2019). Even in several other studies showed the importance of the physical condition of archery athletes on the achievement of achievements and is very influential on the *performance* of archery athletes (Ramadhany & Faruk, 2014).

The physical condition possessed by archery athletes can increase their work productively so it give great impact on the achievement of their achievements (Soegiyanto, 2011). Physical condition is the main thing in achieving achievements in all sports (Amalia et al., 2019). There are three main components that an athlete master. One is the physical condition component (Dongoran et al., 2020; Karageorghis&Terry, 2011). The physical condition of an athlete is principally influenced by several factors, namely training factors, factors in the application of the principle of training load, rest factors, factors of life habits, environmental factors and food factors (Pujianto, 2015), the achievement of the athlete's physical condition is also influenced by the implementation of a continuous and systematic training process (Supriyoko & Mahardika, 2018).

Previous research has explored the physical condition and physical fitness of archery athletes, including the contribution of kinesthetic perceptions to the archery abilities of archery athletes (Andi et al., 2018), knowing the fitness of Archery athletes as a variation that can be used in Tabata Training (Arisman & Noviarini, 2021), socialization and training of archery athletes' physical condition (Putra et al., 2022). In addition, it was revealed in research conducted by Mansur et al. (2021) that geographical elements are one of the determinants in the achievement of athletes' physical condition expected to have an impact on the achievement of achievement later in research conducted by Kurniawan (2022). It revealed that several factors, such as the characteristics of the athlete, the characteristics of the exercise and the characteristics of the social environment, influence achievement in sports.

The data illustrated above show that studies related to the physical condition of archery athletes viewed from various fields had been researched by experts. However, research in the scope of analyzing the level of the physical condition of an archery athlete in terms of various demographic and geographical elements such as age, gender, parental income and domicile has not been shown in empirical data on a research result. So this study aims to obtain an overview of the physical condition of archery athletes who will compete in the PorProv XIV West Java event regarding geographical and demographic characteristics. .

METHODS

This research used quantitative descriptive methods with a survey approach (Fraenkel; Norman et al.; Hellen, 2012). This study aims to investigate the overview of the physical condition of archery athletes in the form of aspects of power, speed, flexibility, agility, power and strength in terms of age, gender, domicile area of residence and parental income. The research participants are archery athletes competing in the PORPROV XIV West Java event in Bekasi. They were the male and female archery athletes, residing in the highlands and lowlands, with an age range of 13-30 years and athletes with parental income ranging from below 2,500,000 – above 10,000,000 every month.

The sample of this study was 16 athletes consisting of 8 male and 8 female athletes who will be involved in the data collection process for the sampling technique used, namely total sampling. As for the 16 athletes, we divide into several characteristics of archery athletes as illustrated in the table below:

Table 1. Characteristics of the Grouping of Archery Athletes Porprov XIV 2022

<i>Parental Income</i>	<i>IDR < 2,500,000</i> <i>IDR 2,500,000 - IDR 5,000,000</i> <i>IDR 5,000,000 - IDR 10,000,000</i> <i>> IDR 10,000,000</i>
<i>Gander</i>	<i>Man</i> <i>Woman</i>
<i>Domicile</i>	<i>Rural</i> <i>Urban</i>
<i>Age</i>	<i>Ages 13-16</i> <i>Ages 17-20</i> <i>Ages 24-27</i> <i>Ages 28-30</i>

The research instrument used in this study is in the form of a YoYo intermittent test to measure aspects of endurance (Afkhar, 2019; Kusuma, 2020; Chamari, 2006), vertical jump test to examine limb power (Pupo et al., 2013); ball medicine to measure arm power (Hernado et al., 2017); speed using a maximum speed of 30 meters, and Flexibility (Flexibility) using sit n rich (Suharsono, Riyanto; Rahmasari et al., 2016) and to measure the strength of the abdominal muscles using sit-ups (Bianco et al., 2015), arm muscles using push-ups (Arifin et al., 2020), back muscles using a back dynamometer and to measure thigh muscle strength using a leg dynamometer (Nasrulloh & Wicaksono, 2020).

The distribution of Google forms to athletes aims to obtain an overview of geographical aspects in the area's height from the location where the athlete lives and for demographic aspects in the form of age, gender and the amount of income from parents. Obtaining data was carried out in several stages as a process carried out in order to obtain data in accordance with what is the purpose of this study. In the first stage, researchers divided the sample group based on the characteristics of athletes, such as athlete characteristics based on gender, age, region of domicile and the amount of parental income. Moreover, obtaining the data was conducted by distributing questionnaires using Google Forms. To explore the domicile of the athletes; it referred to the geographical map of the Cimahi city area, as shown below in figure 1.

