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THE RELATIONSHIP BETWEEN KNOWLEDGE, ATTITUDE, AND PRACTICE REGARDING HYDRATION AND HYDRATION STATUS AMONG SCHOOL CHILDREN

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Abstract. Most school children experience dehydration, adversely impacting[i] their performance during school hours. Dehydration leads to decreased concentration and memory utilization, thereby affecting their learning. The multifaceted nature of this issue, encompassing facilities, policies, teacher roles, and student behaviors, complicates finding effective solutions. This research aims to investigate the relationship between knowledge, attitude, and practice concerning hydration and the hydration status of school children. The study was conducted at SMP IT Alam Ar-Royyan using an analytical observational approach with a cross-sectional study design. The population comprised seventh to ninth-grade students. The research instruments included a hydration behavior questionnaire and urine dipsticks. The researcher utilized the T test to find correlation between variable. The study revealed that the majority of respondents experienced mild to moderate dehydration. This was accompanied by good knowledge and attitudes among most respondents, while the majority demonstrated moderately satisfactory hydration behaviors. These findings highlight the significance of addressing hydration behavior to improve the hydration status of school children, providing valuable insights for potential interventions or programs.

Keywords: Adolescent; Behavior; Full-Day School; Hydration

INTRODUCTION

Sufficiency of water consumption remains a problem for school children in Indonesia. Based on a review conducted by Kavouras and Suh, about 60% of children in 19 countries do not achieve the recommended water intake, including Indonesia.(Suh & Kavouras, 2019) The tropical climate with sunlight duration exceeding 50% annually makes this country relatively hot. This condition increases the need for drinking water. (Ningsih, 2019)Sudrajat et al. found that elementary school children experience mild dehydration on average during school hours.(Sudrajat et al., 2018) This is supported by research conducted by Merita et al., which found that almost half (42.2%) of high school students in Jambi City experienced dehydration. (Merita et al., 2018)

Water is one of the essential components needed by humans. More than 60% of human body weight is water. (McNeil-Masuka & Boyer, 2022) This need is also evident with the sensation of thirst that arises when the body lacks fluids. Thirst is perceived by the brain to seek drinking to prevent dehydration. (Rondon-Berrios & Berl, 2019) When dehydration occurs, humans may experience fatigue, decreased urine output, dizziness, confusion, and even death. (Taylor & Jones, 2022) Therefore, adequate water intake is necessary to achieve good hydration status or euhydration.

Generally, adults have higher water needs than children. (Faizan & Rouster, 2022) This is influenced by various factors such as the environment, body weight, physical activity, and others. However, water needs in children are crucial for kidney maturation, memory function, and growth. (Lindower, 2017) Moreover, most children are still in school age, so poor hydration status can disrupt their learning activities.

Lack of water intake has negative impacts on school children. Attention and visual perception in children can be disrupted when dehydration occurs. (Westfall et al., 2019)

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Additionally, children's short-term memory and concentration abilities also decrease. (Dwi Winarsih et al., 2021; Sudrajat et al., 2018) When dehydrated, the brain becomes more active but its performance decreases, making brain function inefficient. (Dwi Winarsih et al., 2021; Sudrajat et al., 2018) These conditions can reduce information absorption in children's learning processes.

Schools are one of the places where children often experience dehydration. This phenomenon occurs due to limitations in meeting needs during school hours. According to UNICEF's 2022 report, three out of ten schools in Indonesia have not consistently provided drinking water at school. Furthermore, parents' economic conditions can also affect children's access to drinking water. Parents who provide sufficient money for their children to buy drinking water at school tend to have better hydration status. (Ernovitania & Sumarmi, 2017) In the classroom, some teachers do not remind students to drink water due to fear of disrupting lesson time as children need to go to the bathroom frequently. (Bottin et al., 2019) Various limitations make children more vulnerable to dehydration during school hours.

