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# BIOMAGNETOTERAPIA W WYROBACH MEDYCZNYCH „ORT BUTTERFLY”

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# Comparative study of athletes with high and low nomophobia toward archery accuracy

*Badanie porównawcze sportowców ze znaczącą i nieznaczną nomofobią i jej wpływu na celność w łucznictwie*

**Siis Suhasto<sup>1(A,B,C,E,F)</sup>, Tomoliyus<sup>1(B,C,D,G)</sup>, Widiyanto<sup>1(A,C,D,F)</sup>,  
Betrix Teofa Perkasa Wibafied Billy Yachsie<sup>1(A,B,C,E)</sup>, Fitrizka Acha Fimbriata<sup>2(C,D,E)</sup>**

<sup>1</sup>Department of Sports and Health Sciences, Faculty of Sport Science, Yogyakarta State University, Indonesia

<sup>2</sup>Agribusiness Study Program, Faculty Of Animal Husbandry And Agriculture, Diponegoro University, Indonesia

## Abstract

Lack of self-control in using smartphones can lead to nomophobia. This study aimed to determine the effect of nomophobia on the accuracy of archery athletes in the Banyumas Regency. This study is comparative descriptive research with 30 Banyumas archery athletes as the population selected using the total sampling technique. Furthermore, the 30 archery athletes were categorized as having high and low nomophobia. The instrument used to measure the level of nomophobia was a questionnaire. In contrast, the archery accuracy used a 40-meter-archery test for one series, six ends, and 36 arrows. The collected data were tested for normality using the Kolmogorov-Smirnov technique and the homogeneity test using the Levene statistical technique at a significant level of 5% ( $p > 0.05$ ). Meanwhile, the hypothesis analysis applied a 5% significance t-test. The results showed that there was a significant influence of nomophobia on the accuracy of archery athletes in the Banyumas Regency, where the archery ability of low nomophobia archery athletes was better than high nomophobia athletes with a difference of 20.33.

## Keywords

nomophobia, archery, accuracy

## Streszczenie

Brak samokontroli w korzystaniu ze smartfonów może prowadzić do nomofobii. Niniejsze badanie miało na celu określenie wpływu nomofobii na celność sportowców strzelających z łuku w Banyumas Regency. Badanie jest porównawczym badaniem opisowym z udziałem 30 łuczników Banyumas jako populacji wybranej przy użyciu techniki całkowitego doboru próby. Co więcej, 30 łuczników zostało sklasyfikowanych jako osoby ze znaczącą i nieznaczną nomofobią. Narzędziem do pomiaru poziomu nomofobii był kwestionariusz. Aby zbadać celność wykorzystano test strzelania z odległości 40 metrów w jednej serii, z sześcioma końcówkami i 36 strzałami. Zebrane dane przeanalizowano pod kątem normalności techniką Kołmogorowa-Smirnowa oraz testu jednorodności techniką statystyczną Levene'a na poziomie istotności 5% ( $p > 0,05$ ). W analizie hipotezy zastosowano test t istotności 5%. Wyniki pokazały, że nomofobia miała znaczący wpływ na celność łuczników w Banyumas Regency, gdzie umiejętności łucznicze łuczników o nieznaczonej nomofobii były lepsze niż łuczników o znaczącej nomofobii z różnicą na poziomie 20,33.

## Słowa kluczowe

nomofobia, łucznictwo, celność

## Introduction

Through globalization, individuals must continue growing and have the qualities to compete with other individuals. This makes human civilization more advanced, and many individuals compete to show their existence to not lose to others [1]. Today's technological advances have been recognized and felt to provide convenience and comfort for human life [2] This convenience will have a significant impact on the world community as well as Indonesia. Therefore, it is undeniable that it has a very positive and negative impact.

The problem that attracted attention in PERPANI Banyumas Regency, which had achievements tending to decline. They managed to get third place in the first championship, the 2018 Provincial Championship. In the next championship, the Provincial Championship (KEJURPROV) in 2019, they managed to get first place in the total distance, second place in individual complaints, and third place in the 50-meter distance. In the next championship, the 2019 Popda Province, they got first place in total distance and second place in individual complaints. The championship that dropped dramatically was the Provincial Championship (PRAPON) in 2019, where they only got third place. Based on research by [3], the highest achievement of an athlete is when he can win national and international competitions. However, this achievement requires practice, hard work, effort, prayer, and how to control yourself well from the desire to play on mobile phones.