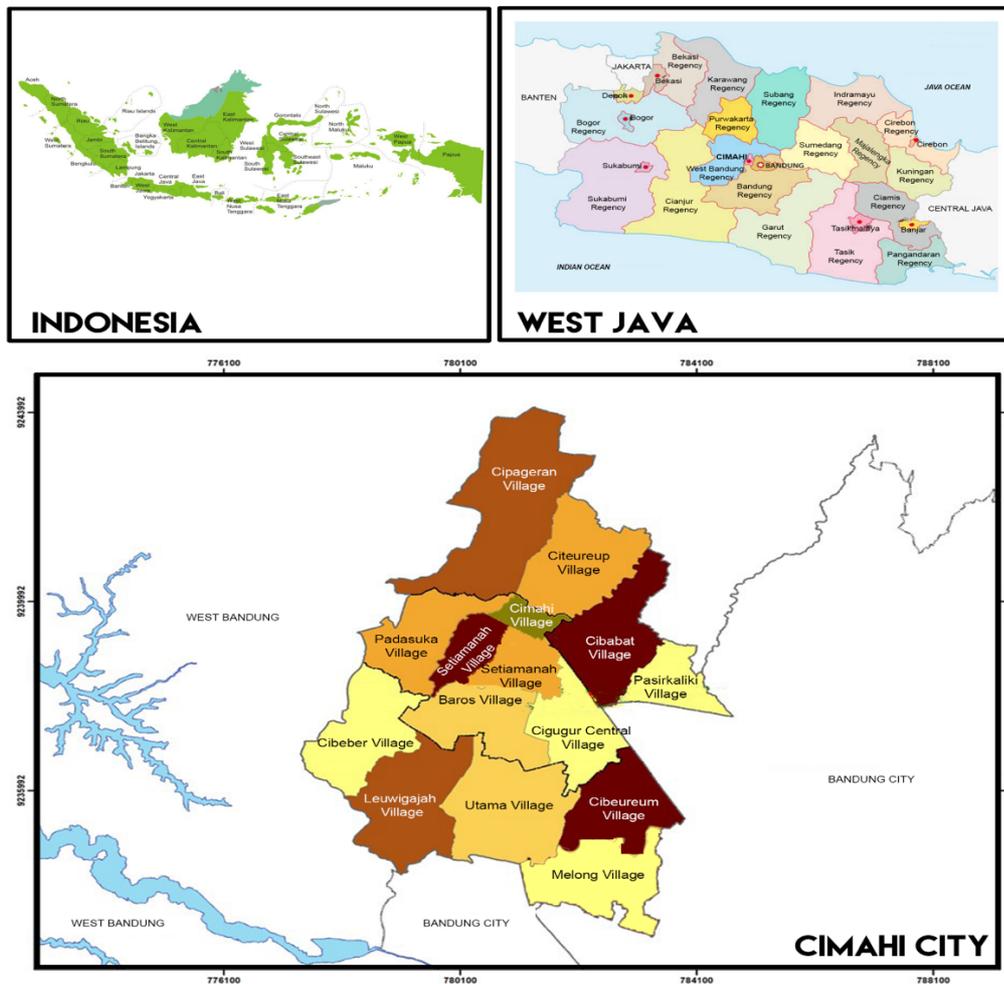


Figure 1. Cimahi City Area Map is the Part of West Java Indonesia

Afigure 1 illustrates the group of athletes based on the amount of parental income; the income category refers to the population as shown on table 2.

Table 2. Categories of Income of Residents

Category	Income / days (\$)	Income / days (Rp)
Elite	> 20 \$	> IDR 288,400
Middle-Up	11 \$ - 20 \$	IDR 158,620 - IDR 288,400
Middle	5 \$ - 10 \$	IDR 71,200 – IDR 144,200
Middle - Low	2 – 5 \$	IDR 28,480 – IDR 56,960
Poor	< \$2	< IDR 28,480

The next stage is to test all elements of the physical condition of archery athletes using several test kits such as yoyo tests, Vertical jump tests, ball medicine, 30-meter running, sit-rich, sit-up tests, push-up, back up and half tests. Data analysis used for obtaining research results applied quantitative descriptive analysed with the SPSS 20.

