Sexual Behavior in Male Adolescents and Young Adults with Autism Spectrum Disorder and borderline/mild mental retardation.

Abstract

Group home caregivers of 20 institutionalized, male adolescents and young adults with Autistic Disorder (AD) and borderline/mild mental retardation (MR) and of 19 institutionalized, male adolescents and young adults with borderline/mild MR, without AD were interviewed with the Interview Sexuality Autism-Revised (ISA-R). Overall the individuals with AD were not significantly less sexually active than the individuals with MR. Masturbation was common in both groups. Individuals with MR had significantly more experience with relationships. No difference was found in the presence of inappropriate behavior. No difference was found in sexual orientation. Some deviant sexual behaviors (stereotyped sexual interests; sensory fascinations with a sexual connotation; paraphilia) were present in the group with AD, but not in the group with MR. A difference seemed to exist in the nature of sexual problems in the individuals with AD and MR, problems in individuals with AD being more related to an obsessive quality of the sexual behavior.

Keywords

Autism – Sexuality – Mild mental retardation - Belgium

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Research on sexual behavior of individuals with Autism Spectrum Disorders (ASD) has demonstrated that persons with ASD are sexual beings: they display sexual interest and a wide range of sexual behaviors (1-9). Most studies have reported masturbation as the main sexual expression. Two recent studies (2, 3) have dealt with the sexuality of "high-functioning" persons with autistic disorder (AD) and Asperger's disorder (AS). Both studies have reported that some persons with ASD have experienced sexual intercourse, although their sexual experience is limited compared to typically developing persons. Several studies (1–3, 6, 8, 9) reported that some persons with ASD do develop sexual problems, including deviant forms of masturbation with the use of unusual objects, "hypermasturbation" (repeated, unsuccessful attempts to masturbate) that could be related to an inability to reach orgasm, undressing or masturbation in the presence of other people and the initiation of unwanted physical contact (1). The occurrence of paraphilia has been reported by Hellemans et al. (2) in 2 individuals of a group of 24 institutionalized male high-functioning adolescents and young adults with Autism Spectrum Disorder (ASD). Some case reports of paraphilia in individuals with ASD (10-14) and of Gender Identity Disorder in individuals with ASD (14-18) have been published.

The present study is the second in a series of studies on autism and sexuality at Antwerp University. Hellemans et al. (2) have studied a group of 24 high-functioning male adolescents and young adults with ASD living in an institution by means of a semi-structured, investigator-based interview. Most individuals were reported to express sexual interest and to display some kind of sexual behavior. Socio-sexual skills were fairly well

known in theory, but application in practice was moderate. Masturbation was common. Many individuals were seeking physical contact with others. Half of the sample had already had a relationship, while three individuals were reported to have had sexual intercourse. The number of indefinite sexual and bisexual orientations appeared to be high. Ritual-sexual use of objects and sensory fascinations with a sexual connotation were sometimes present. A paraphilia was present in two individuals. About one third of the group needed some kind of intervention regarding sexual development or behavior.

The purpose of the present study was to examine the theoretical knowledge and application in practice of self-care and socio-sexual skills, the range of sexual behavior and the presence of sexual problems in a group of institutionalized male adolescents and young adults with borderline/mild mental retardation and autistic disorder in comparison with a group of institutionalized male adolescents and young adults with borderline/mild mental retardation without autistic disorder. The objective was to observe the impact of the independent variable, autistic disorder on the dependent variable, sexual behavior. Based on the literature and the first Antwerp study it was hypothesized that when compared with the individuals without AD, individuals with AD would:

1. experience more problems with the physical changes of puberty;
2. have less knowledge of self-care and socio-sexual skills and show more problems with application in practice of these skills;
3. be as interested in sexuality;
4. be less experienced in sexual relationships;
5. present more inappropriate sexual behavior such as masturbation in public or unwanted touching;

6. display more deviant sexual behavior such as hypermasturbation, use of objects in masturbation and paraphilia;

7. have more often an indefinite or bisexual orientation;

8. exhibit overall more sexual problems and need more interventions to manage these problems such as the use of medication.

