



# Eating behaviour in autism spectrum disorder

Sarah Geiselhart

## Introduction

The autism spectrum disorders (ASD) are characterised by deficits in social communication and interaction, repetitive patterns of behaviour and sometimes very particular interests as well as special processing of perceptions [2]. There are still only a few studies on the eating behaviours of autistic people. Previous studies on this topic primarily deal with the problems in the eating behaviour of autistic children [3–6]. Only in recent years, autistic adults have become more and more the subject of (meta-)studies [7–10]. There are many indications that the special perceptual processing is not only a characteristic symptom of ASD but also the cause of many abnormalities which manifest not least in eating behaviour [11].

## Abstract

Autism spectrum disorder (ASD) is a neural developmental disorder that affects one in 68 people worldwide. Parents and educators of autistic children often notice a picky eating behaviour in the children. To investigate the peculiarities of the eating behaviour of autistic people, 18 autistic adults were interviewed and the parents of 30 underage autistic children completed a questionnaire. The study concluded that there are very great individual differences in the eating behaviour of autistic people. However, the abnormalities in eating behaviour are almost always directly attributable to the special perceptions of autistic people. Hypersensitivity and hyposensitivity of all five senses manifest noticeably in eating behaviour.

**Keywords:** Autism, ASD, picky eating behaviour, food selectivity, adults, adolescents, children



## Methods

In cooperation with the journal "autismus verstehen", the eating behaviour of children, adolescents, and adults with autism spectrum disorders (ASD) was investigated as part of a bachelor's thesis. After a literature research, 18 people aged between 18 and 65 (four women and 14 men) with an autism diagnosis were interviewed between May and July 2021 via the adult self-help groups of the association "Autismus verstehen e. V." using a problem-centred interview. For this purpose, a guideline was prepared based on the literature research, which contained nine ad hoc questions. No experience or previous knowledge was required to answer. The interview participants were first asked to report on their eating behaviour from childhood until today. Then questions were asked about what they had told. Finally, to enable comparability of the interviews, the so-called ad hoc questions followed, which were pre-formulated and asked all participants. In the content-analytical evaluation, the focus was initially on the childhood and youth of the interviewees, as these findings form the basis for the second method: A semi-open questionnaire with three questions on the socio-demographic data (age at the time of the interview, age at the time of the autism diagnosis and gender) of the children and adolescents, four free text questions and two questions with checkboxes (16 on difficulties and five on consequences) and free text fields for additions. The questionnaire was completed in writing by parents of 30 autistic children and young people in July 2021. The parents were recruited through parent support groups, schools, kindergartens, and early intervention. For the descriptive analysis, the over-18s were divided into three age groups, each covering an age range of 16 years: 18 to 33 years (n=6), 34 to 49 years (n=8) and 50 to 65 years (n=4). Children and adolescents were divided into age groups spanning three years: 3 to 5 years (n=5), 6 to 8 years (n=6), 9 to 11 years (n=6), 12 to 14 years (n=9) and 15 to 17 years (n=4).

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### Corresponding author

Sarah Geiselhart, B. Sc.

Hochschule Albstadt-Sigmaringen

Fakultät Life Sciences

Sarah-Geiselhart@web.de

## Results

### Problem-centred interview

The results of the problem-centred interviews are illustrated by quotes from the interviewees. Two-thirds of the interviewees said they had been fussy as a child. In adulthood, it was only slightly more than one third who would describe themselves as picky. The reasons given for increasing food choices with age were a curiosity to try unfamiliar foods and a desire for acceptance. Those who still described themselves as picky at the time of the interview said that reduced food choices made planning and preparation easier, or that they were forced to eat certain foods as children and were not allowed to get up until their plate was empty. Autistic people who were forced to eat unloved foods as a child were found in all three age groups in the study presented here. "As a child, you could not tell me „Bon appétit". I always associated the word "appetite" with children unwrapping their stinky cheese sandwiches. The kindergarten teacher would say "bon appétit" and then the children would unwrap their stinky cheese sandwiches. My mother didn't even know what was going on until I was eight when I explained it to her." (Respondent #6)

The most common food rejected by adult autistic people is because of its smell. Raw cheese was particularly disliked with six mentions. For almost all of them, this dislike has existed since childhood. In contrast, cheese in gratinated form is often eaten and liked by autistic people who do not like raw cheese. In addition, several people dislike foods with a soft consistency, such as pudding, rice pudding or semolina porridge, and foods with a slimy consistency, such as aspic or jelly. Additionally, some foods can be eaten on their own but may be considered unpalatable in combination. These foods can be, e.g., Danube wave: "Some things I combine to eat and some I eat separately. With some things I also find that they don't fit, for example, Danube wave: I like the individual ingredients, but the overall taste with cherry and then dark chocolate and cream together I found quite disgusting. So, I always ate it separately: I ate the cream, and the base together, but always ate the cherries separately, because in this dish things belong together that don't go together at all." Respondent #5

