Guide to Using Psychotropic Medication to Manage Behaviour Problems among Adults with Intellectual Disability

Technical Document

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Technical Document Section 4: Clinicians' Consensus Questionnaire

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Summary

A questionnaire methodology that sourced individuals from a wide range of relevant backgrounds was developed in alliance with the Guideline Development Group. The questionnaire followed the format widely used in expert consensus guideline development, whereby ratings were requested in response to a number of clinical questions. Such questions addressed clinicians' preferences for particular drug groups and individual drugs from within those groups including preferred dosages. The questionnaire addressed the specific behaviour problems of aggression and self-injurious behaviour (SIB), as these are not uncommon among people with learning disabilities. It also examined preferences for different antipsychotics and antidepressants in the presence of autism.

The questionnaire was circulated to members of the Royal College of Psychiatrists' Learning Disability Faculty. The results at present demonstrate some significant trends of preference for the use of medication for the management of behaviour problems in this population. However, the results are not intended to be a guide to best practice, rather they are intended to be an indication of current prescribing preferences amongst experts in the field.

The following table provides a brief summary of the top three medications from the three medication classes of atypical antipsychotics, new generation antidepressants and mood stabilisers/ antiepileptics. The results for both aggression and SIB are presented together.

Atypical Antipsychotics	Risperidone
	Olanzapine
	Quetiapine
New Generation Antidepressants	Citalopram
	Fluoxetine
	Sertraline
Mood Stabilisers/ Antiepileptics	Carbamazepine
	Sodium Valproate
	Lithium

Overall, there were few differences in the medication preferences for the two behaviour problems of aggression and SIB. The preferred daily dosages for the new generation antidepressants and antiepileptics (including mood stabilisers) generally fell within the BNF recommended ranges. However, the preferred daily dosages for the atypical antidepressants were below the minimum recommended dosage for the treatment of psychosis, this was particularly evident for risperidone.

Introduction

Ideally, the guideline development process should largely be determined by literature reviews of relevant research evidence that direct the recommendations offered in the guideline (Jones and Hunter, 1995). However, for the current guideline, this has proved difficult and unreliable due to the lack of a sound evidence base. Indeed, the comprehensive systematic review conducted as part of the present guideline development has demonstrated that there is little in the way of conclusive evidence that can support prescriptive guidelines in this field. Therefore, a systematic expert consensus method for developing guidelines in the field of psychiatry has been constructed in an attempt to bridge the gap between clinical practice and clinical research literature (Frances et al, 1998). As Frances et al (1998) suggest, the survey method is perhaps the best way of standardising practice for clinical processes that are not corroborated by research.

The clinician consensus exercise presented here has employed this method as a framework to objectively define current prescribing preferences amongst psychiatrists working within the field of learning disability. The results of the systematic review clearly identified that there is a paucity of good quality evidence on medication efficacy relating to the treatment of behaviour problems in adults with learning disabilities. Therefore, prescriptive advice regarding specific treatments derived from the research literature could not be presented.

In the current climate of Evidence-Based Practice (EBP), consensus methods are growing in popularity to bridge the gap between clinical reasoning and clinical research (Cross, 2005). Jones and Hunter (1995) identified the problems facing health providers who attempt to make decisions in light of insufficient and often contradictory information. They suggest that consensus methods can provide a means of synthesising information where the more common approach of statistical meta-analysis is unreliable due to inadequate published information. Furthermore, they advocate the use of such methods to provide a ‘means of harnessing the insights of appropriate experts to enable decisions to be made’.

A commonly used technique for capturing the collective knowledge and experience of a group of experts to inform decision-making is the Delphi process (Fink et al, 1984). Gupta and Clarke (1996) discussed the advantages and disadvantages of this technique in their review. One advantage of the Delphi process is that it documents the opinions of the panellists whilst minimising negative issues surrounding face-to-face interactions, such as dominance and conflict, a common criticism of consensus development conferences. In addition, the Delphi process stipulates that all contributions be anonymous, further enhancing the reliability that each member of the panel expresses their personal opinion. This is

achieved by the use of an anonymous questionnaire, often administered through the postal service.

The main goal of the Delphi method is to achieve a consensus, rather than measure the level of natural consensus, therefore, a common criticism is that it forces consensus through feedback and the re-administration of the questionnaires (Sackman, 1975 and Frances et al, 1998).

The clinician's consensus exercise presented here has employed a modified Delphi technique, utilising a singularly administered (one round) questionnaire design and taking inspiration from the expert consensus practice guideline development methodology devised by Frances et al. (1998) in order to obtain and measure existing levels of consensus in relation to current prescribing preferences amongst psychiatrists working within the field of learning disabilities. The clinicians' consensus questionnaire aimed to provide a useful insight into the experience and preferences of experts within the discipline in order to present an indication of current clinical practice using objective and statistical measures. However, it is important to acknowledge that whilst the results presented here and indeed in expert consensus guidelines in general, can provide useful information, they are not a substitute for clinical judgement and common sense (Aman et al, 2000).

Methods

Development of the Questionnaire

In order to aggregate relevant expert opinion relating to the prescribing of medication for the management of behaviour problems in adults with a learning disability, a questionnaire method was employed. The anonymous questionnaire (see Appendix 1) was developed by the GDG and constructed to identify certain preferences regarding the use of different management options commonly used in the treatment of behaviour problems where a diagnosis of a psychiatric illness could not be confirmed. Furthermore, the questionnaire was designed to examine the specific behaviour problems of aggression to others and property, and self-injurious behaviour (SIB) separately, as these behaviours often require treatment with medication and preferences for treatment may vary in each case. In addition, preferences for prescribing in the presence of autism were also examined. The expert panel was asked to consider an adult with a learning disability of any severity who was referred to their service for the management of either aggression of SIB and for whom no diagnosis of a psychiatric illness could be confirmed. No additional clues were given such as the behaviour being cyclical in nature, or the presence of comorbid compulsive behaviour, rather the clinicians were forced to choose their preferred intervention options based purely on their clinical experience.

The questionnaire took a format commonly used in expert consensus gathering where rankings were requested in response to a number of items including different medication classes as defined by the BNF, atypical antipsychotics, new generation antidepressants and mood stabilisers (including antiepileptics). The expert panel was also asked to provide preferred daily dosages for the different medication options. In addition, a number of ‘yes/no’ questions was presented specifically to probe preferences surrounding polyprescribing. This method of preferential voting, commonly used in elections, is also known as a ranked ballot, where each voter casts their vote by ranking candidates in order of preference. Furthermore, the questionnaire was designed to allow for an element of approval voting, also commonly used in elections, where each voter (in this case each member of the expert panel) can vote for as many or as few candidates (in this case medication options) as the voter chooses. However, each member of the expert panel may only rank each option once. Therefore, the voter may ‘approve’ or ‘disapprove’ of each option by voting for it or not. The expert panel was offered this level of freedom in order to mediate the intrinsic forced choice nature of the questionnaire. Furthermore, in selecting for which medication(s) to provide a preferred daily dosage, the expert panel was given a free choice.

Additional questions were also included on the questionnaire, that requested a written answer regarding the circumstances under which the clinician may

consider prescribing medication, and that examined issues around polyprescribing for the management of aggression or SIB. Furthermore, the expert panel was asked to provide comments concerning the questionnaire, the use of medication for the management of behaviour problems in this population, or any related issues. The responses to these were subject to a separate, more qualitative analysis.

The Expert Panel

A common criticism made of consensus methods in general is the issue of who should be included on the panel as an expert and the potential bias to which this selection process is open. It seems logical in the area of clinical intervention that the experts will be clinicians practicing in the field under consideration (Jones and Hunter, 1995). It is for this reason that the present study invited all relevant practising clinicians (namely those working in the field of adult psychiatric learning disability) to take part, and therefore the basis of participation was self-selection by invitation.

The most appropriate panel of experts to provide their opinion in this project was identified by the GDG as members of the Royal College of Psychiatrists' (RCPsych) Learning Disability Faculty. These individuals were selected on both an opportunity basis, as access to their postal addresses could be obtained, and because they would have the most relevant clinical experience. The questionnaire was therefore sent through the post to the 258 consultant psychiatrist members recognized as currently practising in the field of learning disability. As the preliminary response rate was rather low, a reminder letter was circulated to those clinicians who had not yet returned a questionnaire. Response was further increased by the distribution of questionnaires at the RCPsych Learning Disability Faculty Annual Conference held on 27th and 28th November 2005.

In order fully to represent the preferences of all clinicians working within this field, the consensus exercise was subsequently extended to include Specialist Registrars (SpRs) working in the field of psychiatry of learning disability. The consensus questionnaire was therefore distributed to all the SpR members of the RCPsych Learning Disability Faculty via a key contact who circulated the questionnaire through email. As this method yielded a rather low response rate, further questionnaires were distributed at the RCPsych SpRs in Learning Disability Annual National Conference held on 1st and 2nd of December 2005.

In order to prepare the results for publication, a cut off deadline for the receipt of questionnaires was imposed. The date for this deadline was 20th December 2005. As the initial questionnaire distribution began on 15th July 2005, the period of data collection occurred from July 2005 to December 2005, a duration of five months.

