



# Asperger syndrome and partnership

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## Abstract

**Background:** Asperger Syndrome (AS) is a kind of an Autism Spectrum Disorder (ASD), which is characterized by patterns of repetitive behavior, special interests and difficulties in social interaction. Especially due to the impairment in social interaction, partnerships with their special demands for social competence seems to be a challenge for individuals with AS. But data about working of such partnerships are rare. Therefore it was aim of this study to find out how these partnerships function and in which areas problems maybe occur.

**Subjects and methods:** 12 adults with an AS (8 female, 4 male adults) and their partners (11 heterosexual partnerships, one female homosexual partnership, average age 40.4 years) were asked about their partnerships via the two questionnaires “Fragebogen zur Einschätzung von Partnerschaft und Familie” (EPF) and “Partnerschaftsfragebogen” (PFB). T-scores were computed and interpreted.

**Results:** Highest T-Scores, indicating problematic areas, were found in the scales of affective communication, problem-solving communication and quarreling. Ratings of global happiness showed participants to be between >rather happy< and >happy<. There were no significant rating differences between individuals with AS and their partners.

**Conclusions:** Problematic areas of partnerships in individuals with AS especially occur in the section of communication, not surprisingly, as it is one of their difficult fields. Nevertheless, at large it can be concluded that partnerships in individuals with AS seem to work.

**Keywords:** Asperger syndrome, autism, partnership, sexuality

## Introduction

Autism Spectrum Disorders (ASD) are complex neurodevelopment disorders, that are characterized by impairments in social interaction, repetitive behavior and special interests [1]. Asperger Syndrome (AS) is a subgroup of ASD, in contrast to childhood autism, in which first symptoms have an onset prior to age 3 years, there is usually no clinically significant delay in language and cognitive development in AS [1]. Prevalence of ASD is currently estimated to be approximately 0.76% [2] with a sex ratio of 3-4 males:1 female [3]. ASD aggregates in families, heritability is estimated about 50% [4]. Thereby factors that contribute to an ASD are genetics, especially an intergenic region between cadherin 9 and 10 seems to be of importance [5]. Epigenetics, such as nutrition with B vitamins, could have effects on DNA expression [6]. But also environmental causes like use of antibiotics, heavy metals, chemicals and toxins are considered to be relevant in the pathogenesis of ASD [7].

Autistic traits are associated with reduced accuracy and sensitivity in the perception of emotional facial expressions for example such as anger, disgust and sadness [8]. Adults with ASD often report a sense of isolation, difficulty in initiating social interactions and in communication as well as longing for greater intimacy [9]. Adolescents with an AS display poorer quality of friendship and less motivation to develop friendships. They also report relatively high levels of loneliness [10].

Partnerships represent a special form of interpersonal relationship with particular demands on social interaction and social competence suggesting them to be difficult for individuals with AS. Investigations have demonstrated that adults with ASD often senserelationships at work, developing and maintaining personal relationships and appropriate behaviors around members of the opposite sex as social challenges [11]. It was shown, that living in a partnership is not the common standard for individuals with AS, as only less than a third was having a

partnership [12]. Nevertheless, rare investigation about this topic have shown that majority of high-function adults with ASD are interested in romantic relationships and have experiences with them [13]. Also sexuality seems to be a present part in the development and life of autistic persons [14,15].

Vice versa individuals without autism show difficulties with reading emotional facial expressions of persons with autism, probably due to an atypical representation of facial expressions in ASD [16]. This can complicate interpersonal relationships, too.

Data about partnerships of individuals with AS seem to be rare as to our knowledge there exists no investigation about quality and potential problems in those partnerships. The specific characteristics of AS suggest that especially a close and complex relationship like a partnership could be affected, maybe even complicated, by the difficulties in social interaction. That is why we conducted this study, it was our aim to find out, how such partnerships work and which particular problems they maybe experience.

## Methods

### Subjects

We included 12 adults with the diagnosis of AS (9 female, 3 male adults, range of age: 22-50 years, mean: 40.7 years, SD: 9.1 years) and living in a partnership (11 heterosexual partnerships, 1 female homosexual partnership; average duration of partnership: 10.2 years, SD 8.4 years) as well as their partners (4 female, 8 male adults, range of age: 23-56 years, mean: 40.1 years, SD: 10.8 years). 5 of the couples were married and 5 had children. Adults with AS were recruited from our outpatient clinic for AS: 12 adults who sought evaluation in our outpatient clinic to establish a diagnosis of AS for the first time and lived in partnership were included.

There was no hint for an ASD in the partners. All participants hailed from northern Germany and were still living there at the time of investigation.