Based on observations, it was found that most archery athletes in the Banyumas Regency often played online games via smartphones for at least 1 hour daily. Types of games often played include Player Unknown's Battlegrounds (PUBG) and Mobile Legends. The average athlete said they used smartphones to check more than 50 times daily, especially during the current Covid-19 pandemic. High intensity in online games can make athletes addicted, thus impacting laziness in activities, especially sports. Therefore, it can be concluded that on August 2021, at the archery club of Banyumas Regency, it was known that (1) most athletes used mobile phones excessively due to a lack of supervision from people around, (2) disorders caused when athletes experienced addiction to playing gadgets when doing archery, (3) most athletes often played online games via mobile phones for at least 1 hour daily, (4) the results of the imposition or accuracy of archers who experienced Nomophobia tend to be lacking.

The impact of Nomophobia is quite a lot on human social life and health [4]. with a smartphone is high enough to cause some people to focus more on their mobile devices and ignore others around them when gathering. This impacts symptoms of stress, lack of focus, frequent panic and anger for no apparent reason, and antisocial [5]. Another negative impact of Nomophobia symptoms is on health, namely electromagnetic waves from outside or from cellular phones colliding with our body's electromagnetic waves, causing dizziness or headaches, fatigue, immune system disorders, eye irritation, and increased risk of other diseases, such as Alzheimer's, brain tumours, cancer, sleeping disorders (insomnia disorders), orthopaedic problems, and can even kill sperm [6] This means that many eye problems generally arise due to too often staring at the screen with super mini letters, so health problems arise [7].

Meanwhile, the positive impacts include helping someone in carrying out daily activities. According to [8] the positive impact of technology in the school environment can make it easier for students to find material sources that can be obtained on internet sites and help them to do their assignments. In addition [9] found that the internet plays many roles in human life and technological advances. In order to support this role, computer technology and the internet are used in various aspects, such as doing schoolwork, studying, managing family finances, listening to music, watching videos, and enjoying games. However, one of the gadget impacts is seen in the shift in the value of local wisdom. This causes people like to work individually, which is far from the characteristics of Indonesian culture [10] In addition to having a positive impact, like two different sides of a coin, digitalization can also negatively affect students' lives [11]. Digitalization can lead to apathy, individualism, and information addiction and can even create crime [12]. Supported by the statement from [10] that claims that the use of digital-based tests increases the possibility of cheating students because they are much easier to access search engines to find answers to test problems.

Archery was chosen because the neurological processes that occur in the brain when playing games and when doing archery have the same process [13] This aligns with research by [14] stating that the process occurs when children succeed in achieving their target or mission in a game and when they hit the desired target during archery because of the similarity of these neurological processes – supported by [4]'s research, which claims that contradictory and constantly changing reports concerning comparative study studies of athletes with high and low nomophobia confuse especially from coaches. Therefore, this study aimed to determine whether there was a difference between high and low nomophobia on the accuracy of archery athletes in the Banyumas Regency and prove whether the athletes who tend to play with gadgets affect the results the athlete's score or accuracy. Through a training process that has been programmed, measured, and continuous so that athletes can master movement techniques that have been appropriately trained. In addition to the right training program, education to control themselves from dependence on mobile phones needs to be known.

## Method

This study is comparative descriptive research which applied a survey method with data collection techniques using questionnaires. Researchers compared athletes with high and low nomophobia to archery accuracy. The study occurred in a club under the auspices of the PERPANI Banyumas Regency, located in the Banyumas Regency, Central Java. This research was conducted in April-May 2021, with 30 athletes as the population and the sample. The sampling technique used was the total sampling to obtain data on nomophobia and categorize them into high and low by dividing two groups based on questionnaire scores (ranking). Based on the filling results, two groups of athletes with high and low nomophobia were obtained as follows:



**Table 1. Groups of athletes by level of nomophobia**

No	Level of nomophobia	Sum
1	High	15
2	Low	15
	<b>Total</b>	<b>30</b>

The instrument used in this study was a nomophobia closed questionnaire which referred to four aspects developed by [15] namely, being unable to communicate, losing connectivity, not

being able to access information, and giving up on convenience with a value of validity and reliability of 0.845. The questionnaire structure is presented in Table 2 as follows:

**Table 2. Nomophobia questionnaire structure**

Level of nomophobia	Factors/Aspects	Item Number
1	Not being able to communicate	1, 2, 3, 4, 5, 6, 7,
2	Losing connectivity	8, 9, 10
3	Not being able to access information	11, 12, 13, 14, 15
4	Giving up in convenience	16, 17, 18, 19, 20, 21, 22
	<b>Total</b>	<b>22</b>

While the instrument for archery accuracy is a stick arrow according to the target that the archer himself has determined, the way to calculate archery accuracy was by an archer doing 36 arrow shots. The total result of the number of each arrow or called the total score, and the process is called scoring. This study used a distance instrument of 40 meters with a validity value of 0.895 > r table 0.344 and reliability of 0.944 > 0.60 [16] After the data was collected, it was then analyzed using

SPSS 2020. Before the hypothesis testing was carried out, the prerequisite testing was carried out, namely normality and homogeneity tests and continued with the t-test hypothesis test.