Hydration issues in children are not only related to external factors but also to the children themselves. Inadequate knowledge and attitudes result in poor hydration practices in children. Research at Catholic Junior High School Makale found that 43.9% of female students have low levels of knowledge and/or attitudes regarding water consumption. (Ranteallo, 2015) The same thing was found at IT AL-FIDAA Junior High School, where only 20% of all students had good knowledge levels and 60% had poor action levels regarding drinking water(Rohadatul Aisy Putri, 2019). Research conducted in Yogyakarta also found low levels of knowledge, attitudes, and actions on basic hydration aspects such as the amount of water needed, the impact of drinking, and the timing of drinking. The above conditions indicate that some children do not have a proper understanding of good hydration. (Yuliati et al., 2018)

Changes in knowledge, attitudes, and actions are components that form behavior.(Irwan, 2017) Lack of knowledge about a disease leads to a failure to recognize the occurring disorder.(Pakpahan et al., 2021) Attitudes, which are assessments of stimuli, become inappropriate without correct knowledge. Ultimately, actions will not change because actions are products of changes in knowledge and assessments. Behavioral changes can occur due to various factors influencing risk knowledge, environmental situations, and needs. (Irwan, 2017)

Hydration issues are complex problems. Unmet water needs give rise to various problems such as decreased performance in learning and school activities. Several factors are known to play a role in these problems such as access to drinking water, school policies, and children's knowledge, attitudes, and actions regarding hydration. Based on the various problems above, this research aims to find the relationship between levels of knowledge, attitudes, and actions regarding hydration and hydration status in junior high school children at Ar-Royyan Nature School.

METHOD

This study was an observational study with a cross-sectional design. The dependent variable was hydration status, and the independent variables were knowledge, attitude, and action regarding hydration.The target population of this survey was all children who were willing and allowed by their parents to participate in the hydration program.

The survey was conducted using a previously validated questionnaire. Several indicators, such as criteria for good drinks,factors affecting hydration, and barriers to meeting hydration needs at school, were used as benchmarks for children's knowledge, attitude, and action regarding hydration. The questionnaire was distributed to children using paper media and filled out by the children themselves. In addition to filling out the questionnaire, hydration status was also checked using urine cups and urine specific gravity dipsticks.

The questionnaires were distributed during the day (13.00 - 16.00) before school dismissal. This time was chosen so that the results obtained would reflect the children's hydration status during school hours. The questionnaires were distributed together with the urine cups so that the children could collect urine at any time they felt the need to urinate. The test was

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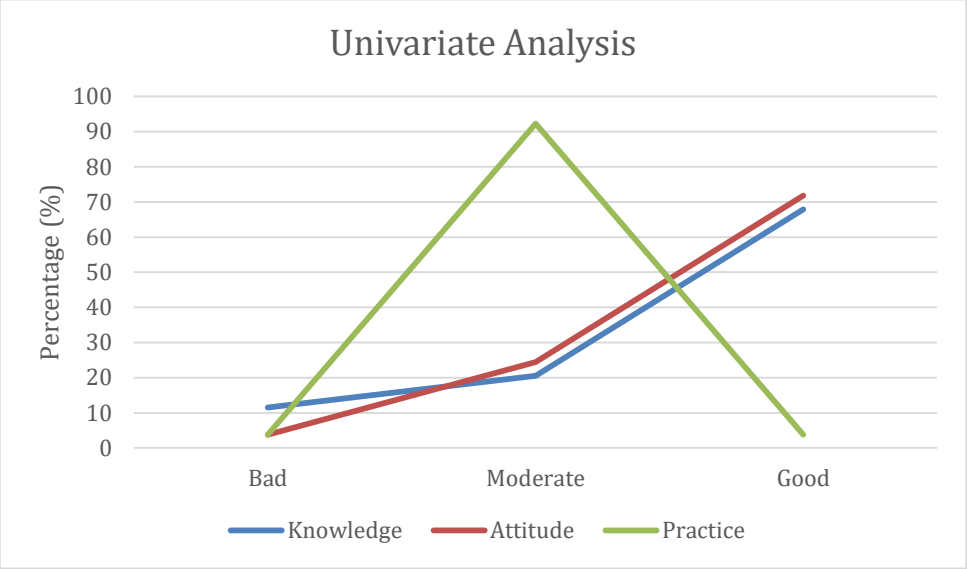
performed with urine specific gravity dipsticks less than four hours after collection.The T-test independent was used to analyze the relationship between behavioral variables and hydration status.

