

Overview Of Knowledge About First Aid For Hypothermia In Mountain Climbers In Makassar

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ABSTRACT

Hypothermia is a medical condition that occurs when body temperature drops abnormally. This condition occurs because the body can no longer produce enough heat to compensate for the heat loss that occurs. According to data obtained from BASARNAS between 2015 and 2018, accidents during climbing are often caused by several factors, with hypothermia being the most dominant with a percentage of 47%. The purpose of this study was to determine the description of knowledge about first aid for hypothermia in mountain climbers in Makassar. This study is a descriptive study with a population and sample of 133 climbers, selected using purposive sampling techniques. The data collection instrument uses a questionnaire. The results of the study showed that the level of knowledge of climbers about First Aid for Hypothermia, the majority of whom had good knowledge, as many as 107 climbers (80.5%), and a small portion had sufficient knowledge, as many as 26 climbers (19.5%). The conclusion of this study is that the level of knowledge of mountain climbers in Makassar, especially in PKD South Sulawesi, about first aid for hypothermia is quite good. Several factors that can influence the results of the study include experience and information owned. It is expected that respondents can further improve their knowledge about first aid for hypothermia by seeking information from various sources, such as mass media and the internet, and attending training. Thus, it is expected to reduce the number of hypothermia cases that occur during climbing

Keywords : Hypothermia; Knowledge; climber

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INTRODUCTION

According to Ekasari and Brata, (2023) climbing or outdoor activities in mountainous areas is a form of tourism that is popular in Indonesia.(1) Indonesia has hundreds of mountains spread across almost every island. These mountains are visited or climbed by people from various corners, both from Indonesia and abroad. (2) Climbers and hypothermia are closely related to mountain climbing. If the body is cold for a long time, especially during windy weather, the body's thermal mechanism can be disrupted. Temperature conditions that drop below 35°C and decreased consciousness can result in serious threats to life. Generally, a person needs around 2000 calories per day to meet their energy needs. However, for mountain climbers, this calorie requirement increases to around 5000 calories per day, along with the heavy and continuous physical activity they undergo. (3)

Hypothermia is a condition in which body temperature drops abnormally. This is a medical problem that mountain climbers are at risk of experiencing. With varying heights, mountains can affect a person's body temperature. Hypothermia is usually caused by prolonged exposure to cold, especially during windy and rainy weather, which disrupts the body's natural heating mechanism. (4)

Brocherie et al., (2015) stated that more than 34 million people worldwide travel to mountainous areas every year and routinely face environmental challenges such as very cold temperatures. In Indonesia, between 2015 and 2018, at least 85 people were recorded as having accidents while climbing mountains, one of which was caused by hypothermia. Unfortunately, this number continues to increase in 2019. (5)

Data from BASARNAS during the 2015 to 2018 period shows that hypothermia is the main cause of accidents in climbing activities, with a percentage reaching 47%. In addition, 29% of accident cases were due to climbers being lost or lost, and the remaining 24% were

due to other accidents, such as falls or being hit by rocks. In 2018, three climbers on Mount Tampomas (1,684 meters above sea level) died due to hypothermia. This number continued to increase in the following years. In 2019, six climbers died of hypothermia in several locations, including Mount Argopuro, Sumbing, Dempo and Lompobattang. In 2020, two climbers on Mount Lawu and one climber on Mount Bawakaraeng reportedly died of hypothermia, while two other people experienced mild hypothermia and immediately received medical assistance.(6)

Mountain climbing is one of the most popular forms of outdoor sports. This activity requires experience, adequate training, and the right equipment. In addition, climbers also need to have mental and physical strength, knowledge of nature, and the ability to prepare everything well before starting the climb. Mountain climbing is a dangerous activity, not a few people have died on the mountain, before climbing a mountain you need to prepare physically, mentally, and need to prepare information about the mountain to be climbed. Many climbers do not realize that fatigue can make climbing difficult, even causing accidents due to loss of concentration when passing through steep paths. (7) Mountain climbers often face the danger of hypothermia. Data shows that accidents on the mountain increase every year. Failure to provide first aid for hypothermia will result in serious complications, even ending in death.(8) Mountain climbing activities in a natural setting like that, this is not an easy activity, but it contains risks that endanger the body and life of climbers. To minimize this risk, we should make some preparations that must be done, one of which is to obtain first aid knowledge by utilizing any equipment, tools, or medicines that we bring. "First aid is providing immediate assistance to someone who is suffering from an illness, injury or accident that requires basic medical treatment" (9)