**Result**

When displayed in the form of scoring norms, the archery accuracy between athletes with high and low nomophobia is presented in Table 3 as follows:

**Table 3. Archery accuracy assessment norms between athletes with high nomophobia and athletes with low nomophobia**

No	Interval	Category	High nomophobia		Low nomophobia	
			F	%	F	%
1	270-360	Very good	0	0.00%	0	0.00%
2	180-269	Good	2	13.33%	11	73.33%
3	90-179	Less	13	86.67%	4	26.67%
4	0-89	Very Lacking	0	0.00%	0	0.00%
	<b>Total</b>		<b>15</b>	<b>100%</b>	<b>15</b>	<b>100%</b>

Based on Table 3 above, the archery accuracies of the athletes with high nomophobia were in the category of “very less” by 0.00% (0 athletes), “less” by 86.67% (13 athletes), “good” by 13.33% (2 athletes), and “very good” by 0.00% (0 athletes). Meanwhile, the archery accuracies of the athletes with low no-

mophobia were in the category of “very less” by 0.00% (0 athletes), “less” by 26.67% (4 athletes), “Good” by 73.33% (11 athletes), and “very good” by 0.00% (0 athletes). Based on the average results, it shows that archery accuracy ability among athletes with low nomophobia was better than high nomophobia.

**Table 4. Normality test results summary**

Fitness	P	Sig	Information
High Nomophobia	0.712	0.05	Usual
Low Nomophobia	0.063	0.05	Usual

From the results of Table 4 above, which was analyzed using Kolmogorov Smirnov, it can be seen that the archery accuracy

of the high and low nomophobia groups had a p (Sig.) of > 0.05, so the variables were normally distributed.

**Table 5. Summary of homogeneity test results**

Group	DF1	DF2	Sig.	Information
High-Low Nomophobia	1	28	0.232	Homogeneous

From Table 5 above, which was analyzed using Levene statistics, it can be seen that the archery accuracy of the high and low

nomophobia groups had a p value (Sig.) of > 0.05, so that the data were homogeneous.

**Table 6. Results of the t-test analysis of archery accuracy ability between athletes with high nomophobia and athletes with low nomophobia**

Archery Accuracy	Average	t-test for equality of means			Difference
		t ht	t TB	Sig.	
High Nomophobia	168.07	4.861	2.048	0.000	20.33
Low Nomophobia	188.40				

From the results of the t-test in Table 6 above, it can be seen that the t-count was 4.861, and the t-table (df 28; 5%) was 2.048 with a significant p-value of 0.000. Because the t-count was  $4.861 > t \text{ table } 2.048$ , and the significant value was  $0.000 < 0.05$ ; these results show a significant difference. Based on the analysis results, an alternative hypothesis ( $H_a$ ) that stated “there is a significant influence of nomophobia on the accuracy of archery athletes in Banyumas Regency” was accepted. The difference in archery accuracy between high-nomophobia athletes and low-nomophobia athletes was 20.33. This means that the archery accuracy ability of low-nomophobia archery athletes was better than that of high-nomophobia athletes. It can be said that nomophobia affected the accuracy of archery athletes.

**Discussion**

The study results above show a significant influence of nomophobia on the accuracy of archery athletes in the Banyumas Regency. The ability of low-nomophobia archery athletes was better than that of high-nomophobia athletes by a margin of 20.33. [17] stated that nomophobia (no-mobile phone phobia) is fear or anxiety when away from mobile phones, a disorder experienced by people familiar with digital technology, which refers to discomfort, anxiety, anxiety and sadness because there is no direct contact with mobile phones. Dependence on smartphones can be considered an addiction to technology when there is a loss of control in the unwise use of smartphones.

Based on research by [18] and [19] found that smartphone users with high-frequency intensity tend to have lower academic achievement, higher anxiety and lower satisfaction with life compared to their peers who use smartphones less frequently or intensity smartphone use with medium and low frequency. Also, as stated by [20] adolescents try to escape from feelings of loneliness and conflict in their social cravings or problems that cannot be forgotten in their daily lives by switching to smartphones and the internet. In line with research [21] many adolescents use

the internet in an uncontrolled way according to their purpose and try to avoid overuse. Research by [22] shows that male and female athletes here have the same tendency: dependence on smartphones. In line with what was conveyed by [23], smartphones affect changes in communication behaviour that occur in everyday life and are predicted to be harmful if adolescents cannot control themselves using smartphones. In line with [24] nomophobia can also describe someone who cannot be far from social media interactions. Research conducted by [25] states that most parents' opinions are more directed to the opinion of use that hurts children's development, including the level of electromagnetic wave radiation felt by children is higher if they use too many gadgets, besides that children's concentration power will be disrupted by games that have no element with learning, but the effect is not seen directly.