Response

The total number of returned questionnaires stands at 108 completed, 12 not completed. The following provides a breakdown of those questionnaires received:

From consultant RCPsych members through the postal method, 97 questionnaires were returned giving a 37.60% response rate of which 12 (4.65%) were received not completed. Those not completed were due to the respondent being retired or no longer in practice (n=5), not prescribing medication (n=1), only seeing children (n=1), and returning the questionnaire blank (n=5).

From RCPsych Learning Disability Annual Conference 9 questionnaires were returned.

From SpR RCPsych members through email method, 3 questionnaires were returned.

From RCPsych SpRs in Learning Disability Annual Conference 11 questionnaires were returned.

Analysing and Reporting the Results

The responses on each questionnaire were entered into a spreadsheet to allow for data analysis. Several methods were used to analyse the results, relating to the format and construction of the question subject to analysis. The following section presents details on the analysis method applied to each construct, namely order of preference, preferred daily dosages, polyprescribing, circumstances for the use of medication, the presence of autism and aggression versus SIB and the presence of autism versus no presence of autism.

The results of each question are presented in tabular form, in descending order (from most preferred to least preferred) along with the question as it appeared on the questionnaire. The results are also supported with relevant frequencies, percentages and statistics. Where percentages are provided, they are correct to one decimal place, means and standard deviations are correct to two decimal places and where dosages are given, they are in milligrams.

Order of Preference

The questionnaire contained a number of questions that required the expert panel to rank the options presented to them. The responses to these questions were synthesised to provide an overall or consensus order of preference based on the ranks provided. To obtain this order of preference,

the ranks were transformed into scores using a well-established electoral system. The Borda count voting system provides a consistent method for transforming ranks into scores in order to ascertain a winner (Saari, 2003).

The Borda count voting system, developed over two hundred years ago, is one of the most frequently used social-choice procedures (d'Angelo et al, 1998). Each of the expert panel ranked all or some of the options presented on the questionnaire, these ranks were then converted into scores in line with the Borda count voting system. First choice ranks received a score of *n*-1 where *n* represented the total number of options presented for a specific question. Second place ranks received *n*-2 points, subsequently *i* rank received *n-i* points and therefore the last place rank receives zero points (d'Angelo et al, 1998). The points were then totalled to provide a total score for each given option. The option with the highest total score is declared the social choice.

The issue of consensus reliability has been subject to some criticism, leading to investigations into methodologies imposed in consensus gathering exercises. Delbecq and Van de Ven (1975) suggest that judgemental accuracy may be obtained where the methods of investigation follow certain principles. One such principle is that individual judgements are expressed through the mathematical ranking of options and therefore the mean value of independent judgements denotes the group decision. It is for this reason that the mean score of each option in each of the ranking questions is presented instead of the total score. However, the mean scores directly reflect the order of preference derived from the total scores as they have all been subject to the same analysis, namely the division of the total score by the total number of questionnaires received (n=108). The standard deviations of the means are also presented to provide information on the distribution of the scores. In addition, the maximum mean score that could have been obtained for each data set is detailed in brackets below the corresponding table.

The extent to which the expert panel rated the items on the questionnaire was left to individual choice, for example, some clinicians rated only two medications out of the options presented whereas some gave ratings and preferred dosages for all the options. Therefore, the questionnaires vary in their completeness. This approach was utilised to mediate the intrinsic forced choice element of the questionnaire and therefore give the expert panel the option on how much they wished to complete depending on their views and the relevance of the questions. Some clinicians did not respond to a whole question, stating next to it that they do not use a certain class of medications in the management of behaviour problems. Therefore, the total frequencies obtained vary from question to question and high to low preference.

In order to allow for the variation in completeness present in the questionnaires, the Borda count method was extended. The scores of each ranking remained unchanged, those not ranked received zero points and therefore all the options had a total of 108 scores, reflecting the total number of questionnaires received. For example, where there were eight options

presented and a member ranked only their first two preferences, the other six options received zero points.

The overall order of preference for each of the ranking questions is based on the mean scores; with the highest mean score reflecting the most preferred option and the lowest mean score reflecting the least preferred option. The comparison of the mean scores obtained for different options provides an indication of how favoured one option may be over another.

In addition, relevant percentages were calculated to support the results and they are presented in tables with the corresponding frequencies.

Preferred daily dosages

In addition to the rankings, the expert panel were requested to give their preferred daily dosages in milligrams (mgs) for different medication options from the medication classes of atypical antipsychotics, new generation antidepressants and mood stabilisers. A free choice was offered to the clinicians and therefore a different procedure was utilised for the analysis of the results.

The mean preferred daily dosage and standard deviations were calculated for each of the medication options. However, the mean scores were obtained by the division of the total dosage by the total number of dosages provided and not the total number of questionnaires received as for the order of preference. Therefore, the total number of clinicians providing a preferred daily dosage for each medication option is also noted.

In addition, the modal dosages were calculated with relevant frequencies and percentages. Both the means and modes of the preferred daily dosages are presented for each of the medication options because the mean most accurately reflects the overall preferred daily dosage whilst the mode has more clinical relevance. To give an indication of the variability in the responses both the minimum and maximum stated dosages are also detailed and therefore all the clinicians would prefer to use medications within this range.

Some of the expert panel gave ranges in response to their preferred daily dosages. In these instances, the lower limit was accepted and entered into the database. This procedure was adopted as a relatively high proportion of the expert panel referred to their preference for starting with a low dose and titrate slowly depending on tolerance and response and also prescribing the minimum effective dose. Comments such as this were noted both in the comments section at the back of the questionnaire and also next to the parenthesis where the preferred dosage could be written.

Preferences for Polyprescribing

In order to ascertain the expert panel's preferences surrounding polyprescribing, several dichotomous answer questions were presented. These questions were largely in the format of a yes/no answer. The responses were subsequently analysed by the calculation of the frequency and percentage of total responses relevant to each option. The option receiving the highest percentage was deemed the preferred choice by the expert panel. The percentages were calculated as a proportion of the total number of questionnaires received (n=108) and therefore if the majority of the expert panel had made no answer to a specific question, this was deemed as the group preference.

Circumstances for the Use of Medication

The written responses to the circumstances under which clinicians may consider prescribing, generated by the expert panel de novo, were originally entered into a Word file to allow for analysis. They were then initially scanned to distinguish re-occurring responses. A number of common responses were identified and the written answers were then more carefully examined with reference to these common responses in order to establish the number and percentage of clinicians making each of the most commonly occurring responses.

Each of the identified circumstances was colour coded with any corresponding text highlighted in the respective colour. This method not only facilitated the calculation of frequencies and percentages, but also ensured that the identified circumstances captured the majority of those given by the expert panel and therefore accurately reflect the answers given by the clinicians. Any omissions would be identified through the scanning of the text remaining uncoloured.

Presence of Autism

The results obtained for the final two questions on the questionnaire were subject to the same analysis as for previous questions whereby they were analysed for both order of preference and preferred daily dosages. The expert panel were asked to rank the same group of atypical antipsychotics and new generation antidepressants with preferred daily dosages, as in previous questions, whilst considering the presence of autism.

Aggression versus SIB and the Presence of Autism versus No Presence of Autism

It was hypothesised that there may be differences in the preferences for treatment options for each of the behaviour problems. Therefore, the preferences for aggression and SIB were examined separately and comparisons were made to identify any differences in the mean scores, percentages, order of preference and preferred daily dosages.

Subsequent comparisons were also made between the order of preference and mean scores obtained for atypical antipsychotics and new generation antidepressants in the presence of autism and without the presence of autism to identify any differences.

Results

Order of Preference

Medication Intervention versus Non-medication Based Intervention

The question as it was presented to the clinicians on the questionnaire was as follows:

> "Give your order of preference for the management of each behaviour type in the boxes below.
>
> | | Aggression | SIB |
> |---|---|---|
> | Medication | [ ] | [ ] |
> | Non-medication based intervention | [ ] | [ ]." |

The following table demonstrates the mean scores and standard deviations (SDs) for drug and non-drug intervention for both aggression and SIB and the number and percentage of the clinicians relevant to each response.

Rank/ Preference	Treatment Option	Aggression		SIB	
		n (%)	Mean (SD)	n (%)	Mean (SD)
1st	Non-Medication Based	93 (86.1)	0.86 (0.35)	95 (88.0)	0.88 (0.33)
2nd	Medication	98 (90.7)	0.09 (0.29)	101 (93.5)	0.06 (0.25)

(The maximum score that could have been obtained for this data set was a score of 1).

The results indicate a strong preference for non-medication based intervention as a first line treatment over medication, with a large majority of the expert panel ranking non-drug intervention as first choice. As the results suggest, there was a significant difference in the mean scores for each treatment option for both behaviour problems, suggesting that non-medication based intervention was significantly preferred over medication.

This pattern of preference was reflected both in the responses to the question specifically probing the order of preference (see table above) and the written responses regarding the circumstances under which the clinicians would consider prescribing medication. The most frequent circumstance offered by the expert panel was the failure of non-medication based interventions,

signifying that non-medication based interventions would be preferred to be tried initially, if those were unsuccessful, medication may then be tried.

In addition, many of the expert panel made reference to the importance of non-medication based approaches in their general comments on the questionnaire (see comments on the questionnaire section), which further establishes the strength of this trend.