Method

Subjects

Two groups of male institutionalized adolescents and young adults (age 15,0 to 21,11 years) were recruited for this research: persons with borderline/mild mental retardation (Full Scale IQ 51-80) and Autistic Disorder (AD) and persons with borderline/mild mental retardation (MR) without AD. A total of 20 persons with AD were recruited from eleven institutions in Flanders (the Dutch-speaking part of Belgium) offering residential care for persons with ASD. Psychologists of institutions known to have students with ASD were contacted by phone to explain the study. Informed consent-letters were sent to the psychologists to be given to the parents of possible candidates. The participating individuals had been diagnosed autistic by independent psychiatrists. The diagnosis was confirmed using DSM-IV (Diagnostic and Statistical Manual of Mental Disorders Fourth Edition) criteria (19) on the basis of an examination of the individual medical records and information from caregivers, by the first author (H.H.), a child psychiatrist who has extensive experience with diagnosing autism spectrum disorders. A total of 19 persons with borderline/mild MR without AD were recruited from ten residential institutions for persons with borderline/mild MR following the same procedure as for the group with AD. Absence of autistic symptoms was confirmed by the first author on the basis of an

examination of the individual medical records and information from caregivers. Exclusion criteria for both groups were a history of sexual abuse and the existence of other handicaps (motor, sensory) besides AD and MR. Information on exclusion criteria was obtained from the medical records and an interview of the caregivers. One person with MR was excluded because a history of sexual abuse was suspected. The two groups were matched according to age and full-scale IQ.

As in the first Antwerp study (2), information about the individuals was obtained from the caregivers who supervised them. For ethical and practical reasons, it was decided to interview caregivers instead of a direct interview of the individuals. Parents were expected to be reluctant to approve a direct interview of their child. Konstantareas and Lunsky (4) who interviewed individuals with autistic disorder and developmental delay reported a 40 % decline in participation rate. A frequently given reason was the fear that vulnerable people were to be exposed to information of a sexual nature (4). It was also easier to design an interview of caregivers, than an interview of persons with ASD, which would require specific interviewing methods because of the communication deficits related to the diagnosis of ASD. Questions would have to be simplified and supported by visual means to facilitate comprehension (4). Thirty-five caregivers (AD group: 12 female, 5 male; mean age 35 years, range 27-52; MR group: 6 female, 12 male; mean age 38 years, range 21-50) were involved, with a diversity of professional training, mainly educational staff but also some psychologists. The caregivers of the persons with AD knew the individuals for 9 months in one case and for at least one year in all other cases (mean 38 months; range 9- 84). The caregivers of the MR group knew the individuals for about 6 months in 4 cases and for at least one year in all other cases (mean 28 months; range 6- 60 months).

The parents and participants signed an informed consent for the interviews. The study design was approved by the local ethical committee.

Instrument

An investigator-based, semi-structured interview, the Interview about Sexuality in Autism that was developed for the first Antwerp study was revised for the present study. The first part of the Interview about Sexuality in Autism-Revised (ISA-R) covers the theoretical knowledge, the amount of training received and the actual practice of self-care skills (washing the genitals; changing underwear; proper use of the toilet; hygiene after visiting the toilet) and socio-sexual skills (knowing whom one is allowed to touch or kiss; knowing where one can walk around naked and where not; knowing with whom and when one is allowed to talk about sex; knowing that it's not appropriate to touch the genitals in the presence of others; knowing where one can masturbate). One question was included on the adaptation to the physical changes of puberty (Did X show difficulties related to the physical changes of the body during puberty e.g. morning erections, breast development, menstruation?). The second part of the ISA-R covers the actual sexual behavior. The third part asks about the presence of specific autistic features in the sexual behavior. Finally some questions cover sexual problems. Some questions (e.g. theoretical knowledge and actual practice of self-care and socio-sexual skills) had a five point rating scale (1: very poor, 2: poor, 3: moderate, 4: good, 5: very good). The question on adaptation to the physical changes of puberty and some of the questions on sexual behavior and sexual problems had a five point frequency rating scale (1: never, 2: once, 3: sometimes, 4: often, 5: always). Other questions about sexual behavior and sexual problems (e.g. "Does N. masturbate?") were dichotomized (behavior present/not present). When appropriate, the

