

The Diagnostic Interview for Social and Communication Disorders (DISCO) Abbreviated: Evaluation of training to NHS Wales professionals 2013-2014

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DISCO Abbreviated

Evaluation of Training to NHS Wales Professionals 2013-2014

Summary

This report forms one of several documents describing the design, development and implementation of the *DISCO Abbreviated* interview for Autism Spectrum Disorder. The *DISCO Abbreviated* is an adaptation of the full *DISCO* (Wing, Leekam, Libby, Gould & Larcombe, 2002; Leekam, Libby, Wing, Gould & Taylor, 2002), which is a clinician-led, semi-structured interview schedule used with a parent or carer of an individual, or with the individual him or herself. The primary purpose of the *DISCO* is to elicit information in order to assist clinicians in their judgement of an individual's level of development, behaviours, disabilities and needs. It also contains algorithms to help guide the diagnosis of autism according to international classification criteria.

The *DISCO Abbreviated* provides a standalone interview schedule. It has adapted the *DISCO* by using a reduced set of interview items from the full *DISCO*. The order of the interview questions has been reformulated for the abbreviated context and newly designed algorithms have been prepared, specifically for the *DISCO Abbreviated*. Two international research papers describe the design of the new *DISCO Abbreviated* item sets and algorithms and report on its sensitivity and specificity.

Carrington, S. J., Kent, R. G., Maljaars, J., Le Couteur, A., Gould, J., Wing, L., Noens, I., Van Berckelaer-Onnes, I. and Leekam, S. R. (2014). DSM-5 Autism Spectrum Disorder: In search of essential behaviours for diagnosis. *Research in Autism Spectrum Disorders*, 8(6), 701-715.

Carrington, S.J., Leekam, S.R., Kent, R.G., Maljaars, J., Gould, J., Wing, L., Le Couteur, A., Van Berckelaer-Onnes, I., and Noens, I. (2014). Signposting for diagnosis of Autism Spectrum Disorder using the Diagnostic Interview for Social and Communication Disorders (DISCO). *Research in Autism Spectrum Disorders (under review)*.

The *DISCO Abbreviated* was originally designed by the Wales Autism Research Centre team in 2012-2013, for use within The All Wales ASD Diagnostic and Pre-Post Diagnosis Counselling Network for Adults. It has potential for use by clinicians in mental health and learning disability settings for adults and children across the UK and internationally. The report below explains the background to the selection of the *DISCO Abbreviated* for the All Wales ASD Diagnostic and Pre-Post Diagnosis Counselling Network for Adults, describes the training given to NHS professionals in 2013-2014 and provides the results of an evaluation study of that training.

Key Findings from Training Evaluation

- 100% of trainees found the course useful.
- The number involved in assessment and diagnosis of ASD rose from 32% to 83% after training.
- 96% of clinicians indicated that the training course influenced their diagnostic practice
- Trainees were satisfied with the balance of the course content and 75% provided spontaneous additional positive comments about the training.
- Some would appreciate further opportunity for practice examples during the course and the opportunity to be able to use the briefer set of DISCO screening questions in practice.
- In an open question about the benefits of using the *DISCO Abbreviated*, 96% felt that its use had influenced their practice in at least one of the following ways: increased confidence, questioning skills, ASD knowledge, recognising ASD symptoms and behaviours.

- In an open question about requests for further professional development responses included suggestions for a support network with ongoing peer support and occasional support from an experienced clinician

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Background

The All Wales ASD Diagnostic and Pre-Post Diagnosis Counselling Network for Adults, was funded by the Welsh Government as part of the Autism Strategic Action Plan for Wales. It was formed in 2010 following the work of the Adult Diagnosis Task and Finish Group.

The *Diagnostic Interview for Social and Communication Disorders (DISCO)* was selected by the All Wales ASD Diagnostic and Pre-Post Diagnosis Counselling Network for Adults, as the standardised assessment method to be used for training in Wales. In arriving at its decision to use the *DISCO* the network considered a number of other assessment methods including the *Autism Diagnostic Interview (ADI-R; Lord et al., 1994)*, the *Ritvo Autism Asperger Diagnostic Scale-Revised (RAADS-R; Ritvo et al., 2011)*, the *Autism Diagnostic Observation Schedule (ADOS; Lord et al., 2000)*, and *The Royal College of Psychiatrists' Diagnostic Interview Guide for the Assessment of Adults with Autism Spectrum Disorder (ASD)*. However, the *DISCO* was the only method at that time to meet the requirements of the network for a method which was suitable in the following ways:

- (a) suitable for use with individuals with both severe learning disability and individuals with milder forms of autism;
- (b) suitable to support complex diagnoses in a tertiary, specialist setting and also suitable in mainstream services;
- (c) suitable for use with informants (carers, parents) and also suitable for use with individuals themselves.