Medication Classes

The question as it was presented to the clinicians on the questionnaire was as follows:

> "If medication-based intervention was chosen, put your order of preference for both behaviour types in the boxes against each class of medication below.
>
> | | Aggression | SIB |
> |---|---|---|
> | Antipsychotics | [ ] | [ ] |
> | Antidepressants | [ ] | [ ] |
> | Mood stabilisers (including antiepileptics) | [ ] | [ ] |
> | Opioid antagonists (including naltrexone) | [ ] | [ ] |
> | Beta-blockers | [ ] | [ ] |
> | Anti-anxiety drugs | [ ] | [ ]." |

The following tables give the frequencies and percentages of clinicians relevant to each ranking for each treatment option for both aggression and SIB.

Aggression												
Rank	1st		2nd		3rd		4th		5th		6th	
Medication Class	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%
Antipsychotics	**87**	80.6	**11**	10.2	**3**	2.8	**1**	0.9	**1**	0.9	**0**	0.0
Mood Stabilisers	**0**	0.0	**44**	40.7	**35**	32.4	**16**	14.8	**1**	0.9	**0**	0.0
Antidepressants	**7**	6.5	**27**	25.0	**27**	25.0	**17**	15.7	**5**	4.6	**2**	1.9
Anti-Anxiety Drugs	**13**	12.0	**18**	16.7	**21**	19.4	**24**	22.2	**6**	5.6	**1**	0.9
Beta-Blockers	**1**	0.9	**1**	0.9	**4**	3.7	**13**	12.0	**25**	23.1	**8**	7.4
Opioid Antagonists	**0**	0.0	**0**	0.0	**1**	0.9	**3**	2.8	**11**	10.2	**27**	25.0

SIB												
Rank	1st		2nd		3rd		4th		5th		6th	
Medication Class	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%
Antipsychotics	**53**	49.1	**22**	20.4	**16**	14.8	**6**	5.6	**0**	0.0	**0**	0.0
Antidepressants	**28**	25.9	**32**	29.6	**18**	16.7	**10**	9.3	**3**	2.8	**1**	0.9
Mood Stabilisers	**6**	5.6	**24**	22.2	**31**	28.7	**18**	16.7	**6**	5.6	**0**	0.0
Anti-Anxiety Drugs	**12**	11.1	**17**	15.7	**15**	13.9	**21**	19.4	**10**	9.3	**3**	2.8
Opioid Antagonists	**2**	1.9	**4**	3.7	**8**	7.4	**12**	11.1	**13**	12.0	**21**	19.4
Beta-Blockers	**0**	0.0	**1**	0.9	**1**	0.9	**6**	5.6	**24**	22.2	**18**	16.7

The following table demonstrates the mean scores for each of the medication class options for both aggression and SIB presented in order of preference.

Aggression		
Preference	Treatment Option	Mean (SD)
1st	Antipsychotics	4.55 (1.19)
2nd	Mood Stabilisers	2.91 (1.26)
3rd	Antidepressants	2.44 (1.62)
4th	Anti-Anxiety Drugs	2.35 (1.69)
5th	Beta-Blockers	0.67 (1.00)
6th	Opioid Antagonists	0.19 (0.51)
SIB		
Preference	Treatment Option	Mean (SD)
1st	Antipsychotics	3.82 (1.58)
2nd	Antidepressants	3.19 (1.72)
3rd	Mood Stabilisers	2.42 (1.56)
4th	Anti-Anxiety Drugs	2.08 (1.76)
5th	Opioid Antagonists	0.81 (1.29)
6th	Beta-Blockers	0.40 (0.72)

(The maximum score that could have been obtained for this data set was a score of 5.)

The first choice medication class for the management of both aggression and SIB was antipsychotics; this is evident from both the frequencies and the mean scores. The order of preference differed for aggression and SIB with the mean score of antidepressants for SIB notably higher than that for aggression and similarly with opioid antagonists.

Antipsychotics

The question as it was presented to the clinicians on the questionnaire was as follows:

> "If antipsychotics were chosen, put your order of preference in the boxes below.
>
> | | Aggression | SIB |
> |---|---|---|
> | Typical antipsychotics | [ ] | [ ] |
> | Atypical antipsychotics | [ ] | [ ]." |

The following table demonstrates the mean score, frequencies and percentages for both types of antipsychotic for both of the behaviour problems.

Rank/ Preference	Treatment Option	Aggression		SIB	
		n (%)	Mean (SD)	n (%)	Mean (SD)
1st	Atypical	93 (86.1)	0.86 (0.35)	92 (85.2)	0.85 (0.36)
2nd	Typical	96 (88.9)	0.11 (0.32)	98 (90.7)	0.09 (0.29)

(The maximum score that could have been obtained for this data set was a score of 1).

The results indicate that there was a very strong preference for atypical antipsychotics over typical antipsychotics for the management of both aggression and SIB with a considerable difference in the means scores.

The next question probing preferences specifically for different atypical antipsychotics, as it was presented to the clinicians on the questionnaire was as follows:

> "If atypical antipsychotics were chosen, put your order of preference in the boxes below.
>
> | | Aggression | SIB |
> |---|---|---|
> | Risperidone | [ ] | [ ] |

Olanzapine	[ ]	[ ]
Quetiapine	[ ]	[ ]
Amisulpride	[ ]	[ ]
Clozapine	[ ]	[ ]
Aripiprazole	[ ]	[ ]."

The following tables give the frequencies and percentages of clinicians relevant to each ranking for each treatment option for both aggression and SIB.

Aggression												
Rank	1st		2nd		3rd		4th		5th		6th	
Atypical Antipsychotic	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%
Risperidone	**85**	78.7	**16**	14.8	**2**	1.9	**1**	0.9	**0**	0.0	**0**	0.0
Olanzapine	**14**	13.0	**61**	56.5	**14**	13.0	**1**	0.9	**3**	2.8	**0**	0.0
Quetiapine	**2**	1.9	**13**	12.0	**41**	38.0	**12**	11.1	**2**	1.9	**1**	0.9
Amisulpride	**0**	0.0	**7**	6.5	**17**	15.7	**30**	27.8	**4**	3.7	**2**	1.9
Aripiprazole	**0**	0.0	**1**	0.9	**4**	3.7	**9**	8.3	**22**	20.4	**5**	4.6
Clozapine	**0**	0.0	**2**	1.9	**0**	0.0	**2**	1.9	**8**	7.4	**25**	23.1

SIB												
Rank	1st		2nd		3rd		4th		5th		6th	
Atypical Antipsychotic	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%
Risperidone	**80**	74.1	**10**	9.3	**3**	2.8	**0**	0.0	**0**	0.0	**0**	0.0
Olanzapine	**13**	12.0	**56**	51.9	**11**	10.2	**1**	0.9	**3**	2.8	**0**	0.0
Quetiapine	**1**	0.9	**14**	13.0	**34**	31.5	**7**	6.5	**2**	1.9	**1**	0.9
Amisulpride	**1**	0.9	**5**	4.6	**13**	12.0	**28**	25.9	**4**	3.7	**2**	1.9
Aripiprazole	**0**	0.0	**1**	0.9	**3**	2.8	**7**	6.5	**20**	18.5	**5**	4.6
Clozapine	**0**	0.0	**2**	1.9	**0**	0.0	**3**	2.8	**6**	5.6	**23**	21.3

The table below provides the mean scores for each of the atypical antipsychotics for both aggression and SIB.

Aggression		
Preference	Treatment Option	Mean (SD)
1st	Risperidone	4.60 (1.04)
2nd	Olanzapine	3.34 (1.54)
3rd	Quetiapine	1.95 (1.57)
4th	Amisulpride	1.32 (1.37)
5th	Aripiprazole	0.52 (0.87)
6th	Clozapine	0.19 (0.64)
SIB		
Preference	Treatment Option	Mean (SD)
1st	Risperidone	4.16 (1.73)
2nd	Olanzapine	3.03 (1.77)

3rd	Quetiapine	1.66 (1.64)
4th	Amisulpride	1.15 (1.35)
5th	Aripiprazole	0.44 (0.81)
6th	Clozapine	0.19 (0.66)

(The maximum score that could have been obtained for this data set was a score of 5.)

The mean scores for risperidone were higher than for the other atypical antipsychotics therefore risperidone was the most preferred atypical antipsychotic, followed by olanzapine and then quetiapine.

Antidepressants

The question as it was presented to the clinicians on the questionnaire was as follows:

> "If antidepressants were chosen, put your order of preference in the boxes below.
>
> | | Aggression | SIB |
> |---|---|---|
> | Old generation antidepressants | [ ] | [ ] |
> | New generation antidepressants | [ ] | [ ]." |

The tables below give the mean scores, frequencies and percentages relevant to both types of antidepressant for both behaviour problems.

Rank/ Preference	Treatment Option	Aggression		SIB	
		n (%)	Mean (SD)	n (%)	Mean (SD)
1st	New Generation	90 (83.3)	0.83 (0.37)	95 (88.0)	0.88 (0.33)
2nd	Old Generation	103 (95.4)	0.05 (0.21)	104 (96.3)	0.04 (0.19)

(The maximum score that could have been obtained for this data set was a score of 1.)