answers were also qualitatively explored. In the revised version some minor changes were carried out. The scoring of the rating scales was more precisely defined. A section on the knowledge of sexual terms was omitted. Three questions on sexual problems were added (Do you think X has sexual problems? Do you think X should get help for these problems? Does X already get help for these problems?). The first question had a five point rating scale and the next questions were dichotomized. The answers were qualitatively explored.

Statistical analysis

Fisher's Exact tests were used for univariate analysis of discrete variables. T-tests were employed to compare both groups on continuous variables when Levene's test assumed equal variances. Otherwise Mann-Whitney U-test was calculated. An alpha level of 0.05 (two-tailed) was used to indicate significance for all statistical analyses.

Results

Sample characteristics

There was no significant age difference between the AD and the MR group (AD: mean age = 17.6 years, Standard Deviation = 1.53, range: 15.0-20.3; MR, mean age = 17.8 years, SD = 1.74, range: 15.6-21.3). Prior Wechsler Intelligence Scale for Children-Revised (AD: 18, MR: 18) or Terman (AD: 2, MR: 1) results of all individuals of both groups were known. There was no significant Full Scale IQ difference between both groups (AD, mean IQ = 67.95, SD = 7.22, range: 54-78; MR, mean IQ = 67.89, SD = 6.97, range: 55-78).

Dealing with physical changes during puberty

Individuals with AD were reported to show significantly more difficulties with the external changes of the body during puberty (e.g. growth spurt, morning erections, appearance of

pubic hair) than individuals with MR (p= .005). E.g. one individual with AD could not stop scratching his pubic region after the appearance of pubic hair.

Self-care and Socio-sexual Skills

The theoretical knowledge (Table 1) and actual practice (Table 2) of self-care and socio-sexual skills was usually rated adequate for both groups. No significant differences were found between the AD and the MR groups. In both groups a lot of attention was being given to the training of socio-sexual skills (Table 3). No significant difference in the amount of training being given was found between both groups.

Sexual behavior (Table 4)

Sexual interest

As reported by the caregivers, most of the individuals with AD and with MR showed definite signs of interest in sexuality. Three of the individuals with AD showed “no interest at all” in sexuality and one individual was only “a little” interested. One person with MR was only “a little” interested in sexuality. None of the individuals with MR showed “no interest at all”. No significant difference existed between both groups.

Masturbation

As reported by the caregivers, the proportion of individuals of whom it was not known whether they masturbated was high in both groups (AD: 55 %; MR: 53 %)**.** Eight (40 %) individuals with AD and 9 individuals with MR (47 %) were definitely known to masturbate. One individual with AD was definitely known not to masturbate, since he told so to his mentor. Masturbation usually took place in the bedroom or in the bathroom for

both groups. Two individuals with AD and 4 individuals with MR occasionally masturbated in the presence of others. One adolescent with AD had a compulsion to masturbate every day regardless of the circumstances: he would also masturbate in the presence of others when staying with several group members in a room on holidays. The proportion of subjects with AD that had been taught how to masturbate was higher than in the group with MR (AD: 40%; MR: 10%), although the difference was not significant (p=.065, Fisher's Exact test). One adolescent with AD had to be taught how to masturbate with the aid of verbal and visual instruction because he did not spontaneously discover how to reach orgasm which lead to frustration. Although 4 individuals with AD had a particular interest in a certain object, it was not definitely clear to the caregivers whether they used this object during masturbation. No case of hypermasturbation was reported. One individual with AD was reported to have bizarre fantasies during masturbation about sweating feet of girls and of having sex with a horse.