### Assessment of AS

AS in adulthood was diagnosed using a self-developed, semi-structured interview (Diagnostic interview: Asperger syndrome in adulthood) [12] that thoroughly assessed the patients according to DSM-IV criteria. After a general section focusing on medical anamnesis (somatic, psychiatric, and social histories, including childhood development), the interview continues with a special section involving AS that includes the following items with respect to childhood and adulthood: social interaction and communication (e.g., friendships with/relationship to/interest in peers, and being a loner and suffering from loneliness); special interests (e.g., spending leisure time, and interest in specific objects/topics); stereotypic behavior (e.g., rituals, and reaction towards disturbances of rituals); and other characteristics (e.g., clumsiness, and sensitivity towards noises/smells/tactile stimuli). Additionally, eye contact, mimicking expressions, speech melody, "mirroring" of affections, and

clumsiness were observed during the interview. The interview was conducted by the same experienced investigator, who was a psychiatrist, and had a duration of approximately 90 minutes. If available, diagnosis of AS was complemented by information from personal/telephone interviews, or in written form from observers during childhood and/or adulthood, such as partners, friends, parents, or siblings. In some cases, school reports were consulted. The diagnosis of AS was only confirmed if DSM-IV criteria were clearly fulfilled based on clinical judgment and available information during the interview.

There is no standardized interview or test available for diagnosing AS in adults according to DSM-IV/ DSM-5 criteria that is based on information obtained from sources other than parents and adults often do not wish parents to be consulted [17].

Additionally, we used the two self-rating scales "Autism-spectrum quotient" (AQ) [18] and "Empathy quotient" (EQ) [19]. The AQ is a scale for quantification, in which the score of a person is assessed on a continuum from normality to autism; a higher score indicates more pronounced autistic traits. The EQ is a scale for estimating an individual's ability to empathize, thereby a higher score indicates stronger empathy. Baron-Cohen suggested a cut-off of  $\geq 32$  points for the AQ and  $\leq 30$  points for the EQ. In our sample of adults with AS all scored above the cut-off of the AQ and below the cut-off of the EQ.

No adult with AS had a mental retardation, as tested by a German multiple-choice word recognition test for the measurement of intelligence ("Mehrfachwahl-Wortschatz-Intelligenztest MWT-B", Lehl 1993).

For detailed characteristics of participants see [Table 1](#).

All participants gave informed consent after the procedure had been explained. Approval for this study was given by the Ethics Committee of Hannover Medical School.

### Questionnaires exploring the partnership

The experience of the partnership of our patients and their partners were respectively explored via two valid questionnaires as described below. Each participant was instructed to answer items on his/her own.

### EPF

The questionnaire "Fragebogen zur Einschätzung von Partnerschaft und Familie" (EPF) [20] is the German version of the Marital Satisfaction Inventory - Revised MSI-R. It is an inventory to explore interaction in partnership with 150 items, comprising the scales: global distress, affective communication, problem-solving communication, aggression, time together, disagreement about finances, sexual dissatisfaction, role orientation, dissatisfaction with children and conflict over child rearing. The last two mentioned scales about children only have to be completed by persons with children.

Two scales for validity ascertain tendencies of inconsistency and social requested behavior. There are two choices for answer: "right" and "not right".

Scores of every scale are converted into T-scores based on a

**Table 1. Characteristics of participants.**

	Sex of AS-patient	Sex of partner	Age of AS-patient	Age of partner	Duration of partnership in years	AQ in AS	EQ in AS
Partnership 1	female	male	32	32	12	38	11
Partnership 2	female	male	46	53	21	46	11
Partnership 3	female	male	22	23	1	39	20
Partnership 4	female	male	46	41	19	46	24
Partnership 5	male	female	47	45	23	33	19
Partnership 6	female	male	50	56	7	46	10
Partnership 7	female	male	50	51	6	39	27
Partnership 8	male	female	39	31	1	39	14
Partnership 9	female	female	28	24	2	47	6
Partnership 10	female	male	45	41	11	42	9
Partnership 11	male	female	37	40	1	47	14
Partnership 12	female	male	46	44	18	43	10

comparison of a normative control-population. T-scores above 50 can be considered as indicators for a problematic condition.

### PFB

The questionnaire “Partnerschaftsfragebogen (PFB)” [21] is a standardized instrument to explore quality of a partnership. It comprises 31 items: 30 items concerning quarreling, tenderness and togetherness/communication. Each item scores from 0 (never/very seldom) to 3 (very often). Scores of every scale are converted into T-scores based on a comparison of a normative control-population. In the scale of quarreling, T-scores above 50 can be considered as indicators for a problematic condition, in the both other scales it is vice versa. The 31. item estimates the global happiness of partnership on a scale from 0 (very unhappy) to 5 (very happy).

