GAME INTERACTION BETWEEN A HUMANOID ROBOT AND A DIABETIC TEENAGER
MIGHT THIS IMPROVE MOTIVATION TO FILL IN THE NUTRITIONAL DIARY?

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co-funded by the European Union

Methods

Participants

- Age range: 11-14 years old
- N. of children involved: 58

- 20 children (YES)
- 38 children (NO)

Volunteers for interaction with NAO

- Play with NAO
- Filled in the diary

Our goal

to investigate whether Nao’s interactions with children could positively affect the adherence to specific medical recommendations during their stay.

Namely, children were asked to fill in a specific nutritional diary.

Results

A two-tailed t test comparing the two means confirmed statistical significance (t=2.39 with p=0.0103).

<table>
<thead>
<tr>
<th>Filled in Diary</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Playing with NAO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>8</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>No</td>
<td>4</td>
<td>34</td>
<td>38</td>
</tr>
</tbody>
</table>

double the number of children who didn’t play with Nao filled in the diary


Conclusions

The study revealed...

- Better adherence to fill in the diary thanks to individual child-robot interactions compared to the control group

- Efficacy of this useful and enjoyable way to motivate diabetic children

Future Perspectives

Long-term effect

Our aim is to keep on exploring the theme of motivation through this methodology, in particular its long-term effect.

During Summer Camp 2014 (Misano Adriatico, Italy) we will investigate the motivation and its effect on children’s daily life.

Medical context

This preliminary work opens the possibility to introduce an innovative and enjoyable tool into the hospital context, as a support to medical staff work.

Acknowledgements

This project has received funding from the European Union’s Seventh Framework Programme for research, technological development and demonstration under grant agreement no 248116.

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Namely, children were asked to fill in a specific nutritional diary.

Finally, adherence of diabetic children to this task was measured by evaluating whether the child, after the interaction, filled in the diary at least once during the following days.

BETTER ADHERENCE TO FILL IN THE DIARY

thanks to individual child-robot interactions compared to the control group

EFFICACY OF THIS USEFUL AND ENJOYABLE WAY TO MOTIVATE DIABETIC CHILDREN

Aliz-e project

This activity was carried out in the context of the ALIZ-e EU co-funded project, which develops the theory and the practice behind the development of embodied cognitive robots capable of long-term interaction with child.

This study describes the experience of introducing NAO, a humanoid robot, into a summer camp for children with diabetes (August 2013, Misano Adriatico, Italy). With the aim to provide a companion capable of supporting and motivating them.

During interaction, the child and the robot played different activities related to nutrition and diabetes.

Meanwhile Nao provided motivational hints regarding the nutritional diary, underlining the importance of filling it in.

Finally, adherence of diabetic children to this task was measured by evaluating whether the child, after the interaction, filled in the diary at least once during the following days.

Acknowledgements

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