The network also required a method that would take account of needs and care planning and ensure consideration of comorbidity. In addition, the method needed to be consistent with national guideline recommendations. The decision to select the *DISCO* was made in 2011, a year before the publication of the National Institute for Clinical Excellence (NICE) Guidance for adult diagnosis and assessment in 2012. However, the decision proved to be consistent with the guidance of the subsequently published NICE report (2012), which includes the *DISCO* amongst the diagnostic methods listed.

The *DISCO* and the *DISCO-Abbreviated*

When the network was set up, the standard 320 item *DISCO* interview was the only form of *DISCO* interview that existed. The standard *DISCO* interview was developed by Lorna Wing and Judith Gould (Lorna Wing Centre), to help clinicians to assess an individual's pattern of behaviours and needs. This interview has been published (Wing et al., 2002; Leekam et al., 2002) and is already well established in clinical practice. A summary of its design and use is given in the published papers and an overview can be found in the open access document on the Autism Research Policy Practice Hub http://www.autismrpphub.org/sites/default/files/resources/disco_encyclopedia.pdf.

The *DISCO* 'family' was the name given by the Network as part of the plan to develop a coordinated set of interviews designed to be used by the Adult Diagnosis and Pre-post Diagnosis Service. The original aim was for three 'levels' of *DISCO* interview; the full 320-item *DISCO*, the *DISCO Abbreviated*, and an even briefer interview that could be used to signpost for referral for one of the other interviews. As part of the plans for the network, training was initially provided on the full standard *DISCO* for 21 professionals in Wales. The professionals, having completed the full *DISCO*

training delivered by Dr Gould and colleagues from the Lorna Wing Centre, now deliver complex assessments and provide mentorship for more junior clinicians, some of whom have now completed DISCO-Abbreviated training. The network also provided the opportunity to extend the training of the DISCO by the creation of a new form of DISCO interview – the *DISCO-Abbreviated*.

The *DISCO Abbreviated* interview schedule is a joint initiative between the Wales Autism Research Centre and the Lorna Wing Centre and developed uniquely in Wales with the All Wales ASD Diagnostic and Pre-Post Diagnosis Counselling Network for Adults. The work for its design and testing was led by Dr Sarah Carrington with Prof Leekam. Dr Carrington also coordinated the development of the training materials. The new abbreviated interview (68 items) was designed in 2012 especially to be used as part of this service. It is made up of a subset of the items from the full DISCO; more specifically, it consists of those items that statistically discriminate individuals with ASD from individuals with other clinical diagnoses.

The design of the *DISCO Abbreviated* Interview enables a set of abbreviated DISCO diagnostic algorithms to be used. These include ICD-10 Pervasive Developmental Disorder (Childhood Autism and other subgroups), DSM-5 Autism Spectrum Disorder, Wing & Gould's Autism Spectrum Disorder, Gillberg's Asperger syndrome¹ and Kanner & Eisenberg's Early Infantile Autism¹. The items and algorithm for the DSM-5 DISCO Abbreviated were published in the international journal *Research in Autism Spectrum Disorders* (March 2014). Furthermore, the International Meeting for Autism Research (IMFAR) program committee invited Dr Carrington to give an oral presentation in Atlanta (May 2014), as the submission received a high rating and was described by the committee as an important topic to be reported.

In addition, a very short 'signposting' or screening interview (*DISCO Signpost*) has been designed to form part of the 'family'. This is based on a further reduced sub-set of 14 highly discriminating items that are embedded within the *DISCO Abbreviated* interview. The algorithm for the signposting set has been submitted for publication in the same journal (*Research in Autism Spectrum Disorders*, submitted July 2014). However, to date both the *DISCO Abbreviated* and the signposting interview methods have been tested exclusively on secondary datasets and the validity of both interviews urgently needs to be fully tested in a research study that includes new primary data. More specifically, new research data is needed to further validate the *DISCO Abbreviated* Interview and the 'signposting' interview in a clinic population. This is particularly important because, although the existing datasets we have used for the research include adult participants, adults are not strongly represented in these secondary datasets. Once the *DISCO Abbreviated* is validated and possibly adjusted where amendments are needed, this will enable it to be used more widely in the UK and internationally. A validation study would require a minimum of 80 participants, 40 diagnosed with and 40 without ASD, recruited through the diagnostic pathway. The small set of 'signposting' items (*DISCO Signpost*) embedded within the *DISCO Abbreviated* and the algorithm for this brief item-set is likely to be particularly useful for clinicians. However, because this reduced set is derived from data within the *DISCO Abbreviated* set, and because the *DISCO Abbreviated* is itself derived from data taken from the full DISCO, it will be important to collect new data and test them in comparison with other screening tools this before releasing this part of the coordinated DISCO set.