There was a strong and significant preference for new generation antidepressants over old.

The next question, probing preferences for different new generation antidepressants, as it was presented to the clinicians on the questionnaire was as follows:

> "If new generation antidepressants were chosen, put your order of preference in the boxes below.
>
> | | Aggression | SIB |
> |---|---|---|
> | Fluvoxamine | [ ] | [ ] |

Fluoxetine	[ ]	[ ]
Sertraline	[ ]	[ ]
Citalopram	[ ]	[ ]
Escitalopram	[ ]	[ ]
Venlafaxine	[ ]	[ ]
Mirtazapine	[ ]	[ ]
Paroxetine	[ ]	[ ]."

The following tables give the frequencies and percentages of clinicians relevant to each ranking for each treatment option for both aggression and SIB.

Aggression																
Rank	1st		2nd		3rd		4th		5th		6th		7th		8th	
Antidepressant	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%
Citalopram	**38**	35.2	**22**	20.4	**7**	6.5	**4**	3.7	**0**	0.0	**1**	0.9	**0**	0.0	**0**	0.0
Fluoxetine	**21**	19.4	**23**	21.3	**17**	15.7	**3**	2.8	**4**	3.7	**3**	2.8	**3**	2.8	**0**	0.0
Sertraline	**14**	13.0	**16**	14.8	**17**	16.7	**8**	7.4	**4**	3.7	**3**	2.8	**1**	0.9	**0**	0.0
Escitalopram	**11**	10.2	**10**	9.3	**3**	2.8	**3**	2.8	**5**	4.6	**2**	1.9	**3**	2.8	**2**	1.9
Mirtazapine	**3**	2.8	**5**	4.6	**12**	11.1	**9**	8.3	**8**	7.4	**6**	5.6	**3**	2.8	**2**	1.9
Paroxetine	**2**	1.9	**8**	7.4	**7**	6.5	**12**	11.1	**5**	4.6	**3**	2.8	**6**	5.6	**3**	2.8
Venlafaxine	**3**	2.8	**4**	3.7	**7**	6.5	**11**	10.2	**8**	7.4	**7**	6.5	**3**	2.8	**3**	2.8
Fluvoxamine	**2**	1.9	**0**	0.0	**2**	1.9	**4**	3.7	**1**	0.9	**2**	1.9	**3**	2.8	**10**	9.3

SIB																
Rank	1st		2nd		3rd		4th		5th		6th		7th		8th	
Antidepressant	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%
Citalopram	**35**	32.4	**19**	17.6	**8**	7.4	**5**	4.6	**2**	1.9	**1**	0.9	**1**	0.9	**0**	0.0
Fluoxetine	**24**	22.2	**22**	20.4	**16**	14.8	**1**	0.9	**4**	3.7	**4**	3.7	**1**	0.9	**2**	1.9
Sertraline	**12**	11.1	**16**	14.8	**18**	16.7	**10**	9.3	**4**	3.7	**1**	0.9	**1**	0.9	**0**	0.0
Paroxetine	**5**	4.6	**10**	9.3	**4**	3.7	**12**	11.1	**4**	3.7	**4**	3.7	**4**	3.7	**3**	2.8
Escitalopram	**10**	9.3	**8**	7.4	**5**	4.6	**3**	2.8	**4**	3.7	**3**	2.8	**3**	2.8	**2**	1.9
Mirtazapine	**2**	1.9	**5**	4.6	**12**	11.1	**8**	7.4	**8**	7.4	**5**	4.6	**5**	4.6	**2**	1.9
Venlafaxine	**2**	1.9	**4**	3.7	**7**	6.5	**9**	8.3	**10**	9.3	**8**	7.4	**3**	2.8	**1**	0.9
Fluvoxamine	**2**	1.9	**1**	0.9	**1**	0.9	**4**	3.7	**1**	0.9	**1**	0.9	**5**	4.6	**11**	10.2

The following table gives the mean scores for each of the new generation antidepressants for both behaviour problems.

Aggression		
Preference	Treatment Option	Mean (SD)
1st	Citalopram	4.18 (3.08)
2nd	Fluoxetine	3.73 (2.86)
3rd	Sertraline	3.10 (2.82)
4th	Escitalopram	1.72 (2.66)
4th	Mirtazapine	1.72 (2.27)
6th	Paroxetine	1.59 (2.25)
7th	Venlafaxine	1.53 (2.15)

8th	Fluvoxamine	0.46 (1.40)
SIB		
Preference	Treatment Option	Mean (SD)
1st	Citalopram	3.96 (3.07)
2nd	Fluoxetine	3.75 (2.93)
3rd	Sertraline	3.01 (2.80)
4th	Paroxetine	1.73 (2.42)
5th	Escitalopram	1.63 (2.59)
6th	Mirtazapine	1.62 (2.20)
7th	Venlafaxine	1.46 (2.06)
8th	Fluvoxamine	0.47 (1.42)

(The maximum score that could have been obtained for this data set was a score of 7.)

Both the frequencies and mean scores denote that citalopram was the most preferred new generation antidepressant, followed by fluoxetine and sertraline. Indeed, the top four options for aggression and the top five options for SIB were all selective Serotonin reuptake inhibitors (SSRIs).

The results indicate that the order of preference is not as well defined as for antipsychotics with only small differences in the mean scores for each preference. The standard deviations for antidepressants also suggest that there is rather a lot of variance around the mean.

Mood Stabilisers (including antiepileptics)

The question as it was presented to the clinicians on the questionnaire was as follows:

> "If mood stabilisers/ antiepileptics were chosen, put your order of preference in the boxes below.
>
> | | Aggression | SIB |
> |---|---|---|
> | Lithium | [ ] | [ ] |
> | Sodium Valproate | [ ] | [ ] |
> | Carbamazepine | [ ] | [ ] |
> | Lamotrigine | [ ] | [ ]." |

The following tables give the frequencies and percentages of clinicians relevant to each ranking for each treatment option for both aggression and SIB.

Aggression							
Rank	1st		2nd		3rd		4th	
Mood Stabiliser	**n**	%	**n**	%	**n**	%	**n**	%
Carbamazepine	**48**	44.4	**35**	32.4	**8**	7.4	**0**	0.0

Sodium Valproate	**40**	37.0	**40**	37.0	**10**	9.3	**0**	0.0
Lithium	**10**	9.3	**11**	10.2	**38**	35.2	**11**	10.2
Lamotrigine	**3**	2.8	**4**	3.7	**11**	10.2	**34**	31.5

SIB							
Rank	1st		2nd		3rd		4th	
Mood Stabiliser	**n**	%	**n**	%	**n**	%	**n**	%
Carbamazepine	**44**	40.7	**33**	30.6	**7**	6.5	**0**	0.0
Sodium Valproate	**34**	31.5	**33**	30.6	**11**	10.2	**1**	0.9
Lithium	**11**	10.2	**14**	13.0	**30**	27.8	**9**	8.3
Lamotrigine	**2**	1.9	**2**	1.9	**10**	9.3	**31**	28.7

The following table gives the mean scores for each of the mood stabilisers/ antiepileptics for both behaviour problems.

Aggression		
Preference	Treatment Option	Mean (SD)
1st	Carbamazepine	2.06 (1.08)
2nd	Sodium Valproate	1.94 (1.07)
3rd	Lithium	0.83 (0.95)
4th	Lamotrigine	0.26 (0.66)
SIB		
Preference	Treatment Option	Mean (SD)
1st	Carbamazepine	1.90 (1.17)
2nd	Sodium Valproate	1.66 (1.19)
3rd	Lithium	0.84 (1.01)
4th	Lamotrigine	0.19 (0.55)

(The maximum score that could have been obtained for this data set was a score of 3.)

The most preferred mood stabilisers were carbamazepine followed by sodium valproate and lithium. The mean scores for carbamazepine and sodium valproate were relatively close to each other, suggesting that the order of preference is not as well defined as for the atypical antipsychotics.

Preferences for Polyprescribing

The responses to the questions probing the expert panel's preferences surrounding polyprescribing are detailed below.

Question (n=108)	Aggression n (%)			SIB n (%)		
	Yes	No	No Answer	Yes	No	No Answer
If the first medication does not work, would you like to try a second medication?	100 (92.6)	3 (2.8)	5 (4.6)	99 (91.7)	4 (3.7)	5 (4.6)
Are there circumstances when you would use poly/ add-on/ augmentation therapy?	93 (86.1)	9 (8.3)	6 (5.6)	89 (82.4)	12 (11.1)	7 (6.5)
If you use add-on/ augmentation therapy, would you use medications from the same class?	2 (1.9)	93 (86.1)	13 (12.0)	2 (1.9)	91 (84.3)	15 (13.9)
If you use polytherapy, would you prefer to take a second clinician's opinion?	54 (50.0)	39 (36.1)	15 (13.9)	54 (50.0)	39 (36.1)	15 (13.9)

The clinicians were also asked:

"If you use polytherapy, how many drugs would you use simultaneously?"

The results to this question are detailed below.

