

PRE-SCHOOL CHILDREN'S CONCEPTIONS ABOUT SKIN

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Abstract: *Skin is the largest organ in our body and serves many functions. Although children have some notions about their skin they do not realise just how many important roles skin has in the effective regulation of their bodies. In our investigation we wanted to know what notions and misconceptions 5-6 year old children have about their skin. We discovered many misconceptions, and that children are unaware of all the functions that skin has. The results will help us to prepare a teaching unit with this content.*

Key words: *children's conceptions, pre-school children, skin, human body*

Introduction

Skin covers the entire body and has a surface area of 1.2 to 2.2 square meters and accounts for about 7 % of total body weight in the average adults. Skin serves many functions, including protection, regulation and excretion. It is active in the healing process of wounds, and from the epidermis hair and nails develop. Without our skin, we would quickly fall prey to bacteria and perish from water and heat loss (Marieb, 1999).

Pre-school children already have some knowledge of their body, although naturally more about visible parts than about internal organs and organ systems which cannot be seen. Even a small child who is still not able to walk observes his (her) hands and legs, and other outer parts of the body. Small children experience feelings of pain, and of cold or warmth. Nagy (1953) examined how children aged 4-11 perceived functions of the human body while Gellert (1962) reported that children know that food makes them grow, but do not know how the food is processed by the body. Her findings indicate that pre-school children were not aware of the biological transformation of food by living things. The majority of children know that they have to eat, but they are not aware of what happens in the digestive system, and they do not connect the transformation of the food with the end product when they go to the toilet.

Although there have been some investigations of children's notions about the human body, we have no recent references about young children's ideas about their skin, although we know that they are naturally aware of it. Do they know that skin is

an organ with many important functions? Do they know that some animals are covered with feather, hair or scales?

In our investigation we explored the conceptions of Slovene pre-school children aged 5-6 years about skin. We wanted to find out if these topics are too difficult for children of this age to understand. The results will help us to prepare some learning activities for children concerning skin and its functions.

Methods and material

In our investigation we questioned 78 pre-school children age 5-6 years. Individual interviews were carried out with the children. We put 11 questions about skin to them. The questions were the following:

1. What is skin?
2. Why do we have a skin?
3. Why do we sweat?
4. Do all people have the same coloured skin?
5. How you care for and protect your skin?
6. Why do some animals have skin covered with hair or feathers, and some have scales?
7. What is the skin of birds covered with?
8. Can you name any animal which has a body covered in scales?
9. Can you feel with your skin? What can you feel?
10. What happens to your skin when you scratch or cut it?
11. Who told you all about skin?

Similar answers were grouped in the same category and presented in tables.

Results

1. WHAT IS THE SKIN?

Answers	%
Indicates the skin on himself/herself	22
To cover the bones	8
People- body	13
Cloth, skin on apple, protection	5
Do not know	23
Other	30

For this first question we got varied answers. 23 % of the children did not know what skin is, and 21 % just pointed to their skin instead of expressing themselves in words. Some children gave different answers such as:

- this is to protect us so that the blood will not get out of the body
- animals have skin too
- skin is skin
- it is fat

2. WHY DO WE HAVE SKIN?

Answers	%
To cover the bones	20
To prevent blood running out	27
Not to see our flash (muscles)	5
That we can live	5
That we can protect ourselves	5
Not to be seen under the skin	3
To touch	4
Do not know	15
Other	15

For the question ‘Why do we have skin?’ 20 % of the children answered: „to cover our bones“, and 27 % so that the blood would not run out of the body. Three children (4 %) mentioned that we have skin so that we can touch. Other answers were:

- that we do not feel pain
- that we can eat
- that we can roll on the ground

3. WHY WE ARE SWEATING?

Answers	%
Because we are hot	40
Because of the sun	9
Because we have long sleeves	3
Because we are jumping, exercising	6
Other	15
Because we are bathing, showering	4
Do not know	22
The liquid is running out of our body	1

In response to the question: ‘Why we are sweating?’ 40 % of children knew that this is because we are hot. 22 % of the children did not know the answer, while others gave answers connected with heat and sport, such as:

- because of the sun
- when we are jumping
- to have muscles
- that we exercise
- because I have long sleeves

One child mentioned that blood changes into water, which leaves the body when he is tired.

4. DO ALL THE PEOPLE HAVE THE SAME COLOUR OF THE SKIN?

Answers	%
Black people have black colour, white people have white colour, brown	69
Yes	22
No	4
Other	5

When we asked them: “Do all the people have the same colour of the skin?” 91 % of children knew that people have different coloured skin. 69 % also stated that “black people” have black skin, “white people” have white skin, and some brown.

5. HOW DO YOU CARE FOR AND PROTECT YOUR SKIN?

Answers	%
I put crème on for sunbathing	44
With dresses, caps	17
I wash myself	10
Good	4
I take care not to be too long on a sun	3
Do not know	6
I take care not to hurt myself	4
I put on sticking plaster	3
Other	10

In response to the question: “How do you care for and protect your skin?” 44 % answered that they use crème for sunbathing, 17 % that they protect their skin with their clothes, and 11 % that they protect themselves by washing themselves. Some other answers were:

- I just take care
- I eat
- With an umbrella

6. WHY DO SOME ANIMALS HAVE SKIN COVERED WITH HAIR OR FEATHERS, AND SOME HAVE SCALES?

Answers	%
Not to be cold, to be warm	46
To protect the skin	11
Because they are different animals	6
Do not know	11
Not to be seen inside or to be covered	4
To protect themselves	3
Other	18

On answering the question: “Why do some animals have skin covered with hair or feathers, and some have scales?” 46 % of the children said that animals have covered

skin so as not to be cold, to be warm, 11 % to protect the skin and 11 % did not know the answer. Some of the children mentioned:

- not to be naked
- that they (animals) can run
- that they can fly
- because it is cold in those countries
- not to be so ugly

7. WHAT IS THE SKIN OF BIRDS COVERED WITH?

Answer	%
With feathers	68
Do not know	26
With hair	1
Other	5

68 % of the children knew that birds' bodies are covered with feathers. One quarter of the children could not answer the question, and only one child mentioned fur.