### Data analysis

T-scores in every scale of the EPF and PFB of each individual were computed, the descriptive overview is listed in the results-section. To provide greater clarity, a more detailed interpretation of the T-scores in each scale of the questionnaires is described directly in the results.

Subgroup differences (patients versus partners) were analyzed with the Mann-Whitney-U-Test as they were not normally distributed. Analyses were performed using the software SPSS (Version 23.0 for Windows; IBM SPSS). Statistical significance was defined by a p-value of .05.

### Results

Mean T-values of each scale of the EPF and the PFB are listed in **Table 2**. Further results of each scale are analyzed in the following:

#### EPF

##### *Global distress*

4 (33%) of the patients with AS showed T-scores between 50-

**Table 2. Means and standard deviations (SD) of T-scores in the different areas of partnership.**

	Total mean, SD	AS-patients mean, SD	Partners mean, SD
<b>EPF</b> Global distress	52.3, 11.8	51.9, 11.2	52.7, 12.8
Affective communication	54.7, 9.9	54.6, 10.0	54.8, 10.3
Problem-solving communication	58.4, 14.2	57.4, 15.9	59.4, 12.9
Aggression	50.3, 8.7	48.8, 9.9	51.8, 7.3
Time together	51.7, 11.9	50.4, 10.3	52.9, 13.8
Disagreement about finances	59.2, 15.6	62.8, 17.9	55.7, 12.7
Sexual dissatisfaction	50.9, 10.3	51.1, 10.1	50.8, 10.9
Role orientation	52.7, 9.8	51.8, 11.2	53.6, 8.4
Dissatisfaction with children	56.6, 12.8	59.4, 9.1	53.8, 16.3
Conflict over child rearing	59.0, 14.6	58.2, 19.2	59.8, 10.3
<b>PFB</b> Quarreling	58.5, 14.2	58.9, 15.8	58.1, 13.3
Tenderness	42.7, 14.3	41.3, 11.3	44.0, 17.1
Togetherness/communication	46.1, 13.3	43.2, 13.1	48.8, 13.4
Raw points global happiness	3.58, 1.1	3.75, 1.2	3.45, 1.03

Global happiness of PFB is depicted in raw-points as it is just one item. In the scales “tenderness” and “togetherness/communication” in the PFB low T-values are indicating problematic fields.

60, indicating significant conflicts in the partnership. 3 (25%) patients had a T-score above 60, indicating a very strong dissatisfaction. In the group of the partners 4 (33%) individuals had a T-score between 50-60 and 3 (25%) individuals above 60. Thereby in 6 (50%) cases a T-score above 50 was related

to both partners of the partnership.

### ***Affective communication***

4 (33%) of our AS-patients showed a T-score between 50-60 and 4 (33%) patients above 60, an indicator for feeling emotionally separated and being misunderstood by the partner respectively being not supported by him. 5 (42%) of the partners had a T-score between 50-60 and 3 (25%) above 60. In 5 (42%) cases both partners showed a T-score above 50.

### ***Problem-solving communication***

2 (17%) of the patients with AS scored a T-value between 50-60 and 6 (50%) patients above 60. First range of T-score is a hint for longer lasting conflicts with frequent disputes, the latter range indicates unsolved conflicts. 2 (17%) of the partners showed a T-score between 50-60 and 7 (58%) above 60. In 8 (67%) cases both partners showed a T-score above 50.

### ***Aggression***

3 (25%) of the AS-patients had a T-score between 50-60 and 2 (17%) above 60. T-scores above 50 could give hints for physical and non-physical aggressive behavior. In the group of the partners 7 (58%) persons had a T-score between 50-60 and 1 (8%) above 60. In 4 (33%) cases both partners show a T-score above 50.

### ***Time together***

3 (25%) of the patients with AS showed a T-score between 50-60, indicating their feeling of a lack of time together despite common interests, 3 patients (25%) had a T-score above 60, considered as hint for an absence of common interests and an emotional distance. 2 (17%) of the partners had a T-Score between 50-60% and 4 (33%) above 60. In 5 (42%) cases both partners had a T-score above 50.

### ***Disagreement about finances***

2 (17%) of the AS-patients scored a T-value between 50-60 and 6 (50%) above 60, this is a hint for stress respectively greater conflict in partnership caused by finances. 3 (25%) of the partners showed a T-score between 50 and 60 and 4 (33%) partners above 60. In 6 (50%) of the cases both partners scored a T-value above 50.