Number of Medications would use Simultaneously	Aggression n (%)	SIB n (%)
One	5 (4.6)	6 (5.6)
Two	67 (62.0)	66 (61.1)
Three	12 (11.1)	12 (11.1)
Four	2 (1.9)	0 (0.0)
More than four	1 (0.9)	1 (0.9)
No Answer	21 (19.4)	23 (21.3)

The results shown above indicate a very strong preference in the expert panel for trying a second medication where the first was not effective for the management of both aggression and SIB. In addition, the majority of the expert panel would use poly/ add on/ augmentation therapy in certain circumstances and would select this medication from a different class to the original. In such circumstances, a small majority would prefer to seek a second clinician's opinion.

The most favourable number of medications to use simultaneously in situations where polyprescribing was employed was two. Only a small proportion (13.9% for aggression and 12% for SIB) would prefer to use more than two medications.

Circumstances for the Use of Medication

The question as it was presented to the clinicians on the questionnaire was as follows:

"Under which circumstances would you consider using medication for the treatment of aggression or SIB in adults with learning disabilities? Please give examples in the box below."

The following table presents the most commonly stated circumstances under which the expert panel would consider prescribing medication for the management of aggression or SIB. They are presented in descending order of popularity and supported by relative frequencies and percentages.

Response	n (%)
Failure of non-medication based interventions	66 (61.1)
Risk/evidence of harm/distress to self	60 (55.6)
Risk/evidence of harm/distress to others or property	57 (52.8)
High frequency/severity of behaviour problem	50 (46.3)
To treat an underlying mental/psychiatric illness or anxiety	38 (35.2)
To calm/sedate the service user to enable implementation of non-drug interventions	22 (20.4)
Risk of breakdown to service's user's placement	14 (13.0)
Lack of adequate or available non-drug interventions	13 (12.0)
Good previous response to medication	11 (10.2)
Patient/carer choice	7 (6.5)

The failure of non-medication based interventions was the most commonly cited circumstance under which clinicians would consider prescribing medication. The risk of or evidence of harm or distress to the self and others was also commonly cited. Interestingly, patient or carer choice was only mentioned in 6.48% of cases.

Preferred Daily Dosages

The expert panel was asked to provide their preferred daily dosages for the medication options presented for the atypical antipsychotics, new generation antidepressants and mood stabilisers.

The following table gives the mean preferred daily dosages (mgs), the range of preferred daily dosages (mgs) obtained and the number of clinicians providing a dosage for each of the treatment options.

Treatment Option	Aggression				SIB			
	Min	Max	**Mean** (SD)	n	Min	Max	**Mean** (SD)	n
Atypical Antipsychotics								
Risperidone	0.25	6	**1.45** (1.17)	78	0.25	6	**1.24** (0.97)	68
Olanzapine	2.5	20	**6.27** (3.54)	67	2.5	10	**5.73** (2.88)	58
Quetiapine	25	750	**210.39** (177.27)	41	25	750	**251.54** (185.78)	33
Amisulpride	50	600	**274.14** (147.37)	29	50	500	**251.79** (139.10)	28
Aripiprazole	10	15	**13.00** (2.54)	15	5	20	**13.33** (3.89)	12
Clozapine	25	400	**239.58** (114.54)	12	25	400	**252.27** (127.70)	11
New Generation Antidepressants								
Citalopram	5	40	**18.02** (6.68)	53	5	40	**17.79** (6.82)	52
Fluoxetine	10	60	**19.51** (7.63)	51	0.25	60	**19.18** (9.50)	52
Sertraline	25	200	**66.74** (34.54)	43	25	200	**64.42** (33.88)	43
Escitalopram	5	20	**10.56** (5.06)	27	5	20	**10.58** (5.16)	26
Mirtazapine	7.5	30	**21.12** (7.78)	29	7.5	30	**21.64** (7.86)	29
Paroxetine	10	40	**21.06** (6.17)	26	10	30	**19.90** (5.22)	26
Venlafaxine	37.5	225	**100.98** (46.84)	28	37.5	225	**100.10** (47.38)	26
Fluvoxamine	50	150	**72.00** (38.82)	10	50	150	**87.00** (43.73)	10
Mood Stabilisers								
Carbamazepine	100	1400	**470.00** (270.49)	50	100	1800	**493.88** (325.58)	49

Sodium Valproate	200	2000	**818.87** (411.52)	53	200	2000	**826.67** (379.38)	45
Lithium	300	1200	**632.00** (235.80)	25	150	1200	**654.35** (249.05)	23
Lamotrigine	50	400	**151.25** (97.49)	20	50	300	**130.56** (76.96)	18

The expert panel as a whole preferred to use any medication within the BNF (No. 50, September 2005) recommended limits and none would prefer to prescribe a dosage that exceeded the maximum recommended daily dosage. Furthermore, some of the preferred daily dosages were below the minimum recommended or starting dose advised in the BNF reflecting a strong trend to prescribe the minimum effective dosage, a preference that was further emphasized through comments made by the clinicians on the questionnaire (see comments on the questionnaire section).

For antipsychotics, a total of 29 clinicians (26.9%) did not provide any preferred daily dosages at all. Similarly with antidepressants and mood stabilisers, 36 (33.3%) and 47 (43.5%) clinicians did not give any preferred daily dosages. A proportion of the expert panel stated next to the questions that their preferred daily dosage would be dependant on individual circumstances and/ or within the BNF and/ or therapeutic range (24 for antipsychotics, 10 for antidepressants and 14 for mood stabilisers).

In addition, only 25 (23.2%) of the clinicians gave a preferred daily dosage for lithium with 21 (19.4%) explicitly stating that their preferred daily dosage would be dependant on serum blood levels and therefore they could not provide a dosage. This reflects the advice offered in the BNF where a maximum daily dosage is not identified; rather maximum blood serum levels are indicated.

The ranges (from the minimum to the maximum) of the preferred daily dosages provided by the clinicians indicate some variability in their preferences. However, this may be partly explained by the issues surrounding the stipulation of a preferred daily dosage, as discussed later. Moreover, for some of the medication options, few clinicians gave a dosage, for example fluvoxamine and clozapine, and therefore the mean dosage may not be a reliable measure.

The modal preferred daily dosages (mgs) together with the number of clinicians stating that dosage are presented in the following table. The modal dosages are presented as they have more clinical relevance than the mean dosages.

Treatment Option	Aggression		SIB	
	Mode	n (%)	Mode	n (%)
Atypical Antipsychotics				
Risperidone	1 mg	33 (30.6)	1 mg	34 (31.5)

Olanzapine	5 mg	30 (27.8)	5 mg	28 (25.9)
Quetiapine	300 mg	10 (9.3)	300 mg	9 (8.3)
Amisulpride	200 mg	11 (10.2)	400 mg	9 (8.3)
Aripiprazole	15 mg	9 (8.3)	15 mg	7 (6.5)
Clozapine	300 mg	4 (3.7)	300 mg[a]	3[a] (2.8)
New Generation Antidepressants				
Citalopram	20 mg	35 (32.4)	20 mg	33 (30.6)
Fluoxetine	20 mg	41 (38.0)	20 mg	36 (33.3)
Sertraline	50 mg	27 (25.0)	50 mg	29 (26.9)
Escitalopram	10 mg	15 (13.9)	10 mg	14 (13.0)
Mirtazapine	15 mg	15 (13.9)	15 mg	14 (13.0)
Paroxetine	20 mg	20 (18.5)	20 mg	20 (18.5)
Venlafaxine	75 mg	16 (14.8)	75 mg	15 (13.9)
Fluvoxamine	50 mg	5 (4.6)	100 mg	4 (3.7)
Mood Stabilisers				
Carbamazepine	400 mg	18 (16.7)	400 mg	16 (14.8)
Sodium Valproate	1000 mg	14 (13.0)	1000 mg	13 (12.0)
Lithium	400 mg	7 (6.5)	800 mg	6 (5.6)
Lamotrigine	100 mg	6 (5.6)	100 mg	6 (5.6)

a. Multiple modes exist. The smallest value is shown.

Presence of Autism

Antipsychotics

The expert panel was asked to consider an adult with a learning disability and comorbid autism who displayed either aggression or SIB and for whom no psychiatric diagnosis could be confirmed. The question as it was presented to the clinicians on the questionnaire was as follows:

> "In the presence of **autism**, if atypical antipsychotics were chosen, put your order of preference in the boxes below.
>
> | | Aggression | SIB |
> |---|---|---|
> | Risperidone | [ ] | [ ] |
> | Olanzapine | [ ] | [ ] |
> | Quetiapine | [ ] | [ ] |
> | Amisulpride | [ ] | [ ] |
> | Clozapine | [ ] | [ ] |
> | Aripiprazole | [ ] | [ ]." |

The following tables give the frequencies and percentages of clinicians relevant to each ranking for each treatment option for both aggression and SIB in the presence of autism.

