The Psychology of Taste for Children who Require Nutritional Interventions

How to increase compliance

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Taste plays a key role in children's willingness to eat particular foods, but also in their compliance to medication and oral nutritional supplements (ONS). Poor compliance can significantly impact clinical outcomes. The issue of taste can be particularly relevant for children with disease-related malnutrition, as their sense of taste and willingness to eat may be affected by their illness, experiences in hospital and the medical treatment they receive with its associated side effects.

Our sense of taste is influenced from an early age by numerous factors. These include our early experiences with food, sensory factors such as the way in which smell, appearance and texture are experienced, learned behaviour from others and our genetics.[1-3] Taste is a complex process, with the psychology of taste playing an important part in our taste preferences for life.

Taste evolves throughout childhood and children can develop strong likes and dislikes. Children and adolescents' stage of cognitive development will influence their adjustment to illness and how difficult they find it to motivate themselves to take treatments which they do not like the taste of or find psychologically challenging in some way.[4] In these scenarios, practical and psychological strategies are often useful in improving adherence to medications and ONS to help achieve positive outcomes.

Health issues: psychological implications for taste and general compliance to treatment (including ONS)

Some of the most common causes of disease-related malnutrition in children include long-term health conditions, such as childhood cancers, chronic kidney disease, respiratory conditions, congenital heart disease, cystic fibrosis and cerebral palsy. The impact of disease-related malnutrition can result in impaired drug metabolism, lowered immunity, less effective response to treatment, increased drug toxicity and increased morbidity due to infection.[5, 6]

Long-term health conditions can lead to changes in taste for some children[7, 8] and a lack of appetite, at a time when there is likely to be an increased demand for energy by the body. In children with underlying disease, the taste changes and negative associations with eating which may develop, can impact compliance to food, medication and ONS, leading to poorer clinical outcomes.[9]

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Foods which taste unpleasant due to treatment or are eaten when nauseous can be affected by 'classical conditioning' and continue to be strongly disliked following treatment.[9, 10] Children and adolescents who are unwell or are recovering from surgery may also find their appetite is affected by gastrointestinal symptoms such as nausea and vomiting, or by feeling ill, pain when eating or low energy.

Classical conditioning

Classical conditioning is a learning process whereby a stimulus that had not previously resulted in a particular response (conditioned stimulus), becomes associated with a stimulus that does result in a specific bodily response (unconditioned stimulus). As a consequence, the conditioned stimulus begins to elicit the same response as the unconditioned stimulus. For example, food eaten just before taking medication with side effects of nausea can result in the person feeling nauseous when eating that food on future occasions, despite not taking any medication at the time.

Children can also develop taste or food aversions for other psychological reasons. For example, children who do not have an illness, but require ONS for support with weight management may also have a complicated relationship with foods, textures and tastes, which will influence their willingness to receive ONS. 'Fussy' or restricted eating patterns may be influenced by the child's sensory perceptions of foods, negative experiences with eating or in some cases certain developmental disorders.[11, 12] Children who have spent time in a neonatal intensive-care unit (NICU) and/or were tube fed as infants may also have varying attitudes to solid food and taste, including negative associations with feeding and pain.[13, 14]

Once a child begins to feel apprehensive about the taste of a particular medication, food or ONS, they can potentially develop anticipatory anxiety associated with this. Children start to anticipate the taste of a medication or ONS, triggering their fight or flight anxiety response and sometimes resulting in them feeling nauseous and anxious before having even consumed it.[15, 16] Specific foods and tastes can also become more generally associated with their illness or with negative experiences, with hospital food also sometimes contributing to food aversions and reduced appetite.[9] Health issues can also result in sufferers and their families feeling helpless and overwhelmed, particularly when a condition is chronic, unpredictable or impacts significantly on daily life.[17] As a coping strategy, some children may try to control what they will eat or which treatment they will take, if very little else feels in their control.

Using psychology in the dietetic consultation: tools for dietitians

To encourage compliance and improve a child's clinical outcomes, it is important to consider the child's individual likes, dislikes, beliefs about their illness and current psychological state. A child's developmental stage will also be key in influencing their beliefs and understanding of their condition and treatment.[18] For example, young children are likely to have a more magical interpretation of their illness than older children. This could, in some cases, lead to them assuming that they have been 'bad' and caused their illness. Children fearing this may thus want to pretend they do not have the condition and reject an ONS, because it acts as a reminder of their illness. When considering the choice of ONS and how it is administered, the following questions and strategies can be useful:

- Explore whether the child's condition or treatment has impacted on taste and whether they have always been sensitive to particular tastes or textures
- Ask open-ended curious questions to understand what the child knows about their illness and how their medication and/or ONS works
- Look out for whether the child thinks that their medication or ONS will be harmful or unsuccessful
- Give the child some control in choosing their ONS if possible
- Explore any other ways that the child can make choices about when and how they would like to take their ONS
- Use positive language and words to describe taking the ONS which link in with children's own specific goals. For example, do they want to be able to play with their friends more, get back to school or play football again? Try to motivate them, by describing why taking the ONS will be one step towards that goal.

Supporting parents to help increase compliance to nutritional interventions

Parents' beliefs and concerns about treatment are also crucial to explore, as they will provide the most powerful messages to their child about their condition. From infancy, parents play a substantial role in the development of taste preferences, food aversions and shaping eating behaviour.[19, 20] Wider issues around control in the parent-child relationship, issues around separation and autonomy in adolescence and numerous other aspects of family dynamics can also influence compliance to treatment.[21] Making parents aware early on in treatment of factors which may influence adherence, including possible changes in taste and learned food aversions, can help them to feel empowered and more able to support their child. Parents can try to motivate their child to drink an ONS in numerous ways:

- Minimising the association of ONS with health issues by serving the ONS in a nice glass or the child's favourite drink container
- Giving the ONS separately to medication, to reduce possible negative associations between health, medication and the ONS
- Parents taking their own vitamin or supplement at the same time as their child takes their ONS to normalise this
- Encouraging children to drink an ONS by chilling it, using it in smoothies and milkshakes, adding flavourings and adding it to favourite recipes
- Avoiding a focus on taste
- Using desirable rewards with a frequency which is motivating
- For younger children, fun games during or after taking the ONS may work as a positive distraction
- Some children may benefit from their parents creating a personalised motivational poster with them about their condition and the role of treatment, within which the ONS can be included
- TV characters and superheroes can also be used as role models with younger children to help them adopt new behavioural habits in adhering to treatment and taking an ONS. Adolescents may also have helpful role models who are influential
- Adolescents are likely to respond well to being given as much appropriate control and choice as possible.

For children experiencing anticipatory anxiety about their treatment, it is also important to educate them and their families about the physiological processes of the anxiety 'fight or flight' response. Children can then be supported to develop strategies to reduce anxiety, encourage relaxation and desensitise themselves to the feared treatment, making them feel more in control emotionally and thus hopefully improving their adherence.

Conclusion

Taste, treatment and wider experiences related to health issues can all impact on children and adolescents' motivation and desire to take an ONS. Gaining an understanding of the impact of these factors on the individual child's beliefs about the nutritional intervention can result in a tailored and more successful treatment approach. Helping parents to be aware of the ways in which children's eating and adherence behaviours may be affected by their medical experiences can enable them to support their child before a problem becomes entrenched. Numerous positive strategies can normalise and increase children's and adolescents' sense of control about treatment and taking an ONS, at a time when much else can feel out of control in their lives.

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