RESULTS AND DISCUSSION

Result

Table 2 : Profile of Physical Condition of Archery Athletes in Cimahi City: Age, Gender, Domicile of Residence and Parents' Income

			Mean	Std. Deviation	Std. Error	Minimum	Maximum
Physical Condition	Parents' Income/day	IDR 71,200 – IDR 144,200	517.81	36.092	14.73	474.20	569.91
		> IDR 288,400	516.32	34.16	19.72	492.00	555.37
		IDR 28,480- IDR 56,960	479.47	46.24	32.70	446.78	512.17
		IDR 158,620 - IDR 288,400	477.03	16.80	7.51	452.16	494.18
Total			500.00	34.92	8.73	446.78	569.91
Gender (<i>Gander</i>)	Man		501.09	41.20	14.56	8	501.09
	Woman		498.91	30.22	10.68	8	498.91
Domicile	Rural		504.67	42.58	13.46	504.67	42.58
	Urban		492.20	16.69	6.81	492.20	16.69
Usia (<i>Age</i>)	Ages 13-16		479.39	26.23	446.78	510.22	479.39
	Ages 17-20		523.58	34.75	482.94	569.91	523.58
	Ages 24-27 th		516.87	32.08	494.18	539.56	516.87
	Ages 28-30		474.20	.00000	474.20	474.20	474.20

The table and graph above illustrate the characteristics of the physical condition of the KONI CIMAHI archery team athletes competing in the PORPROV XIV event. It was reflected in the aspect of parental income. It was known that the average score of the physical condition of archery athletes whose parents have a daily income is in the income range of Rp. 71,200 – 144,200 (*Middle Middle*) has an average score of physical condition ability of 517.81, athletes with a parent's daily income of > Rp. 288,400 / day (*elite*) have an average score of 516.32, the physical condition of athletes whose parents have an income of 28,480-56,960 / day (*middle-low*) has an average score of 497.03 and the physical condition of athletes whose parents' income per day is Rp. 158,620 - 288,400 (*middle-Up*) has an average slot of 477.03.

Referring to the description above, it is assumed that athletes possessing parents with the amount of income per day are categorized in the *middle*. In this case, they have physical abilities positioned in the first or second ranks. They are the athletes whose parents' income amounts are in the *elite* category. The athletes with parental income in the *middle*, *Low* and *middle-up* categories are ranked third and fourth. The ability of physical condition of KONI CIMAHI athletes who will compete in the PORPROV XIV event when viewed from the characteristics of

gender (*gander*) is known that the average score of the physical condition of athletes who are male has a score of 501.09. In contrast, the average score of physical condition is the athletes of the sex type.

Based on the average score, it is known that the physical condition of men and women in the KONI CIMAHI environment, especially in archery athletes, has differences. Referring to the domicile, the area were divided into two regions, namely areas located in rural areas and areas included in urban areas. It is known that the average score of the physical condition of athletes living in rural areas has a score of 504.67, while the average score of the physical condition of athletes residing in urban areas is 492.2. It means that athletes living in rural areas have better physical conditions than athletes living in urban areas. Athletes who have an age range of 13-16 years have an average physical condition score of 479.39. Athletes with an age range of 17-20 years have an average score of the physical condition of 523.58, athletes with an age range of 24-27 have an average score of physical condition of 516.87, and an average score of physical condition for athletes included in the age range with 28-30 has an average score of 474.2. Having analyzed the average score of the athlete's physical condition, it is assumed that the athletes who are in the age range of 17-20 have the ability to the physical condition that is ranked first or second place is athletes who are included in the age range of 24-27 years, and for athletes with an age range of 13-16 years are ranked third. Finally, athletes are categorized as 28-30 years old. Referring to the picture above that the physical condition of athletes who are included in the age range of 17-20 has a better physical condition ability compared to athletes whose age is outside the age range of 17-20 years.

Discussion

The research results indicate that the physical condition ability of archery female and male athletes has average ability in the sufficient category. The magnitude of the physical abilities of both male and female archery athletes is influenced by several aspects that have diversity which indirectly plays a role or contributes to the training process during the formation of the physical condition of each athlete in achieving abilities. Physical condition is the most important part

of achieving an achievement in a sport. Moreover, many factors can help shape an athlete's physical condition (Nurrochmah et al., 2022).

The formation of the physical condition of an archery athlete is influenced by several supporting aspects, i.e., aspects of ability in terms of parents' income, gender, age and area of residence to be able to have the ability of physical condition. It is essential to have a continuity, systematic and programmatic process in every physical activity carried out by athletes (Bompa, 2004). One of the aspects that also determines the achievement of the physical condition of archery athletes of the PORPROV XIV KONI CIMAHI team is parental income, considering that a person's ability to be able to carry out physical activity is influenced by elements of the educational background and economic factors of the child's parents (Zeng et al., 2019).