Aggression												
Rank	1st		2nd		3rd		4th		5th		6th	
Atypical Antipsychotic	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%
Risperidone	**98**	90.7	**3**	2.8	**0**	0.0	**0**	0.0	**0**	0.0	**0**	0.0
Olanzapine	**3**	2.8	**68**	63.0	**10**	9.3	**3**	2.8	**0**	0.0	**0**	0.0
Quetiapine	**0**	0.0	**14**	13.0	**36**	33.3	**7**	6.5	**2**	1.9	**1**	0.9
Amisulpride	**0**	0.0	**4**	3.7	**13**	12.0	**22**	20.4	**5**	4.6	**1**	0.9
Aripiprazole	**0**	0.0	**1**	0.9	**4**	3.7	**5**	4.6	**15**	13.9	**5**	4.6
Clozapine	**0**	0.0	**0**	0.0	**2**	1.9	**2**	1.9	**7**	6.5	**19**	17.6

SIB												
Rank	1st		2nd		3rd		4th		5th		6th	
Atypical Antipsychotic	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%
Risperidone	**89**	82.4	**4**	3.7	**1**	0.9	**0**	0.0	**0**	0.0	**0**	0.0
Olanzapine	**4**	3.7	**64**	59.3	**8**	7.4	**2**	1.9	**1**	0.9	**0**	0.0
Quetiapine	**0**	0.0	**12**	11.1	**35**	32.4	**6**	5.6	**1**	0.9	**1**	0.9
Amisulpride	**1**	0.9	**1**	0.9	**10**	9.3	**21**	19.4	**5**	4.6	**1**	0.9
Aripiprazole	**0**	0.0	**1**	0.9	**3**	2.8	**6**	5.6	**15**	13.9	**5**	4.6
Clozapine	**0**	0.0	**1**	0.9	**1**	0.9	**2**	1.9	**7**	6.5	**19**	17.6

The table below provides the mean scores for each of the atypical antipsychotics for both aggression and SIB in the presence of autism.

Aggression		
Preference	Treatment Option	Mean (SD)
1st	Risperidone	4.65 (1.24)
2nd	Olanzapine	2.99 (1.67)
3rd	Quetiapine	1.67 (1.61)
4th	Amisulpride	0.96 (1.27)
5th	Aripiprazole	0.38 (0.82)
6th	Clozapine	0.16 (0.53)
SIB		
Preference	Treatment Option	Mean (SD)
1st	Risperidone	4.30 (1.69)
2nd	Olanzapine	2.82 (1.79)
3rd	Quetiapine	1.54 (1.61)
4th	Amisulpride	0.80 (1.19)
5th	Aripiprazole	0.37 (0.79)
6th	Clozapine	0.17 (0.59)

(The maximum score that could have been obtained for this data set was a score of 5.)

The tables above indicate a clear preference for risperidone as the first choice antipsychotic with the mean score over one point higher than that of the next preferred antipsychotic, olanzapine.

Antidepressants

The question as it was presented to the clinicians on the questionnaire was as follows:

> "In the presence of **autism**, if new generation antidepressants were chosen, put your order of preference in the boxes below.
>
> | | Aggression | SIB |
> |---|---|---|
> | Fluvoxamine | [ ] | [ ] |
> | Fluoxetine | [ ] | [ ][|
> | Sertraline | [ ] | [ ] |
> | Citalopram | [ ] | [ ] |
> | Escitalopram | [ ] | [ ] |
> | Venlafaxine | [ ] | [ ] |
> | Mirtazapine | [ ] | [ ] |
> | Paroxetine | [ ] | [ ]." |

The following tables give the frequencies and percentages of clinicians relevant to each ranking for each treatment option for both aggression and SIB in the presence of autism.

Aggression															
Rank	1st		2nd		3rd		4th		5th		6th		7th		8th	
Antidepressant	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%
Citalopram	**34**	31.5	**23**	21.3	**7**	6.5	**4**	3.7	**2**	1.9	**1**	0.9	**0**	0.0	**1**	0.9
Fluoxetine	**28**	25.9	**19**	17.6	**12**	11.1	**7**	6.5	**3**	2.8	**2**	1.9	**1**	0.9	**1**	0.9
Sertraline	**17**	15.7	**17**	15.7	**13**	12.0	**9**	8.3	**5**	4.6	**1**	0.9	**0**	0.0	**0**	0.0
Paroxetine	**4**	3.7	**8**	7.4	**13**	12.0	**6**	5.6	**4**	3.7	**7**	6.5	**2**	1.9	**1**	0.9
Escitalopram	**7**	6.5	**7**	6.5	**4**	3.7	**4**	3.7	**4**	3.7	**3**	2.8	**3**	2.8	**2**	1.9
Venlafaxine	**2**	1.9	**4**	3.7	**7**	6.5	**7**	6.5	**9**	8.3	**7**	6.5	**6**	5.6	**0**	0.0
Mirtazapine	**2**	1.9	**7**	6.5	**8**	7.4	**6**	5.6	**2**	1.9	**4**	3.7	**5**	4.6	**5**	4.6
Fluvoxamine	**1**	0.9	**2**	1.9	**4**	3.7	**2**	1.9	**2**	1.9	**0**	0.0	**7**	6.5	**11**	10.2

SIB																
Rank	1st		2nd		3rd		4th		5th		6th		7th		8th	
Antidepressant	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%	**n**	%
Fluoxetine	**27**	25.0	**21**	19.4	**10**	9.3	**6**	5.6	**4**	3.7	**1**	0.9	**1**	0.9	**2**	1.9
Citalopram	**15**	13.9	**18**	16.7	**14**	13.0	**10**	9.3	**4**	3.7	**2**	1.9	**0**	0.0	**0**	0.0
Sertraline	**15**	13.9	**18**	16.7	**14**	13.0	**10**	9.3	**4**	3.7	**2**	1.9	**0**	0.0	**0**	0.0
Paroxetine	**3**	2.8	**8**	7.4	**12**	11.1	**8**	7.4	**4**	3.7	**8**	7.4	**2**	1.9	**1**	0.9
Escitalopram	**10**	9.3	**6**	5.6	**6**	5.6	**2**	1.9	**3**	2.8	**3**	2.8	**3**	2.8	**2**	1.9
Venlafaxine	**2**	1.9	**3**	2.8	**8**	7.4	**6**	5.6	**11**	10.2	**5**	4.6	**7**	6.5	**0**	0.0
Mirtazapine	**3**	2.8	**4**	3.7	**9**	8.3	**6**	5.6	**1**	0.9	**6**	5.6	**4**	3.7	**6**	5.6

Fluvoxamine	**1**	0.9	**2**	1.9	**4**	3.7	**2**	1.9	**2**	1.9	**0** 0.0	**6** 5.6	**10**	9.3

The following table gives the mean scores for each of the new generation antidepressants for both behaviour problems in the presence of autism.

Aggression		
Preference	Treatment Option	Mean (SD)
1st	Citalopram	4.03 (3.06)
2nd	Fluoxetine	3.81 (2.95)
3rd	Sertraline	3.14 (2.90)
4th	Paroxetine	1.79 (2.42)
5th	Escitalopram	1.37 (2.38)
5th	Venlafaxine	1.37 (2.03)
7th	Mirtazapine	1.29 (2.17)
8th	Fluvoxamine	0.56 (1.51)
SIB		
Preference	Treatment Option	Mean (SD)
1st	Fluoxetine	3.74 (2.99)
2nd	Citalopram	3.14 (2.86)
2nd	Sertraline	3.14 (2.86)
4th	Paroxetine	1.77 (2.36)
5th	Escitalopram	1.50 (2.53)
6th	Venlafaxine	1.35 (2.01)
7th	Mirtazapine	1.23 (2.13)
8th	Fluvoxamine	0.55 (1.51)

(The maximum score that could have been obtained for this data set was a score of 8.)

The order of preference for the new generation antidepressants in the presence of autism are not well defined with some medications receiving the same mean score (namely escitalopram and venlafaxine for aggression and citalopram and sertraline for SIB). Citalopram, fluoxetine and sertraline were the three most favoured new generation antidepressants for both behaviour problems.

The Presence of Autism versus No Presence of Autism

The results obtained for the set of atypical antipsychotics and new generation antidepressants were compared with and without the presence of autism. Overall, there were few noteworthy differences in the preferences.

Atypical Antipsychotics

The order of preference for the atypical antipsychotics was the same both with and without the presence of autism. However, the mean scores and frequencies are generally slightly lower in the presence of autism as fewer clinicians provided ratings, therefore there were more items left unrated.

New Generation Antidepressants

The order of preference for new generation antidepressants was rather different in the presence of autism to that of no presence of autism. The top three choices remained the same, with the same order of preference for aggression. However, Fluoxetine was first choice for SIB in the presence of autism, as compared to Citalopram without the presence of autism. There was some variation in the lower orders (4^{th} to 7^{th}) for both behaviour problems, however, the mean scores were all clustered between 1.2 and 1.8 for these preferences.

Preferred Daily Dosages

The preferred daily dosages were similar with and without the presence of autism.

Aggression versus SIB

Drug Intervention versus Non-Drug Intervention

There were no significant differences in the preferences for aggression or SIB with both treatment options achieving a similar mean score and the same order of preference.

Medication Classes

The order of preference differed for aggression and SIB for the medication classes. Antidepressants and opioid antagonists were more highly rated for the management of SIB than aggression, and mood stabilisers and beta-blockers were more favoured in the management of aggression.

Antipsychotics

For the atypical antipsychotics, the same order of preference was obtained for both aggression and SIB with and without the presence of autism, with no significant differences in the mean scores. Similarly, for typical versus atypical antipsychotics, atypical were heavily favoured for both behaviour problems with no significant difference between the mean scores.