Person-oriented behavior

Eleven individuals with AD (55 %) caressed or cuddled other persons (sometimes to often) compared to 9 individuals with MR (47 %). Six individuals with AD (32 %) did not care whether or not the other person enjoyed this compared to 3 individuals with MR (16 %). Eight (40 %) individuals with AD sometimes kissed others (kissing of family members and at birthday parties not included) compared to 8 persons with MR (42 %). Three (15 %) individuals with AD did not care whether the "partner" liked the contact or not, compared to 2 (11 %) persons with MR. Sexually intended touching occurred in 5 individuals with AD (25 %) and in 7 individuals (37 %) with MR. Unwanted sexual touching occurred in

both groups: in 4 persons with AD (20 %) and 3 persons with MR (16 %). None of these findings were significantly different.

Three individuals with AD (15 %) and 5 individuals with MR (26 %) talked with the caregivers about the need for a close affective and/or sexual relationship. As reported by the caregivers, two individuals with AD (10 %) and eleven individuals with MR (59 %) had already had a relationship (defined as a mutual involvement with a partner lasting longer than 24 hours to exclude a onetime flirt) at least once before (p=.005, Fisher's Exact test).

As reported by caregivers two individuals with AD (10%) had experienced intercourse compared to seven (37%) of the individuals with MR (p=.052, Fisher's Exact test). The two individuals with AD had homosexual intercourse consisting of mutual masturbation with another resident of the institution. In both cases the initiative had been taken by the other person. Although the intercourse had taken place repeatedly and both persons with AD were consenting, according to the caregivers none of them was homosexually oriented. Five of the individuals with MR had sexual intercourse with penetration with one or more girls usually also staying in the institution. One bisexually oriented individual with MR had several male sexual partners. One individual with MR had once had homosexual intercourse without being considered by caregivers as being homosexually oriented.

Six individuals with AD (30 %) and 2 individuals with MR (10 %) expressed their frustration about having difficulties in establishing a relationship.

Sexual orientation

As reported by the caregivers, fourteen individuals with AD (70%) had a definite sexual orientation: twelve heterosexual, one bisexual and one homosexual orientation (Table 5). The bisexually oriented individual was primarily interested in prepubescent boys and girls. Six individuals had an indefinite sexual orientation including the four persons with no or little interest in sexuality. Eighteen individuals with MR had a pronounced sexual orientation: seventeen heterosexual and one bisexual. As expected the one individual with little interest in sexuality had also an indefinite sexual orientation. Although a higher proportion of individuals with AD had an indefinite sexual orientation than the individuals with MR, the difference was not significant (p=.065, Fisher's Exact test).

Specific autistic features: influence of repetitive patterns and sensory fascinations on sexual behavior

A specific interest in particular objects was noted for four individuals with AD. For two of them these objects (pictures of brightly colored trucks for one, "Fanny", a strip character, for the other) were clearly sexually arousing. For the two others the nature of the objects (lingerie and soft tissues) had an obvious sexual connotation. Partialism (a sexual interest in body parts) was common in the AD group: four individuals got sexually aroused by body parts (three by feet, one by bellies) compared to none of the MR group. This difference was not significant (p=.106, Fisher's Exact test). Three other individuals with AD also were interested in body parts (one in earlobes and hair, one in hands and hair, one in long hair) but without obvious signs of sexual arousal. Two more individuals were fascinated by body parts of their own (one by his muscles, the other by his fingers) also

without clear signs of sexual arousal. Two individuals with AD got sexually excited by olfactory fascinations. One of them had a bizarre fascination for stinking feet of girls and women. Taken together six individuals with AD had a sexual fascination in objects and/or body parts and/or sensory stimuli. None of the controls had such a fascination.

Individuals with MR were significantly more aroused by "usual" sexual stimuli such as pictures of naked women (p= .011).