Symptoms of hypothermia vary, ranging from dizziness, shivering, to hallucinations. Mild hypothermia occurs when body temperature is in the range of 32–35°C. At this stage,

climbers may only feel shivering and weak. However, if the body temperature drops further to the range of 28–31°C, moderate hypothermia can cause the body to lose coordination, speech becomes slurred, and the skin turns pale. In the stage of severe hypothermia, with a body temperature below 28°C, climbers can lose consciousness, experience arrhythmia, and even death.(10) Symptoms of mild hypothermia include slurred speech, a grayish skin color, a weak heartbeat, a drop in blood pressure, and muscles tightening to produce heat. In severe cases, the victim may lose consciousness, the body becomes stiff, the pupils dilate, and breathing is very slow or unnoticeable. (11) Climbers who experience hypothermia should receive immediate treatment. First, change his wet clothes with dry clothes. Next, provide a thick and warm blanket to help warm him up. Place a bottle of warm water in the armpit and neck, and provide warm drinks such as tea or hot chocolate to keep the body's fluids maintained. (3)

The purpose of this study was to determine the description of knowledge about first aid for hypothermia in mountain climbers in Makassar.

METHODS

This research is descriptive quantitative research. The time the research was carried out was 29 August – 29 September 2024. The population in this study were members of the "Regional Coordination Center (PKD) for Nature Loving Students (MAPALA) at University Level throughout South Sulawesi" in Makassar, namely 200 respondents. The sampling technique used purposive sampling with a total sample of 133 respondents. Collecting data using a questionnaire and analyzing the data using univariate analysis which analyzes existing variables objectively by calculating the frequency distribution and percentage of each variable

RESULTS

Table 1
Distribution of Respondent Characteristics Based on Gender, Age, Last Education, and Name of Organization in PKD SULSEL

Respondent characteristics	n	%
Gender		
Man	108	81,2
Woman	25	18,8
Age		
17-24 (late teens)	114	85,7
25-35 (early adulthood)	19	14,3
last education		
SMA	133	100
Organization name		
Kampala	2	1.5
Korpala UNHAS	7	5.3
Mahacitaka	2	1.5
Mahadipa	9	6.8
Mahapati	5	3.8
Mapacti	3	2.3
Mapala 45 Makassar	7	5.3
Mapala Akba	8	6.0
Mapala AMKOP	5	3.8
Mapala Handayani	5	3.8
Mapala PNUP	7	5.3
Mapala Swara Bhuana	7	5.3
Mapala UIM	6	4.5
Mapala UIT	2	1.5
Mapala UMI	19	14.3
Pahala unismuh makassar	11	8.3
SETALA STIK	20	15.0
Sintalaras UNM	8	6.0
Total	133	100.0

Source: Primary Data 2024

Based on the results of 133 respondents at the " Regional Coordination Center (PKD) of Nature Lovers Students (MAPALA) at the University Level in South Sulawesi" on the

characteristics of respondents with the highest gender, namely male, as many as 108 people (81.2%), and the lowest, namely 25 people (18.8%). The dominance of the number of men may reflect the trend in climbing activities or nature lover organizations, where male participation is higher than female. The highest age characteristics of respondents are 17-24 years old, as many as 114 people (85.7%), which is included in the late teenage category. This shows that climbing activities or joining nature lover organizations are more popular among the younger generation, especially those who are still in the education stage or early career. and the lowest is 25-35 years old, as many as 19 people (14.3%). The last educational characteristics of the most respondents are high school as many as 133 (100%) people. Finally, there are the characteristics of the highest respondent's Organization Name, namely the SETALA STIK organization as many as 20 people (15.0%), and the lowest are in the Kampala organization 2 people (1.5%), Mahacitaka 2 people (1.5%) and Mapala UIT as many as 2 people (1.5%).

Table 2

Based on the number of climbers who have experienced hypothermia and who have provided first aid for hypothermia

Variables	n	%
Number of climbs		
1 Climbing Times	10	7.5
2-3 Climbing Times	36	27.1
≥ 4 kali	87	65.4
Have ever experienced hypothermia		
No	125	94.0
Yes	8	6.0
Have ever provided first aid for hypothermia		
Tidak Pernah	89	66.9
Once	44	33.1
Total	133	100.0

Source: Primary Data 2024

Frequency Distribution Based on the Number of Climbs Ever Experienced Hypothermia and Ever Given First Aid Hypothermia the frequency of respondents obtained the highest number of climbs, which is ≥ 4 times. Climbing as many as 87 people (65%). As many as 27.1% of respondents have climbed 2-3 times, which also shows a moderate level of experience. Only 7.5% of respondents have only done 1 climb, which shows that a small number of respondents are novice climbers. The frequency of respondents who have experienced hypothermia is 8 (6.0%). And those who have never experienced hypothermia are 125 people (94.0%). The frequency of respondents who have given first aid to hypothermia is 44 people (33.1%) as many as 89 people (66%).