Antidepressants

For both behaviour problems, new generation antidepressants were favoured over old with no significant differences between the mean scores. However, a

different order of preference was obtained for the new generation antidepressants for each behaviour problem. Paroxetine was more heavily favoured in the management of SIB and mirtazapine less favoured. In the presence of autism, citalopram was first choice for aggression whereas fluoxetine was first choice for SIB.

Mood Stabilisers

The same order of preference was obtained for both the behaviour problems for the mood stabilisers/ antiepileptics. There were no significant differences between the mean scores obtained for each.

Polyprescribing

There were no differences in the percentages obtained for the questions probing the expert panel's preferences for polyprescribing. Very similar frequencies and percentages were obtained for both aggression and SIB.

Preferred Daily Dosages

The preferred daily dosages expressed by the expert panel were largely similar for both behaviour problems. However, the modal daily dosage for amisulpride was higher for SIB (400 mg) than for aggression (200 mg). Similarly, the preferred daily dosage for fluvoxamine was higher for SIB (100 mg) than for aggression (50 mg). The same pattern was observed for lithium where the modal dosage was again higher for SIB (800 mg) than for aggression (400 mg).

Comments on the Questionnaire

The clinicians involved were invited to note any comments regarding the questionnaire including any further information relating to their prescribing habits or remarks on the format and structure of the questionnaire. A common comment made by the panel was that their preference for certain medications would vary greatly depending on the individual circumstances that they were presented with. Such comments included:

> "Obviously in clinical decision, my choices would be guided by certain facets of the history/ presentation/ symptoms etc."

> "Every case contains many different factors influencing the prescribing decisions. I think if you decide on more or less pharmacological factors alone (differences between drugs regardless of the personal factors of 'patient') OR you decide based on one or two personal factors only – you probably have not given enough time and/or attention to your patient."

This reaction was anticipated. However, in order to synthesise the results and gather a consensus it was essential to impose some element of forced choice. This issue has been widely considered in expert consensus guidelines, as Aman et al (2000) acknowledged in their expert consensus guideline 'individuals will differ greatly in their treatment preferences and capacities, in their history of response, and their tolerance for different side effects.'

There was also an emphasis on isolating the causes of the behaviour problems, in order to guide the choice of medication, as one clinician noted:

"Would try to tailor [the] drug to hypothesis about behaviour (related to anxiety, compulsive quality etc) even if [the] problem does not amount to psychiatric diagnosis."

In addition, a strong preference was expressed regarding preferred daily dosages with many clinicians stating in the comments section that they would always prescribe the minimum effective dose. More specifically, clinicians preferred to start with a small dosage of a medication and gradually increase if necessary, depending on response, tolerance and side effects. Typical comments regarding dose included:

> "My principle is minimum effective dose for minimum length of time."
>
> "My preferred daily dose for any medication would be the minimum dose needed to make the frequency of aggression/ SIB manageable."

"As regards preferred daily dosage for all drugs – I have no 'preferred' dosage but aim to start with the lowest possible, titrate up slowly until maximum gain is noted. I rarely go above the recommended dosages in the BNF."

The comments received also indicated that the specification of a preferred daily dosage was rather difficult, particularly as it was out of a clinical context:

> "Preferred dosage is a purely subjective measure for individuals."
>
> "There really should be no preferred doses as the preferred dose for individual patients is the minimum effective dose."

The expert panel also provided additional details about their prescribing practice to supplement their rankings. Such comments highlighted the strong preference for non-medication based interventions as first line treatment over medication as evidenced from the analysis of the corresponding question and the circumstances under which clinicians would consider prescribing medication. As one clinician stated:

“Only when these [environmental, physical and social causes] are ruled out and non-pharmacological options don’t work that medication should be considered.”

The comments received from the expert panel generally served to highlight some important issues surrounding the use of medication for the management of behaviour problems that were not addressed in the questionnaire.

Discussion

The results of this study provide an interesting insight into the current prescribing preferences of clinicians working within the field of psychiatry of learning disability. They demonstrate some strong trends of preference where some medications are much more generally favoured over others in the management of both aggression and SIB.

It can be summarised that the most favoured medication class for both behaviour problems was antipsychotics. From within the class of antipsychotics, atypical antipsychotics were heavily favoured over typical and specifically risperidone was the most preferred atypical antipsychotic.

In the class of antidepressants, new generation antidepressants were strongly favoured over old generation with citalopram being the most preferred new generation antidepressant for both aggression and SIB.

A clear order of preference was obtained for the class of mood stabilisers (including antiepileptic drugs) where carbamazepine was elected as first choice from this class for the management of both behaviour problems.

All the preferred daily dose ranges were well within the BNF recommended dosages with many considerably below that threshold. However, the concept of preferred daily dosages proved to be rather a controversial issue as discussed previously in the comments section. Overall, a very strong trend was expressed for starting with a low dosage of a medication with the intention to titrate that dosage depending on individual circumstances.

In general, there were few differences in the preferences for the management of aggression and SIB with both behaviour problems achieving largely the same order of preference. However, a difference was found in the order of preference for the different medication classes with antidepressants more heavily favoured in the treatment of SIB and mood stabilisers (including antiepileptics) more favoured in the treatment of aggression. This finding may reflect common theoretical standpoints as to the origin of each behaviour problem. Similarly, opioid antagonists were more favoured in the treatment of SIB and beta-blockers more favoured in the treatment of aggression.

The presence of autism generally had little impact on the preferences for the atypical antipsychotics and new generation antidepressants and relevant preferred daily dosages

An important finding of this study is the very strong preference for the use of non-medication based management options as a primary intervention for aggression and SIB. The expert panel made great emphasis towards this trend. It is therefore important to note that whilst the results indicate strong

preferences towards certain medications, these preferences are secondary to the use of behavioural, social and environmental approaches.

All the percentages given in this paper are out of the total number of completed questionnaires received (n=108). It was decided that these percentages, rather than the valid percentages would more accurately convey the level of consensus achieved for each of the treatment options as the valid percentages (out of the total number of responses relevant to each treatment option) may express a more positive consensus than was actually achieved. Furthermore, it was consistently assumed that where no rankings were provided on the questionnaire, the clinician was disapproving of that specific treatment option, which in itself was deemed an important result. In addition, as the clinicians tended to rate and provide preferred daily dosages for their most preferred options, the standardised percentage has more reliability in reflecting the views of the expert panel.

Observations

There were some trends that emerged as data collection and time progressed. A pertinent example was that questionnaires received later in the data collection period demonstrated a growing preference for seeking a second opinion where polytherapy was utilised whereas earlier questionnaires favoured not to seek a second opinion. Similarly, there was a growing preference for escitalopram and aripiprazole in the questionnaires received later in the five-month period of data collection. As one clinician noted about the use of aripiprazole, the efficacy had not yet been established but may be promising. A repeat of the study may find these medications more heavily favoured as use and research is more wide spread.

Directions for Future Research and Limitations

Whilst there are some inherent limitations with the present study, some important indications for future research have been identified that would make a replicated study more reliable. The comments section of the questionnaire also served to indicate potential modifications to the methodology to create a more successful study.

The comments received from the expert panel have highlighted some difficulties with the format of the questionnaire. If this exercise were to be repeated, several adjustments may be made in light of the comments. As one clinician suggested,

“Instead of ‘preferred dosage’, use the phrase ‘maximum’ or ‘minimum’ dosage likely to be felt therapeutic.”

The problematic nature of providing a preferred daily dosage was commonly drawn upon by the expert panel. Therefore, requesting a minimum or

maximum daily dosage as suggested above may be more appropriate. Furthermore, a proportion of the expert panel expressed concern over the difficulty of providing preference ratings in the absence of a clinical context. As one clinician stated:

“Give case vignettes or specific case studies with ratings afterwards.”

Indeed, in order to achieve results with much more clinical specificity, the use of case vignettes with related ratings could allow the clinicians to express more details about their clinical judgements. However, an aim of the present study was to access very general preferences and therefore the questions were designed to be broad and wide-ranging.

A criticism that can be made of the questionnaire design, made evident from the results, is that the questionnaire may be too lengthy to complete. Overall, fewer clinicians gave ratings for the behaviour problem of SIB (aggression was presented first in every question) and also for the final two questions on the presence of autism. This may reflect an element of fatigue at the length and repetitiveness of the questionnaire. Therefore, the mean scores for the later questions are generally lower as there were more un-rated items that received zero points in accordance with the modified Borda count. This provokes questions over the reliability of the results as some of the treatment options left un-rated may not reflect a disapproval of the specific option, but rather the fact that the questionnaire was too protracted. A simple modification of the study design that could ameliorate this issue would be to request the clinicians’ first three preferences, which would still allow for the approval element of the design whilst standardising the completeness of the questionnaires.

The above amendments may well facilitate a better response rate as the designated experts may feel more inclined to complete and return a questionnaire that is more user-friendly. Indeed, the response rate was rather low for the study, further indicating that some of the results may need to be interpreted with caution.