Paraphilia

Two of the individuals with AD were primarily attracted to prepubescent children. One had a sexual interest in young girls but without actual sexual behavior towards children. The other one had an intense sexual desire for young boys and girls and had already tried to contact children. He met the criteria for a DSM-IV-diagnosis of pedophilia and was being treated for this disorder. One person with AD had several paraphilias including olfactophilia, podophilia and zoophilia. One individual with AD was reported to wear panties of his mother but it was not yet clear whether he got sexually aroused by this act. None of the individuals with MR had a paraphilia.

Sexual problems

Sexual problems were described as severe for 5 (25 %) individuals with AD and 1 (10 %) individual with MR (not significant: p=.187, Fisher's Exact test). Three individuals with AD were described as being obsessed by sexuality, including the two individuals with a paraphilia. One individual with AD was reported to have an anxious attitude towards sexuality e.g. having guilt feelings after masturbating. The sexual problems in the individual with MR had to do with a lack of norms leading to a risk of abuse of girls. Most of these problems were dealt with within the institution by means of coaching by the

mentor. The individual with pedophilia was receiving therapy in a specialized centre for sexual perpetrators.

Psychopharmalogical treatment

Seven of the individuals with AD (35 %) were on psychoactive medication: 5 on an atypical neuroleptic (risperidone), 3 on neuroleptics (pimozide, benperidol, pipamperon), and 2 on a selective serotonin reuptake inhibitor (SSRI; fluvoxamine, citalopram). Two of the individuals were on medication because of their sexual problems, one taking a neuroleptic drug, the other an atypical neuroleptic drug and an SSRI. The neuroleptics were being given to diminish the libido. The SSRI was being given to diminish sexual preoccupations. In both cases the drugs seemed to have little effect on these behaviors. Six individuals of the MR group (31.5 %) were taking drugs: 2 methylphenidate to treat Attention Deficit/Hyperactivity Disorder (ADHD), 1 an atypical neuroleptic (risperidone) and 3 a neuroleptic (pipamperon) because of aggressive behavior. None of the persons with MR was mentioned to be taking medication for sexual problems.

Discussion

The present study expands our knowledge about sexual issues in individuals with AD. Some of the hypotheses are supported by the results, some partially supported and some rejected.

Individuals with AD were reported to show significantly more difficulties with the external changes of the body during puberty. This could be due to the resistance to change that is often associated with AD.

The present study confirms the findings of previous studies (1, 2, 4-6, 8, 9) that the majority of adolescents and young adults with ASD express sexual interest and display a variety of sexual behaviors. Overall the individuals with AD were not significantly less sexually active than the individuals with MR. Masturbation occurred frequently in both groups, as it does in normal male adolescents. The number of persons of whom it was not known whether they masturbated was high in both groups. For the group with AD this number was comparable to the study of Hellemans et al. (2) but higher than in other studies (1, 6, 8). This could be related to the presence of many individuals with more severe degrees of mental retardation in these last studies which could lead to a more public expression of sexual behavior. Another reason could be that the majority of the individuals in this study had single bedrooms so that masturbation could take place in the privacy of the bedroom and bathroom. It is not obvious why more individuals with AD had been taught how to masturbate than individuals with MR. This could be due either to the expectation or to the actual experience that individuals with AD had more difficulties in discovering an adequate masturbation technique. No research exists neither on the advantages and disadvantages of teaching an adequate masturbation technique nor on the best way of teaching this skill.

Person-oriented sexual behavior occurred frequently in both groups but the sexual developmental level reached by individuals with AD tended to be limited. Individuals with MR had significantly more experience with relationships. The greater experience with sexual intercourse in individuals with MR was nearly significant. The two individuals with AD, who had experienced sexual intercourse, probably did so in the course of experimenting with sexuality: both had homosexual intercourse without being considered by caregivers as being homosexual.

In comparison with previous studies (1, 2, 6, 8, 9) less inappropriate behavior was reported, although touching the genitals in public and masturbation in the presence of others occurred in some individuals of both groups. No significant difference was found between the group with AD and with MR.