This can be seen in someone who experiences nomophobia and can check his smartphone up to 34 times a day, even bringing his smartphone to the bathroom [26]. Hence, it is concluded that nomophobia is characterized by excessive fear that a person loses the smartphone to see incoming notifications. This is also characterized by very excessive anxiety behaviours such as fear of it running out of battery, fear of temporarily disabling his smartphone, and constantly checking calls, messages, new emails and social networks is interpreted as athletes with high nomophobia have a dependence that has an impact on difficulty concentrating so that at the time of archery cannot concentrate fully on the target.

While smartphone users with low-frequency intensity in this study tend to have higher academic achievement and non-academic achievement with increased end-of-school exam scores, less dependence on smartphones and easy control of appropriate exercise intensity[27] On the other hand, according to [28] suppose you cannot control yourself and eventually vent your boredom to this smartphone. In that case, you face problems that impact your academic and social life due to excessive smartphone use, making you lazy in doing your activities. [29] also stated that the

more they can control themselves in playing smartphones, the athletes' achievements increase, which is marked by not playing smartphones while training.

Research conducted by [30] revealed that individuals with high self-control would use the internet healthily and according to their needs, so there is no high addiction, which means low nomophobia. Based on the research submitted by [31] show athletes with low nomophobia do not use smartphones as a medium of object transfer or entertainment to avoid social communication with teams or friends in the environment so as not to overdo it in playing smartphones. Based on research by [32] show that athletes who have high achievements can be seen during the training process. Athletes with low nomophobia will focus on training to maximize training intensity. However, athletes with high anxiety and nomophobia, whether in training or anywhere, depend heavily on smartphones. It can be concluded that high self-control will use the internet healthily and according to needs and reduce anxiety and nomophobia. This can be seen from the activities of athletes who manage smartphone play schedules at essential times, such as when there is a sudden call or indeed need to communicate with family, which means that the athlete will still be able to focus on continuing to train optimally so that if there is a problem during the match, the athlete is ready to face problems that have an impact on the concentration and anxiety of the athlete.

Archery is a sport requiring a high concentration level [33] Good physical endurance, the strength of hand and arm muscles, and qualified knowledge of technique and tactics will not make archery athletes achieve high points if their arrows are not on target [34] From attaching arrows to bows, directing them to the desired target, to shooting them towards the target, athletes must ensure that their concentration and focus are well maintained [35]. Therefore, every archery activity itself requires qualified concentration. If the athlete's concentration is split, especially when releasing arrows, then most likely, the arrows will not be hit by the desired target.

Concentration is the ability to focus attention and thoughts only on information that is important for the success of their performance in the competition [36, 37] states that self-control affects

the emergence of anxiety away from smartphones (nomophobia) experienced by individuals. For individuals with low self-control, the level of anxiety away from smartphones (nomophobia) is getting higher [15, 16]. The impact of nomophobia can also make users experience sleep pattern disturbances because if someone has been engrossed in smartphones, be it playing games, chatting, browsing the internet, and others, the person, if not disciplined, will forget the time. When the athlete concentrates, he will sort through information or stimuli that do not facilitate his performance and focus only on information relevant to his victory [18].

Without good concentration, athletes can make various mistakes in their performance, such as failing to display the techniques that have been learned, inaccurate sports movements that should be done, or archery can also mean the failure of athletes to shoot targets with high points [38, 39]. Nomophobia is defined not only as someone anxious because they do not bring a cell phone, but these fears and anxieties can occur due to various conditions, such as no network coverage, running out of battery, no internet network, running out of quota, and others. Although this study was carried out as much as possible, it had research limitations, several factors could not be controlled. Such as because it was carried out during the Covid-19 pandemic, researchers did not monitor directly, and athletes still lack knowledge about nomophobia, cost and time for research.

### Conclusion

Based on the results of data analysis, description, testing of research results, and discussion, it can be concluded that there was a significant influence of nomophobia on the accuracy of archery athletes in the Banyumas Regency. The archery ability of low-nomophobia archery athletes was better than that of high-nomophobia athletes by a margin of 20.33.

Adres do korespondencji / Corresponding author

### Siis Suhasto

E-mail: siissuhasto.2020@student.uny.ac.id

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