Whilst the results of this study highlight some important issues surrounding the use of medication for the management of behaviour problems, it is important to remember that a consensus does not necessarily represent evidence of best practice. Indeed, a common criticism of consensus methods from an epistemological perspective is that too much emphasis may be placed on the outcomes of such methods. Cross (2005) argues that too much reliance may be afforded to the results of consensus studies where they are misconstrued as representing the correct answer. For this reason, the results of this consensus gathering exercise are intended to be an indication of current prescribing preferences rather than a guide to best clinical practice. Furthermore, the present study fully recognises the importance of a thorough assessment of the individual before choosing medication for the management of behaviour problems.

References

Aman, G., Alvarez, N., Benefield, W., Crismon, M., Green, G., King, B. et al. (2000). Treatment of psychiatric and behavioural problems in mental retardation. *American Journal on Mental Retardation*, *105*, 159-228.

British Medical Association & Royal Pharmaceutical Society of Great Britain (September 2005). British National Formulary, Number 50. London: Author.

Clarke, D. J., Kelley, S., Thinn, K., & Corbett, J. A. (1990). Psychotropic drugs and mental retardation: 1. Disabilities and the prescription of drugs for behaviour and for epilepsy in three residential settings. *Journal of Mental Deficiency Research*, *28*, 229-233.

Cross, H. (2005). Consensus methods: a bridge between clinical reasoning and clinical research? *International Journal of Leprosy*, *73*, 28-32.

d'Angelo, A., Eskandari, A., & Szidarovsky, F. (1998). Social choice procedures in water-resource management. *Journal of Environmental Management*, *52*, 203-210.

Deb, S., & Fraser, W. (1994). The use of psychotropic medication in people with learning disability: towards rational prescribing. *Human Psychopharmacology*, *9*, 259-272.

Deb, S., Thomas, M., & Bright, C. (2001). Mental disorder in adults with intellectual disability. 2: The rate of behaviour disorders among a community-based population aged between 16 and 64 years. *Journal of Intellectual Disability Research*, *45*, 506-514.

Delbecq, A. L., Van de Ven, A. H., & Gustafson, D. H. (1975). *Group techniques for programme planning: a guide to nominal group and Delphi processes*. Illinois: Scott Forresman & Company.

Fink, A., Kosecoff, J., Chassin, M., & Brook, R. H. (1984). Consensus methods: characteristics and guidelines for use. *American Journal of Public Health*, *74*, 979-983.

Frances, A., Kahn, D., Carpenter, D., Frances, C., & Docherty, J. (1998). A new method for developing expert consensus practice guidelines. *The American Journal of Managed Care*, *4*, 1023-1029.

García-LaPresta, J. L., & Martínez-Panero, M. (2002). Borda count versus approval voting: A fuzzy approach. *Public Choice*, *112*, 167-184.

Gupta, U. G., & Clarke, R. E. (1996). Theory and Applications of the Delphi Technique: A Bibliography (1975-1994). *Technological Forecasting and Social Change*, *53*, 185-211.

Jones, J., & Hunter, D. (1995). Consensus methods for medical and health services research. *British Medical Journal*, *311*, 377-380.

National Institute for Health and Clinical Excellence (NICE, 2004). *Guideline development methods: information for national collaborating centres and guideline developers*. London: NICE. http://www.nice.org.uk.

Saari, D. G. (2003). Capturing the “Will of the people”. *Ethics*, *113*, 333-349.

Sackman, H. (1975). *Delphi Critique*. Lexington: Lexington Books.

Smith, S., Branford, D., Collacott, R., Cooper, S. A., & McGrother, C. (1996). Prevalence and cluster typology of maladaptive behaviours in a geographically defined population of adults with learning disabilities. *British Journal of Psychiatry*, *169*, 219-27.

Appendix 1: Clinician's Consensus Questionnaire

Questionnaire

The following questions relate to the management of aggression to others and property, and self-injurious behaviour (SIB) in a person with a learning disability in the absence of a diagnosed psychiatric disorder.

1) Put your order of preference for the management of each behaviour type in the boxes below.

	Aggression	SIB
♦ Medication intervention	[ ]	[ ]
♦ Non-medication based intervention	[ ]	[ ]

2) Under which circumstances would you consider using medication for the treatment of aggression or SIB in adults with a learning disability? Please give examples in the box below.

3) If medication-based intervention was chosen, put your order of preference for both behaviour types in the boxes (e.g. 1st, 2nd, 3rd choice etc.) against each class of medication below.

	Aggression	SIB
♦ Antipsychotics	[ ]	[ ]
♦ Antidepressants	[ ]	[ ]
♦ Mood stabilisers (including antiepileptics)	[ ]	[ ]
♦ Opioid antagonists (including naltrexone)	[ ]	[ ]
♦ Beta-blockers	[ ]	[ ]
♦ Anti-anxiety drugs	[ ]	[ ]

4) If antipsychotics were chosen, put your order of preference in the boxes below.

	Aggression	SIB
♦ Typical antipsychotics	[ ]	[ ]

- Atypical antipsychotics [ ] [ ]

5) If atypical antipsychotics were chosen, put your order of preference in the boxes below with preferred daily dosage in mgs in the parenthesis.

	Aggression		SIB	
♦ Risperidone	[ ]	( )	[ ]	( )
♦ Olanzapine	[ ]	( )	[ ]	( )
♦ Quetiapine	[ ]	( )	[ ]	( )
♦ Amisulpride	[ ]	( )	[ ]	( )
♦ Clozapine	[ ]	( )	[ ]	( )
♦ Aripiprazole	[ ]	( )	[ ]	( )

6) If antidepressants were chosen, put your order of preference in the boxes below.

	Aggression	SIB
♦ Old generation antidepressants (including tricyclics)	[ ]	[ ]
♦ New generation antidepressants (including SSRIs & SNRIs)	[ ]	[ ]

7) If new generation antidepressants were chosen, put your order of preference in the boxes below with preferred daily dosage in mgs in the parenthesis.

	Aggression		SIB	
♦ Fluvoxamine	[ ]	( )	[ ]	( )
♦ Fluoxetine	[ ]	( )	[ ]	( )
♦ Sertraline	[ ]	( )	[ ]	( )
♦ Citalopram	[ ]	( )	[ ]	( )
♦ Escitalopram	[ ]	( )	[ ]	( )
♦ Venlafaxine	[ ]	( )	[ ]	( )
♦ Mirtazapine	[ ]	( )	[ ]	( )
♦ Paroxetine	[ ]	( )	[ ]	( )

8) If mood stabilisers/ antiepileptics were chosen, put your order of preference in the boxes below with preferred daily dosage in mgs in the parenthesis.

	Aggression		SIB	
♦ Lithium	[ ]	( )	[ ]	( )
♦ Sodium Valproate	[ ]	( )	[ ]	( )
♦ Carbamazepine	[ ]	( )	[ ]	( )
♦ Lamotrigine	[ ]	( )	[ ]	( )

9) If the first medication does not work would you like to try a second medication?

	Aggression	SIB
♦ Yes	[ ]	[ ]
♦ No	[ ]	[ ]

10) Are there circumstances when you would use poly therapy/add on/augmentation therapy?

	Aggression	SIB
♦ Yes	[ ]	[ ]
♦ No	[ ]	[ ]

11) If you use add-on/augmentation therapy, would you use medication from the same class or a different class?

	Aggression	SIB
♦ Same	[ ]	[ ]
♦ Different	[ ]	[ ]

12) If you use polytherapy, how many medications would you use simultaneously?

	Aggression	SIB
♦ One	[ ]	[ ]
♦ Two	[ ]	[ ]
♦ Three	[ ]	[ ]
♦ Four	[ ]	[ ]
♦ More than four	[ ]	[ ]

13) If you use polytherapy, would you prefer to take a second clinician's opinion?

	Aggression	SIB
♦ Yes	[ ]	[ ]
♦ No	[ ]	[ ]

The following questions relate to the management of aggression to others and property, and self-injurious behaviour (SIB) in a person with learning disabilities in the absence of a diagnosed psychiatric disorder.

14) In the presence of **autism,** if atypical antipsychotics were chosen, put your order of preference in the boxes below with preferred daily dosage in mgs in the parenthesis.

	Aggression		SIB	
♦ Risperidone	[ ]	( )	[ ]	( )
♦ Olanzapine	[ ]	( )	[ ]	( )
♦ Quetiapine	[ ]	( )	[ ]	( )
♦ Amisulpride	[ ]	( )	[ ]	( )
♦ Clozapine	[ ]	( )	[ ]	( )
♦ Aripiprazole	[ ]	( )	[ ]	( )

15) In the presence of **autism,** if new generation antidepressants, were chosen put your order of preference in the boxes below with preferred daily dosage in mgs in the parenthesis.

	Aggression		SIB	
♦ Fluvoxamine	[ ]	( )	[ ]	( )
♦ Fluoxetine	[ ]	( )	[ ]	( )
♦ Paroxetine	[ ]	( )	[ ]	( )
♦ Sertraline	[ ]	( )	[ ]	( )
♦ Citalopram	[ ]	( )	[ ]	( )
♦ Escitalopram	[ ]	( )	[ ]	( )
♦ Venlafaxine	[ ]	( )	[ ]	( )
♦ Mirtazapine	[ ]	( )	[ ]	( )

Please write your comments on the above questions or any of the answers, below (if you want to expand on them).