The number of homo- and bisexual oriented persons in both groups falls within the normal range of prevalence of homo- and bisexuality in male adolescents and young adults (20: 6% homosexual and 7,7% bisexuals in a random community survey of men aged 18 to 27; 21: 2% of adult men are exclusively homosexual, 3% are bisexual). The possibility of a higher prevalence of bisexuality in individuals with ASD suggested by Haracopos and Pedersen (1) and Hellemans et al. (2) was not observed in the present study. More individuals with AD were reported to have an indefinite sexual orientation than individuals with MR but this difference was not significant. In the first Antwerp study an indefinite orientation was found in 25 % of the individuals.

As in previous studies (1, 2) some of the individuals with AD had stereotyped interests and sensory fascinations with a sexual connotation, e.g. sexual arousal by specific objects, partialism, and sexual arousal by specific sensory stimuli. A DSM-IV-diagnosis of paraphilia was present in two individuals (one pedophilia, one multiple paraphilias). This appears to be a high number, but the prevalence of paraphilias in the normal population of male adolescents and young adults is unknown (22, 23). None of these deviant sexual behaviors was reported in the MR group. Hypermasturbation or the use of objects in masturbation was not found in either of the groups.

More individuals with AD were reported to have sexual problems than individuals with MR, but the difference was not statistically significant. A difference seemed to exist in the nature of sexual problems in the individuals with AD and MR. Problems in

individuals with AD usually were related to an obsessive quality of sexuality which was not reported in individuals with MR.

The present study again confirms that sexual issues are important in persons with ASD, and that sexual behavior in some persons with ASD shows specific autistic features. The assessment of individuals with ASD should include an assessment of the sexual development and of specific sexual problems that could be related to ASD such as the presence of a paraphilia. The results also stress the importance of sex education in persons with ASD and of dealing with sexual problems.

This study has some limitations: small samples of institutionalized individuals with AD and MR, which does not allow to draw conclusions about the general non-institutionalized population of both groups; an exclusively male study group; the indirect approach of an interview with caregivers which could result in an underestimate of the frequency of sexual behavior; an interview of only residential caregivers and not of the parents; the methodological problem of the indirect approach so that only caregivers who discussed these issues with the individuals could reliably answer the questions; different proportions of male and female caregivers in both groups could bring differences to the results. Due to the small samples the present study lacks power to find significant differences in behaviors that could be relevant but that have a low frequency such as an indefinite sexual orientation or the presence of sexual problems. Future research should address these issues by directly interviewing larger samples of male and female individuals with ASD, both institutionalized and non-institutionalized, in comparison with controls. Some topics certainly need more research e.g. the prevalence of paraphilia in persons with ASD and the sexual orientation of individuals with ASD.

Acknowledgments

We thank the participants and their parents who gave their consent to this study, and the caregivers for their commitment.

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Table 1. Theoretical knowledge of self-care and socio-sexual skills

	AD group					MR group					
	S	O	M	SD	Range	S	O	M	SD	Range	P
Self-care skills											
Washing the genitals	16	4	4.88	.342	4-5	14	5	5.00	.000	5-5	.178
Changing underwear	19	1	4.95	.229	4-5	19	0	5.00	.000	5-5	.317
Hygiene after using the toilet	18	2	4.78	.732	4-5	15	4	4.87	.516	3-5	.664
Socio-sexual skills											
Knowing whom it is allowed to touch	20	0	4.80	.410	4-5	18	1	5.00	.000	5-5	.148
Knowing whom it is allowed to kiss	20	0	4.80	.523	3-5	16	3	4.88	.500	3-5	.448
Suitable clothing	20	0	5.00	.000	5-5	19	0	5.00	.000	5-5	.1
Talking about sex appropriately	15	5	4.40	1.404	1-5	18	1	5.00	.000	5-5	.050
Touching the genitals in public	16	4	4.75	1.000	1-5	19	0	5.00	.000	5-5	.276
Knowing where it's allowed to masturbate	15	5	5.00	.000	5-5	16	3	5.00	.000	5-5	.1

(AD=Autistic Disorder; MR=Mental Retardation; S=sample analyzed; O=unknown; M=mean; SD=Standard Deviation;

1: very poor, 2: poor, 3: moderate, 4: good, 5: very good).