RESULTS AND DISCUSSION

Univariate Analysis



Most respondents were categorized as having good knowledge of hydration. Ranteallo conducted a study on junior high school students in South Sulawesi and found similar results. (Ranteallo, 2015) However, Sholihah and Utami found the opposite, that the majority of respondents had low knowledge of hydration.(Sholihah & Utami, 2022) The researchers suspect that this is influenced by several factors, such as the difficulty level of the questions and the learning process at school. This study used a questionnaire developed by the researchers themselves, so the results obtained are not the same as those of other researchers. In terms of the learning process, SMP Alam Ar-Royyan has a learning concept that is close to nature. This concept is designed to make learning fun and enjoyable for children so that the knowledge taught is easier to acquire.(Ningrum & Purnama, 2019)

Most respondents also had a good attitude towards hydration. This result is in line with Ranteallo's study, which found that the majority of respondents had a positive attitude. (Ranteallo, 2015) He also stated that this positive attitude is the result of a process of adaptation to the effects of a lack of drinking water. In this study, we can see the same thing through the indicators that reflect attitude, namely difficulty focusing during lessons. The researchers suspect that the good attitude of the respondents is the result of good knowledge. This conclusion is based on the theory that knowledge can be a factor that shapes a person's attitude.(Notoatmodjo, 2012) In addition, the provision of facilities such as water gallons at school can support the formation of good hydration habits in children.

Most respondents were categorized as having sufficient action in this study. Previous research by Sholihah and Utami found that the majority of respondents did not meet their daily water intake needs according to the recommended nutrient intake. (Sholihah & Utami, 2022) A study by Bakri also found that more than half of the respondents were categorized as bad for the action variable. (Bakri, 2019) In those two studies, the action was only divided into 2 categories, namely good/sufficient or bad/insufficient, so the results obtained are difficult to compare with this study. The conclusion is the same: good knowledge and attitude do not guarantee good action. Action, which is real behavior, requires several factors to be realized. The researchers observed that SMP Alam Ar-Royyan still lacks facilities and encouragement for children

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to drink. These factors need to be considered because children tend to ignore the signs of dehydration that they experience.(Aphamis et al., 2021)

Bivariate Analysis

No	Variable		Hydration Status			
			Euhydration (n)	Mild Dehydration (n)	Moderate Dehydration (n)	P value
1	Knowledge (n)	Bad	2	3	4	0,00
		Moderate	0	3	13	
		Good	1	15	37	
2	Attitude (n)	Bad	0	0	1	0,00
		Moderate	3	5	13	
		Good	0	16	40	
3	Practice (n)	Bad	0	1	2	0,00
		Moderate	3	18	51	
		Good	0	2	1	
	Total (N)		3	21	54	

In this study, knowledge is associated with hydration status ($p < 0.05$). Good knowledge among children about hydration can affect their total fluid intake per day(Sudarsono et al., 2019). Children with higher knowledge scores about hydration have higher water consumption rates and lower sugary drink intake(Irwin et al., 2019). This indicates that knowledge can be a predictor of children's actions in behavior.

Knowledge is formed from stimuli and learning processes. Based on cognitive theory, knowledge is the result of information processing. The recent increase in digitalization can be one of the factors influencing access to information. During the pandemic, there has been a 1000% increase in access to health information(Amankwah-Amoah et al., 2021). Education conducted on social media has been proven to change health behaviors.(Volkmer, 2021) However, knowledge alone is not sufficient to change someone's actions. In their research, Yuliati et al. educated and habituated school children to drink water. They found that the increase in knowledge was not followed by an improvement in hydration behavior.(Yuliati et al., 2018) At Sekolah Alam Ar-Royyan, most children have good knowledge, yet dehydration rates remain high. The researchers concluded that respondents tend not to practice the knowledge they have about hydration.