### ***Sexual dissatisfaction***

2 (17%) of the patients with AS had a T-score between 50 and 60 and 4 (33%) above 60. This is indicating frequent respectively general problems in sexuality. The same distribution is found in the partners with 2 (17%) scoring between 50 and 60 and 4 (33%) above 60. In 5 (42%) cases both partners had a T-Score above 50.

### ***Role orientation***

9 (75%) of the patients and 9 (75%) of the partners had a T-value between 50-60, no one scored above a T-value of 60. This

reflects a flexible attitude towards the distribution of gender-roles. 8 (67%) of the pairs showed accordance in this issue.

### ***Dissatisfaction with children***

In the 5 couples with children 1 of the AS-patients had a T-score between 50 and 60 and 3 had a T-score above 60. This is an indicator for a stressed relationship to their children respectively having intense problems with them. In the group of the partners 2 scored above a T-value of 60.

### ***Conflict over child rearing***

In the 5 couples with children, 1 patient had a T-score between 50 and 60, 2 above 60, in the group of the partners 1 had a T-value between 50 and 60, 3 scored a T-value above 60. These T-scores are a hint for considerable respectively intense conflicts about child rearing within in the partnership.

Frequency of problematic areas in the partnership is demonstrated in **Figure 1**.

### **PFB**

#### ***Quarreling***

6 (50%) of the AS-patients had a T-score above 50, indicating a sensed problematic interaction concerning quarreling. In the group of the partners 9 (75%) scored a T-value above 50. In 6 (50%) cases both partners showed a T-score above 50.

#### ***Tenderness***

8 (67%) of the patients with AS and 6 (50%) of the partners showed a T-score below 50, what is a hint for a sensed problematic interaction with regard to tenderness. In 5 (42%) cases both partners had a T-value below 50.

#### ***Togetherness/Communication***

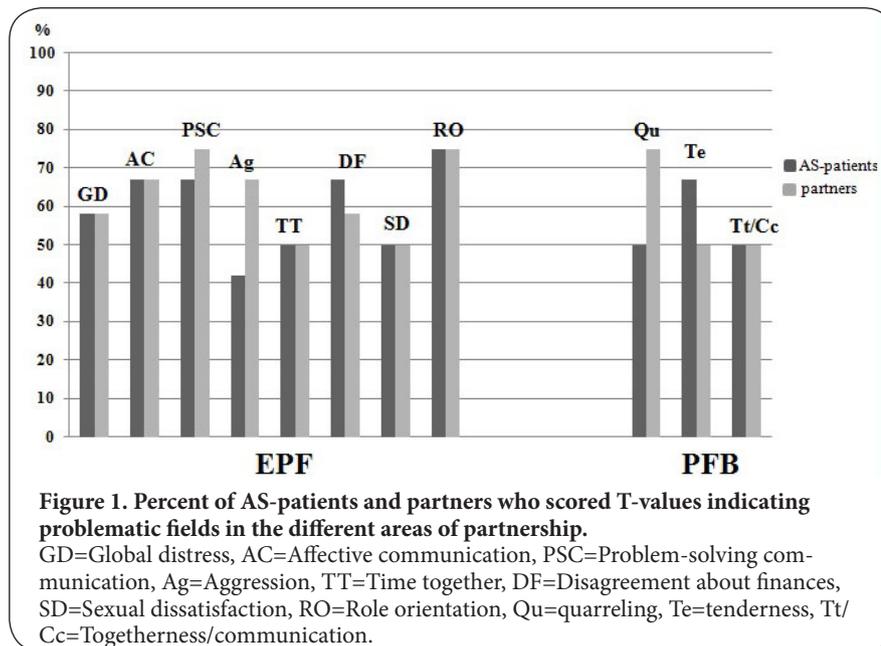
In the group of the AS-patients 6 (50%) individuals had a T-score below 50, indicating sensed problems concerning togetherness and communication. In the group of the partners 6 (50%) showed a T-score below 50. In 4 (33%) cases both partners had a T-value below 50.

#### ***Global happiness***

Mean score of AS-patients concerning global happiness is 3.45 (SD 1.03) and 3.75 in the group of the partners (SD 1.2), thus moving between >rather happy< and >happy<.

Frequencies of problematic fields concerning the partnership are demonstrated in **Figure 1**. Because of the low number of 5 partnerships with children, the two scales of the EPF >dissatisfaction with children< and >conflict over child rearing< has been excluded from **Figure 1**.

T-values indicating problematic areas and highest frequencies of T-values indicating problematic areas can be found in affective and problem-solving communication as well as in disagreement about finances and quarreling. EPF scales concerning dissatisfaction with children and conflicts over child rearing also indicate difficulties in these areas.