Table 2. Application of self-care and socio-sexual skills

	AD group					MR group					
	S	O	M	SD	Range	S	O	M	SD	Range	P
Self-care skills											
Washing the genitals	12	8	4.92	.289	4-5	9	10	4.67	1.000	2-5	.780
Changing underwear	19	1	4.84	.688	2-5	19	0	4.89	.459	3-5	.970
Hygiene after using the toilet	19	1	4.63	.955	2-5	18	1	4.67	.970	2-5	.720
Socio-sexual skills											
Knowing whom it is allowed to touch	19	1	3.741	.368	1-5	19	0	4.47	.964	2-5	.096
Knowing whom it is allowed to kiss	18	2	4.391	.420	1-5	18	1	4.89	.471	3-5	.258
Suitable clothing	20	0	4.65	.745	3-5	19	0	4.84	.501	3-5	.395
Talking about sex appropriately	15	5	3.93	1.534	1-5	18	1	4.28	.895	3-5	.793
Touching the genitals in public	17	3	4.12	1.364	1-5	19	0	4.63	.684	3-5	.271
Knowing where it's allowed to masturbate	13	7	4.69	.751	3-5	16	3	5.00	.000	5-5	.110

(S=sample analyzed; O=unknown; 1: very poor, 2: poor, 3: moderate, 4: good, 5: very good).

Table 3. Instruction received on self-care and socio-sexual skills

	AD group					MR group					
	S	O	0	1	2	S	O	0	1	2	P
Self-care skills											
Washing the genitals	19	1	5	0	14	17	2	7	2	8	.160
Changing underwear	20	0	2	2	16	18	1	5	3	10	.104
Proper use of the toilet	17	3	8	1	8	18	1	11	3	4	.245
Socio-sexual skills											
Knowing whom it is allowed to touch	19	1	4	7	8	18	1	0	18	0	.074
Knowing whom it is allowed to kiss	18	2	8	3	7	18	1	9	5	4	.369
Suitable clothing	18	2	6	3	9	19	0	8	7	4	.190
Talking about sex appropriately	17	3	4	5	8	18	1	3	8	7	.887
Touching the genitals in public	16	4	6	6	4	18	1	9	5	4	.553
Knowing where it's allowed to masturbate	18	2	5	1	12	18	1	10	1	7	.089

(S=sample analyzed; O=unknown; 0: no training, 1: incidental training, 2: explicit training).

Table 4 Sexual Behavior

	AD group				MR group				
	No	Yes	Unknown	NA	No	Yes	Unknown	NA	P
Masturbates	1	8	11	0	0	9	10	0	1
Masturbation technique has been instructed	12	8	0	0	10	2	5	0	.128
Masturbates in a compulsive way	7	1	0	12	2	0	7	10	1
Caresses other persons	9	11	0	0	8	9	2	0	.630
Lacks reciprocity in caressing	5	6	0	9	6	3	0	10	.501
Kisses other persons	11	8	1	0	10	8	1	0	.796
Lacks reciprocity in kissing	5	3	0	12	2	2	4	11	.596
Displays sexually intended touching	15	5	0	0	12	7	0	0	.399
Lacks reciprocity in sexual touching	1	4	0	15	4	3	0	12	.922
Talks about need for relationship	17	3	0	0	14	5	0	0	.978
Has had a close relationship	16	2	2	0	7	11	1	0	.005
Has had sexual intercourse	16	2	2	0	9	7	3	0	.052
Has expressed frustration about not being able to establish or maintain a relationship	10	6	4	0	3	2	14	0	.929

Table 5. Sexual orientation

	AD group	MR group
Indefinite sexual orientation	6	1
Heterosexual	12	17
Homosexual	1	0
Bisexual	1	1