The results indicate that the athletes with parents' income per day is categorised in the *middle and middle-low* categories (Karisman, 2021). They lack the opportunity to do many physical activities that can help shape physical conditions (Supriyoko & Mahardika, 2018; Duncan & Duncan, 2005). Besides, the athletes whose parents have an income in their *middle-low* category are more together with the environment around the place of residence compared to the environment they train, even according to the results of a survey conducted by the national health organisation that athletes whose parents have low incomes tend not to have good physical abilities compared to athletes whose parents have a high income (R. Stalsberg, 2010).

Athletes with a parent's income in a *middle-low* category usually have a low physical activity ability that ultimately impacts shaping physical condition (Lampard et al., 2013). In contrast, the athletes supported by parents who have income in the *middle Up* and *elite* categories have an impact on support for the physical activity carried out by these athletes compared to those with parents who have *middle low* and *middle* incomes (Borraccino et al., 2009). In addition, parents whose incomes are in the *elite* and *middle* categories can provide support for nutritional intake that can support the ability to do every physical activity (Krietemeyer et al., 2022). The second aspect, after the amount of parental income, is about gender. The results presented in the figure of the physical

condition of archery athletes in the KONI CIMAHI environment show that the physical condition ability of male athletes has the average ability of the physical condition of female athletes. It is because female athletes tend to do less physical activity than male athletes (Minges et al., 2017). Besides, even girls carrying out motion activities are much less than boys, considering that female athletes are able to be actively and fully involved in every training process requires strong motivation (Viciano et al., 2019) even in the results of the research described by (Rushovich et al., 2006) that female athletes tend to be active in doing physical activity in a structured way with a duration of time that is not long with the duration of time in doing physical activity for 2 hours per day.

Furthermore, the ability of the athlete's physical condition is illustrated in terms of age. The study found that athletes who have an older age, namely the age range above 20 years, have an average ability of better physical condition compared to younger athletes. The age factor is one of the factors supporting a person's physical activity. Even athletes with age between 17-27 years tend to be more stable in doing physical activity during the training process than athletes over the age of 27 or under 17 years (Rivan et al., 1 Bambang Wirjatmadi, 2 Merryana Adriani, 2020). Older athletes tend to be responsible for following and carrying out every physical activity performed and programmed (Kristiansen et al., 2012).

The next characteristic is the ability of the athlete's physical condition reflected in domicile. The study results indicate that athletes with a place to live in rural areas have much better physical abilities on average compared to athletes living in urban areas. It is because children who live in rural areas have physical activity abilities and better fitness levels as an initial foundation in shaping physical conditions compared to those who live in urban areas.

Besides, athletes living in rural areas have less fat content and lower BMI than children living in urban areas. Even athletes in rural areas can participate in organised sports more than children in urban areas (Chillón et al., 2011; Kriemler et al., 2008). One example is rural athletes living in Mexican countries. They have abilities in aspects of strength and endurance compared to children living in urban areas (Peña et al., 2003). This research is inseparable from limitations. In terms of

research design, this study is only limited to providing an overview of the physical condition of athletes in terms of demographic and geographical characteristics without comparison in each sample characteristic. In addition to the several factors described above based on the findings in the research process, there are still other factors that can affect the achievements of Cimahi City archery athletes, namely related to the motor skills of the athletes, where this motor ability is one of the factors that can support the training process both physically and technically (Arisman & Guntara, 2021).

CONCLUSION

This study indicates that the physical abilities of archery athletes KONI CIMAHI have average abilities in the sufficient category. Suppose the average ability of the athlete's physical condition is reflected by age. In that case, athletes aged seventeen to twenty-seven years have an average physical ability above the average of athletes who have age of under seventeen and over twenty-seven years. For the gender aspect, athletes who have male gender have better physical abilities on average than female athletes. In contrast, athletes with high incomes per day are categorized in the *middle* and *elite* categories. They have an average physical ability above the average condition ability of athletes whose parents' daily income is included in the *middle-up* and *middle-low* categories. Besides, athletes whose location of residence is in the countryside can be in better physical condition on average than athletes who have a place to live in urban areas. This study only focused on the physical condition of athletes based on geography and demographics. Therefore, suggestions for further researchers can examine aspects of their achievements so that it will provide complete data information.

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