A Mann-Whitney-U-Test showed no significant differences between individuals with AS and their partners in any category of the EPF and PFB.

## Discussion

First of all it is an important result that both the individuals with AS and their partners seem to be happy in their partnership, measured by the item of global happiness in the PFB. Thereby rating of happiness is at the same level in both groups. Thus, at large, it can be concluded that investigated partnerships work sufficiently well and are fulfilling both partners. This assumption is also confirmed by the long average time of the duration of the partnerships.

According to the T-values and frequencies of mentioned problem areas in both groups, one of the most problematic field in the partnership is problem-solving communication. That means that effectiveness of solving problems and disputes is reduced. According to [20] this can be due to a lack of specific skills for problem-solving or to an overreaction and inability to discuss important issues. General difficulties in communication are well known, as they are one of the core symptoms in ASD [17]. Problem solving is thought to be associated with the ability to think abstractly [22]. Persons with ASD are repeatedly shown to have problems in problem solving [23,24]. Thereby they seem to suffer from difficulties in recognizing pertinent facts as well as in generating and selecting solutions [23]. Also the ability of abstract reasoning, comprising identifying and forming concepts, is decreased in individuals with ASD [25]. Hill and Bird [26] investigated the capacity of abstract problem solving as a component of executive functions and found it to be impaired, too, as it is known that individuals with ASD commonly show executive

dysfunctions [27]. Thus, the obviously existing deficit of problem solving in general may lead to deficits in problem-solving communications within the partnership.

Affective communication seems to be also afflicted, thus partners feel emotionally separated and misunderstood. This result could have been expected, because difficulties in social interaction are one of the most prominent characteristics in ASD. The difficulties in encoding and answering body language in individuals with ASD [28] may complicate especially the emotional interaction between both partners and can make both of them feel misunderstood. As these difficulties in social interaction interfere interpersonal relationships in general, it is obvious that they may especially interfere partnerships with high demands on interaction. On the other hand the closeness and intimacy of partnerships may lead to a better appraisal of each other on both sides.

Accordingly, results in the scale of communication of the PFB are showing hints for mentioned problems, too.

Another problematic field is disagreement about finances. There are hints for difficulties in financial management in individuals with ASD [29]. As financial management is impacted by executive functions, such as strategic planning and impulse control, a deficit in this regard could be reason for this problem, too. There rarely exists further investigation about ASD and financial management, making it difficult to get deeper insights into this subject. Furthermore it may be possible that individuals with AS and without AS have different ideas about areas they want invest money in, as persons with AS are often stronger fixed on their special interests [17].

In the PFB the most problematic area is quarreling. That means, that partners argue frequently and/or intensely. The exact reason for this remains unclear, there may be various

factors that cause this problem, such as different views in any kind of topic or impulsiveness and low frustration tolerance in one or both partners. However, per se quarreling could be seen as an indicator for interpersonal differences in general, perhaps reflecting the different kinds of perception of persons with ASD and without ASD.

Physical closeness and sexuality is an important part of a partnership. It is known that individuals with ASD often show a great sensitivity towards sensory tactile stimuli and sense touches as uncomfortable, sometimes even as painful and try to avoid them, in many cases they dislike softer touches more than stronger ones [30]. Thus it was unclear, if our investigated individuals rate this area as problematic. Ratings of sexuality and tenderness in our investigation were heterogeneous. There are smaller hints for sexual dissatisfaction in the EPF than in the PFB. One reason could be, that items in the EPF explores sexuality more general whereas the PFB stronger refers to tender body contact between both partners in narrower sense. Thus, this may confirm that individuals with ASD don't like tenderness in touches and maybe prefer sexuality in less tender ways.

In the partnerships with children, both, individuals with AS and partners show dissatisfaction with children and conflicts over child rearing. Only 5 couples had children, so these results are very limited. Nevertheless, communication is an important basis for interaction with children and for arrangement with the partner in questions of child rearing. Thus, problems in communication may also affect issues about children.

Overall, partnerships of individuals with AS seem to work and moderate difficulties mainly occur in fields of communication.

But of course, finally, it has to be mentioned, that our study group of 12 partnerships is rather small. However, only less than a third of persons with an AS seem to be living in a partnership [12], so the access to a suitable study-population is limited. Especially the area of sexuality should be explored in more detail in further research.

## Conclusions

At large, partnerships in individuals with AS seem to be working and both partners feel rather happy. Due to impairments in social interaction and in executive functions of individuals with AS, communication, both in the affective section and concerning problem solving are most affected areas within the partnership.

## Competing interests

The authors declare that they have no competing interests.

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