Respondent frequency Most respondents 64 (48.1%) got information about hypothermia through training. As many as 21 (15.8%) respondents relied on information from other climbers. And the Internet was used by 11 (8.3%) respondents as a source of information about hypothermia. Meanwhile, books and newspapers/mass media were used by fewer respondents, 6 (4.5%) and (3.8%) respectively.

Based on the univariate results of 133 respondents at the " Regional Coordination Center (PKD) for Nature Lovers Students (MAPALA) at the University Level throughout South Sulawesi" showed that 107 (80.5%) respondents obtained a good level of knowledge, and 26 (19.5%) obtained a sufficient level of knowledge

DISCUSSION

The researcher assumes that this lack of knowledge indicates a knowledge gap that needs to be addressed, by increasing access to easily accessible training and information and may require deeper understanding or additional training to achieve a better level of knowledge. Research conducted by Laras and Mustriwi (2022) shows that knowledge is often influenced by age factors, especially in those aged 17 to 25 years, who are included in the late adolescent category(6). Interestingly, the data shows that almost half of the respondents, namely 10 people (48%), aged 17-25 years have sufficient knowledge. In

accordance with research conducted by Laras and Mustriwi (2022), it was found that knowledge is greatly influenced by age factors, especially in individuals aged 17-25 years who are in the late adolescent phase.(6) Interestingly, based on the data presented in table 3, almost half of the respondents, namely 10 people (48%), aged between 17-25 years have a sufficient level of knowledge.(6)This is strengthened by research conducted by Vauzy Firmansyah et al., (2019). Based on the research results, it shows that mapala respondents have knowledge about the first treatment of hypothermia in the good category amounting to 4 people (9.3%), then in the sufficient category there are 33 people (76.7%) and in the poor category there are 6 people (14.0%). Mapala from 11 tertiary institutions in Tasikmalaya City mostly has sufficient categories, the lack of uniformity of information related to basic training in understanding the first treatment of hypothermia. The training itself can increase knowledge related to the treatment of hypothermia.(12)

The majority of respondents were experienced climbers, with most having climbed 4 or more times. Although only a few had experienced hypothermia, one third of respondents had experience providing first aid. This underscores the importance of education and training related to hypothermia, even for climbers who may not experience it often. By increasing awareness and skills in first aid, the risk of complications caused by hypothermia can be minimized. According to the Researchers Most climbers involved in the study showed a good level of knowledge about hypothermia and related first aid. This knowledge was obtained through training, field experience, and formal education that had been attended by members. Good knowledge among young climbers (17-24 years) can be linked to educational activities carried out before going into the field. These activities have been proven effective in increasing members' awareness and understanding of the symptoms, prevention, and treatment of hypothermia. This is in line with research Raihan & Endiyono (2023), the experience of climbing 2-4 times was 192 respondents (57.7%). This is contrary to Aditjaningsih's (2020) research, with 13 climbers having experience

of climbing once (38.2%), 8 climbers having experience of climbing 2-3 times (23.5%), 13 climbers having experience of climbing >4 times (38.2%). (13)

The results of this study are in line with research conducted by Naldi, et al (2018) regarding the relationship between knowledge of hypothermia and behavior in treating hypothermia. This study had the same results, namely that the majority of respondents had a membership period of more than 12 months (1 year) and most also had good behavior in treating hypothermia. The same characteristics of respondents who have experience as members of mountain climbers for a long time (at least 1 year) is one of the factors that can increase knowledge and good behavior in handling hypothermia.(14)

The training and workshops related to handling hypothermia held by the MAPALA organization contributed significantly to the respondents' knowledge. This shows the importance of continuing education programs in nature lover organizations to ensure that members are always prepared to face various risks that may occur during climbing. Although the level of knowledge is quite good, there are still a small number of members who are at a sufficient level of knowledge. This shows the need for further improvement in training and education, as well as awareness of the risks faced during climbing activities, especially related to hypothermia. A study conducted by Kaban & Rani (2018) revealed a link between nurses' knowledge of Basic Life Support (BLS) and the actions they took in carrying out the Primary Survey in the Emergency Room at Royal Prima Hospital.(15)

CONCLUSION

Based on the results of research conducted at the Regional Coordination Center (PKD) for Nature Lovers Students (MAPALA) for Universities throughout South Sulawesi, it can be concluded that: Research shows that mountain climbers in Makassar city have a good level of knowledge as many as 107 (80.5%) of 133 respondents, based on the results of the questionnaire conducted by the researcher, the level of knowledge of mountain climbers in Makassar city 2024 is in the good category, because there are climbers who answer well

when asked questions. Handling of Hypothermia in Mountain Climbers In the city of Makassar, the attitude towards handling hypothermia was shown by 44 people (33.1%) out of 133 respondents.