8. CAN YOU NAME ANY ANIMAL WHICH HAS A BODY COVERED IN SCALES?

Answers	%
Fish	54
No	18
Octopus, jellyfish	6
Hedgehog	3
Dog	3
What are scales?	3
Other	14

In response to the question 'Can you name any animal which has a body covered in scales?' rather more than half (54 %) of the children answered that fish are covered with scales, but 18 % could not answer the question. Three children did not know the word 'scales' and some mentioned octopus, jellyfish, starfish, snake, dinosaur, reptile, elephant.

9. CAN YOU FEEL WITH YOUR SKIN? WHAT CAN YOU FEEL?

Answers	%
Many things that you can hold	14
Touch	14
When something is tickles	9
Do not know	5
Pain	6
Heart	5

Surface	8
Warm and cold	14
Bones	5
Yes	9
Other	10

Children have experienced touch, and some know that they can feel through their skin. 14 % of the children said they can feel many things (objects), 14 % can feel ‘touch’ and 8 % surface. So the most frequently (36 %) they mentioned touch or feeling in connection with touch. 9 % mentioned they can feel something that tickles, 6 % mentioned pain, and 14 % mentioned warmth and cold. Some mentioned itching and one of them that he can feel an injection needle.

10. WHAT HAPPENS TO YOUR SKIN WHEN YOU SCRATCH OR CUT IT?

Answer	%
Blood runs	59
We use a sticking plaster	8
Crust on the skin appeared	6
Some skin is going away	8
Do not know	4
Bump appeared	1
It is damaged	3
Other	11

In reply to the question ‘What happens to your skin when you scratch or cut it?’ 59 % knew that blood runs, and 22 % children gave the answers which explained what they would do to prevent blood from running (they use a sticking plaster) or what would be seen on the skin when they cut it (crust on a skin appears or some skin is going away). Only 4 % did not know the answer. Other answers were:

- you can see the flesh
- it hurts
- go to the hospital
- it is red

11. WHO TOLD YOU ALL ABOUT SKIN?

Answers	%
Mother	27
Father	9
Father and mother	8
At home	3
Do not know	13
I have got this information by myself	15
In my imagination, I imagine it	3
Other	23

As we expected, the children's main sources of information about their skin (47 %) was from their family (mother and father or at home). Only 13 % of the questioned children did not know where they acquired their information. 17 % children mentioned that they know all about skin

- because they are so clever,
- their brain told them,
- they were dreaming about this,
- because I was thinking,
- because I am already experienced, etc.

Discussion

Our study shows that nearly one quarter of the children questioned did not know what skin is, and 21 % did not know how to express or describe their skin, simply indicating it. Although all children have continuous, direct experience of their skin the majority of children did not properly answer this question.

More than half the children considered the function of skin to be to cover bones or the body, and prevent the body from losing blood. This response shows that children have ideas about what is inside their bodies. Only three children connected skin with their senses: children think, for example, that they feel with their hand, and not with the skin on the hand. While 12 children could not answer the question satisfactorily, the responses showed that the majority of 5-6 year olds connect the skin with protection and covering.

While children have naturally experienced sweating when playing, jumping and running, it is still the case that 22 % children did not know why they sweat. In other words, while they are aware that they are sweating, they do not recognise the outcome from sweating, that the body cools.

In Slovenia we have very few immigrants, especially people from other continents. So Slovene children are not readily familiar with people of different skin colour. It is therefore unsurprising that 22 % of children think that all people have skin of the same colour. But on the other hand 70 % of children indicated that there are people with different coloured skin. None of the children were aware that there are also differences between individuals within each major category of skin colour (that is, between 'white people' and between 'black people' etc).

More than half of the children knew that animals' bodies have coverings of hair, scales or feather to keep them warm, or to protect the body. Only a few children could not give a reasonable response to this question. Similarly, nearly three quarters of the children knew that birds are covered with feathers, but more than half of the children connect scales with fish and very few with reptiles. Children's familiarity with the animals concerned seems to be the main influence on their responses to this question.

All children were aware that they have experienced feeling with their skin, mentioning touch, tickling, pain, or cold and warm. All the children mentioned just one of the feelings.

Children know what is happening when they hurt themselves and injure their skin, and that there is blood under the skin and that when they hurt themselves the blood

runs. Some children described what we have to do when we hurt ourselves, or the after effects of injury (Put a sticking plaster on, go to hospital, a crust or scab appeared on the skin).

Unsurprisingly, the pre-school children acquired the majority of their information about their skin from their mother or father or both parents- the home environment is clearly crucial for providing this information. At this young age children often mix reality with imagination so it is not surprising that some mentioned that nobody gave him (her) this information, but that they discovered it for themselves, showing that they are so clever, and really good thinkers!

We can conclude from this study that pre-school children aged 5-6 years are aware of, and have some knowledge of their skin, but they do not know all its important functions. They also think that they are feeling with their hands and not with their skin, indicating that they fail to generalise from one specific structure to the body's overall covering. Similarly, they connect scales mostly with fishes and not with reptiles.

These results provide a good foundation for understanding young children's perceptions of skin and will inform the design and content of some learning and teaching activities we plan to improve children's understanding of the skin and its functions.

Literature

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Klíčová slova: představy dětí, předškolní věk, kůže, tělo