In terms of gustatory perception, salty and bitter foods were met with rejection. Sweets and sweet drinks (cocoa and soft drinks), on the other hand, were liked by almost all of the 18 participants. Several people reported that they tend to use salt sparingly and instead season dishes with significantly more pepper, Tabasco, or chilli. When



asked what the perfect restaurant should be like, the respondents mentioned their requirements for a low-stimulus environment during meals. For autistic people, who often suffer from hypersensitivity to normal ambient noise (hyperacusis), not to feel disturbed by other people's conversations, it would be advantageous to place the tables far enough apart. To avoid disturbing noises, the coffee machine should not be in the same room as the guests. Furthermore, fresh air without food smells, pleasant lighting and self-service are desired by the respondents.

Several people reported being overweight because of food cravings and underweight because of lack of appetite – either due to a lack of a feeling of fullness or hunger or due to taking neuroleptics for comorbidities. As a possible cause for food cravings, the active substance olanzapine was named, and the active substance methylphenidate was named as a possible cause of the loss of appetite. One woman with ASD reported being misdiagnosed with anorexia nervosa due to her underweight and selective eating behaviour.

### Parent questionnaire

Children who ate a choice of less than 20 different foods were classified as picky eaters. 24 (80%) of the children were picky according to their parents interviewed with the questionnaire. One child's food choice changed every six to twelve months. Other conspicuous features were the refusal of all fruits and vegetables by seven (23%), of all foods with mixed consistencies (e.g., stewed apples, cottage cheese, yoghurt with fruit pieces) by 16 (53%) and due to the presentation by 22 (73%) children. According to their parents, children and adolescents preferred or sometimes even exclusively ate the food of certain brands or from certain shops, e.g., Chinese noodle dishes of a certain brand, Granny Smith apples, Bologna sausage from a certain butcher and apple sauce from a certain discounter. Hypersensitivity in the sense of smell, manifesting e.g., in not staying seated while there is cheese on the table, was also mentioned by parents. Younger children with ASD often had problems swallowing and chewing: 60% of three- to five-year-olds and one-third of six- to eight-year-olds had difficulties keeping their mouths closed while chewing, chewed too little and often choked.

## Discussion

Selective eating behaviour decreases after the age of eleven [11] but does not disappear completely in all affected individuals. In adulthood, there are two main reasons for selective eating behaviour in the autism spectrum: First, a limited repertoire of foods can simplify shopping and preparation. The second reason may be the following: Those who were forced to eat certain foods as a child often link negative experiences with them and therefore do not want to eat them later. The peculiarities in the sense of smell and taste mentioned by Ziebarth and Theunissen [10] were confirmed in the study presented here. Hypersensitivities to intensely smelling foods occur in the spectrum in children, adolescents, and adults. In the sense of taste, hyposensitivities of the sweet receptor and hypersensitivities of the salt and bitter receptors dominate [12]. Refusal of foods with mixed consistencies was apparent in more than half of the children and adolescents, but only in one adult person with ASD. Here, it can be concluded from the present study that tactile sensitivity may

decrease with age. The preference for particularly hot and spicy foods in some of the adults also suggests hyposensitivity of the heat and pain perception [11]. In contrast to tactile hypersensitivity, hyperacusis and an aversion to certain everyday sounds (misophonia) are also very common in adult autistic persons, which is why restaurants should be as low in stimuli as possible.

## Conclusion

Since autism is a spectrum with different manifestations, the problems in eating behaviour are also very individual. Consequently, there is no universal solution. For example, it would make sense to encourage a child with changing selective eating behaviour to listen to his or her body. For a person without a sense of hunger, thirst, or satiety, on the other hand, this could lead to a deterioration in health. In addition, compulsion seems to be inadvisable. There is evidence to suggest that autistic people who were forced to eat certain foods as a child will reject them as adults and thus further restrict themselves in their food choices.

Findings from the present study are not only applicable to the education of autistic children and the identification and treatment of "eating disorders" in people diagnosed with autism, but can also contribute to the accessibility of restaurants, canteens, and dining halls. The limitations of the present study are that the selection of adults interviewed is not a representative sample, as only autistic people with minor deficits in verbal communication were interviewed. Non-verbal autistic people and autistic people not organised in self-help groups could not be included. The findings of this study will also be presented in an article in the journal "*autismus verstehen*" (understanding autism), to sensitise those directly affected to the peculiarities of eating behaviour. To investigate the eating behaviour of people with ASD comprehensively and fully representatively, further research is required.



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**Conflict of interest**

The author declares that there is no conflict of interest.

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**Sarah Geiselhart, cand. B. Sc.**  
Hochschule Albstadt-Sigmaringen  
Fakultät Life Sciences  
Sarah-Geiselhart@web.de

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