Attitude is a component of behavior formed as an unseen response.(Notoatmodjo, 2012) Attitudes can be influenced not only by knowledge but also by other aspects such as internal individual factors, social influences, and community events.(Albarracin & Shavitt, 2017) In this study, attitude is related to hydration status. Unlike knowledge, attitudes already tend to lead to action. However, their formation process requires other factors (supporting and driving factors).

The environment plays a role in shaping attitudes among children at school. The role of teachers is crucial for children's hydration status. Howells and Coppinger surveyed six countries on teachers' perceptions of their children's fluid intake. The results showed that most teachers did not know their children's fluid needs, did not encourage their children to drink, and did not set an example by drinking water at school. In fact, some lessons do not allow children to drink water.(Howells & Coppinger, 2020) Additionally, policies regarding water provision also impact children's hydration status at school. Research by Rauf and Lestaluhu found a significant improvement in hydration status after intervention with verbal education and provision of water access in every classroom.(Rauf & Lestaluhu, 2022) Both examples above are supporting (water access) and driving factors (teacher's role) for children's hydration behavior at school. At Sekolah

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Alam Ar-Royyan, the provision of water jugs is still insufficient. Interviews conducted by researchers with the school found that there are only two 19L water jugs at the school. Additionally, children's limited ability to purchase water at school can also affect their hydration.

Attitudes are influenced by internal individual factors, social environments, and community events. If cognitive aspects (knowledge) are good, the formation of conative aspects (tendency to act) and affective aspects (feelings) needs to be done to achieve a holistic attitude (total attitude).(Pakpahan et al., 2021) At Sekolah Alam Ar-Royyan, strengthening environmental factors is the most modifiable aspect. Teachers can set an example of the importance of bringing water bottles to school.

Action is related to children's hydration status. This component is the final stage of behavior. Actions can be directly observed by the senses. Fitranti et al. found a relationship between hydration status and fluid consumption levels. Children with lower fluid consumption are 1.85 times more likely to be dehydrated than those with sufficient fluid consumption.(Fitranti et al., 2018) However, this is still controversial as Sholihah and Utami found no relationship between actions and hydration status in junior high school children in Surabaya. This phenomenon can occur because urine can only be used to check hydration status at one time(Sholihah & Utami, 2022). A single check is not enough to represent the consistency of a person's drinking behavior.

The action aspect is still not good in children at Sekolah Alam Ar-Royyan despite good knowledge and attitudes for the most part. This indicates that children tend not to practice their knowledge and attitudes. In addition to supporting and driving factors, this phenomenon can be caused by barriers at school. The absence of rules regarding drinking water and using the restroom may cause children to fear asking for permission to use the restroom during lessons. Furthermore, at partner schools, children have outdoor activities that are not minimal. The concept of outdoor schooling means that children's learning activities are not only confined to the classroom but also extend outside. Playing ball or running around on the field can be factors contributing to high dehydration rates at partner schools. Moreover, partner schools are located in areas with high temperatures in Kota Padang.

CONCLUSION

This research found that almost all children experienced mild to moderate dehydration. This can be influenced by several factors such as children's knowledge, attitudes, and actions regarding hydration. All three variables were found to be related to children's hydration status.

Children's knowledge and attitudes at SMP Ar-Royyan mostly fell into the good category, whereas not with the action variable. This indicates a tendency for children not to practice what they know or feel, so even though knowledge and attitudes are good and related to hydration status, many still experience dehydration. Several factors such as the lack of teacher involvement, limited access to drinking water, and the environment can influence the high prevalence of dehydration in children.

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