BIBLIOGRAPHY

1. Fadhlullah FH, Rahmad MN, Agustin WR. Hubungan Tingkat Pengetahuan Dengan Perilaku Pada Pendaki Dalam Melakukan Pertolongan Pertama Pada Korban Hipotermi Di Gunung Lawu. Jurnal NERS Nainawa [Internet]. 2025;2(2):2025. Available From: <https://jurnal.unikastpaulus.ac.id/index.php/jnn>
2. Dinamika J, Pembangunan E, Sabila FW, Purwanti EY. Pendakian Di Jawa Tengah: Motivasi Ekowisata Dan Perilaku Wisatawan [Internet]. Vol. 2, JDEP. 2019. Available From: https://ejournal.undip.ac.id/index.php/dinamika_pembangunan/index
3. Susilowati T, Wardani R, Imamah IN. Hubungan Tingkat Pengetahuan Dengan Perilaku Penanganan Gawat Darurat Hipotermi Pada Pendaki Gunung Di Organisasi Primapala Ampel Kabupaten Boyolali. Jurnal Ners Dan Kebidanan (Journal Of Ners And Midwifery). 2020;7(1):037–43.
4. Laras M, Mustriwi M. Pengetahuan Pendaki Gunung Tentang Hipotermia. Jurnal Kesehatan Hesti Wira Sakti. 2022;9(2):72–80.
5. Adistiananingsih, Isnaini N. Pengaruh Edukasi Penanganan Awal Hipotermia Dengan Booklet Terhadap Tingkat Pengetahuan Pada Pendaki Gunung Prau. Jurnal Keperawatan Muhammadiyah. 2020;1(3):1–6.
6. Kesehatan Hesti Wira Sakti J, Laras Andhini M. Pengetahuan Pendaki Gunung Tentang Hipotermia. Available From: <https://jurnal.poltekkes-soepraoen.ac.id>
7. Farid Prasetyo Manggala Putra, Puji Setyaningsih, Danang Ari Santoso. Analisis Persiapan Fisik Pendakian Gunung Ijen Dan Gunung Ranti Di Kabupaten Banyuwangi. Jurnal Pendidikan Jasmani (JPJ). 2020;1(2):80–93.
8. Naspub_Septiana Cintya_S17204.
9. Pratama RAE. Perancangan Visual Panduan Pertolongan Pertama Pada Kejadian Darurat Saat Pendakian Robertus Ananta Edo Pratama Data Yang Dibutuhkan. Jurnal DKV Adiwarna. 2020;1.
10. Firdausi M, Ali Hamid M, Sasmito Adi G, Fakultas Ilmu Kesehatan Universitas Muhammadiyah Jember M, Fakultas Ilmu Kesehatan Universitas Muhammadiyah

- Jember D. Pengaruh Pendidikan Kesehatan Terhadap Kemampuan Pertolongan Pertama Hipotermia Pada Mahasiswa Pecinta Alam Di Kabupaten Jember Oleh [Internet]. Available From: [Http://fikes.unmuhjember.ac.id](http://fikes.unmuhjember.ac.id)
11. Rancang Bangun Pengontrolan Suhu Pada Sleepingbag Sebagai Tindakan Pencegahan Pada Penderita Hipotermia.
 12. Firmansyah R, Herdiani I, Rosidawati I. Gambaran Tingkat Pengetahuan Tentang Penanganan Pertama Hipotermia Pada Unit Kegiatan Mahasiswa Pecinta Alam (UKM MAPALA). *Healthcare Nursing Journal*. 2019 Jul 30;1.
 13. Kesehatan Masyarakat J, Raihan M, Studi Ilmu Keperawatan PS, Ilmu Kesehatan Universitas Muhammadiyah Purwokerto F. Pengaruh Pendidikan Kesehatan Terhadap Pengetahuan Pertolongan Pertama Hipotermia Di Gunung. 2023;7(1).
 14. Kedokteran J, Naldi Y, Sutisna A, Ponco PN. Hubungan Pengetahuan Hipotermi Dengan Perilaku Penanganan Awal Hipotermi Pada Mahasiswa Pencinta Alam Di Unswagati Dan IAIN Syekh Nurjati Kota Cirebon.
 15. Roshitasari S, Suwarni A. Hubungan Tingkat Pengetahuan Perawat Tentang Basic Life Support (Bls) Dengan Perilaku Perawat Dalam Pelaksanaan Primary Survey Di Igd Rsud Kabupaten Karanganyar.