¹ Note that the algorithms for Gillberg's Asperger Syndrome and Kanner & Eisenberg's Early Infantile Autism have not yet been validated.

DISCO Abbreviated Training Course: Outline

A new training course for the *DISCO Abbreviated* was designed and developed by the Training Sub Group of the All Wales ASD Diagnostic and Pre-Post Diagnosis Counselling Network for Adults ; Dr Sundari (Aneurin Bevan HB), Dr Matthews (Hywel Dda HB), Prof. Leekam (WARC). The course was delivered in three locations in Wales. Dr Judith Gould from the Lorna Wing Centre worked with Prof. Leekam and Dr Carrington (WARC) in the development of the training materials and with Dr Matthews and Sundari in the planning of the course organisation and content. The course was delivered by Dr Gould and Mrs Murray from Lorna Wing Centre, Dr Sundari, Dr Matthews, Prof Leekam and Dr Carrington.

The course differed from the full *DISCO* training in its length (three instead of four days), local context (included training about the Welsh Government network), coursework requirements (pre-course and interim work coded from DVDs, self-rated and discussed), and algorithm session (including *DSM-5* diagnosis). Day 1 included the concepts of ASD, discussion of pre-course work and training of concepts. Two training DVDs of cases were used to train on coding. Day 2 included training on comorbidity issues and role play training. The course was split so that Day 3 followed at least two months later to allow time for trainees to practice the interview and carry out coding of course work DVDs. Day 3 included training on the use of the *DISCO Abbreviated* algorithms and information on the Welsh Government clinical network and local policy context.).

Training materials: Training DVDs were produced by Prof. Leekam and Dr Carrington at the Wales Autism Research Centre (WARC). These featured examples of interviews carried out by Dr Gould and Dr Sheppard (from Lorna Wing Centre) and Prof. Leekam (WARC). The three training DVDs presented informant interviews by parents and care-managers and one presented a self-informant interview. Consensus coding was obtained from four experienced raters from the Lorna Wing Centre and WARC. New printed interview schedules, coding sheets and algorithm coding layouts were provided by the Lorna Wing Centre team. Dr Carrington is developing a new manual that summarises the research that led to the development of the *DISCO Abbreviated* and reports its algorithms, psychometric properties and administration.

Full details of the item selection, algorithm design, and analysis are given in Chapter 3 of the *DISCO Abbreviated* report manual under preparation. Collaborators in the Netherlands (Leiden University) and Belgium (K-U Leuven) shared data sets with the Welsh research team, which enabled more extensive testing of the *DISCO Abbreviated* Interview. A series of 10 pilot interviews were carried out by Prof. Leekam as part of the development phase and to pilot the algorithms before training began.

Evaluation of *DISCO Abbreviated* Training

Introduction

The report below comprises an evaluation of the training for the *DISCO Abbreviated* training course. Three two-part *DISCO Abbreviated* training courses were delivered in 2013-2014. Part 1 included Days 1 and 2, and Part 2 included Day 3. Each course was attended by NHS clinicians and held in different areas of Wales. The Cardiff course in July and September was booked by 20 and one person did not attend leaving 19 attendees at Part 1, the Carmarthen course in November and January, was booked by 19 and attended by 16 at Part 1 and the Llanfairfechan course in North Wales in January and March, was booked by 20 attended by 17 at Part 1). Some trainees (2 Cardiff, 1 Carmarthen, 4 Llanfairfechan) attended Part 1 but were not able to attend Part 2 of the course, which reduced the numbers possible for the evaluation to 17, 15 and 13 respectively.

Essential requirements for acceptance onto the course are shown on Appendix 1 and included at least three years post qualification experience in MH/LD service, a professional clinical qualification, experience of leading assessment of complex mental disorders in day to day work and formal support from the employee's Health Board for them to attend the course

Two types of evaluation are reported. The first phase is **course feedback**, carried out during the course. The aim was to identify if the newly structured course met the learning needs of trainees and if any improvements or additions were needed to the course itself.

The second phase was **an online questionnaire** on the use of the *DISCO Abbreviated* in practice. The purpose of this questionnaire was to identify potential long term impacts of the training on the clinicians' practice. The evaluation questionnaire was sent out in May 2014, when all the courses were completed and trainees had opportunity to experience use of the DISCO in practice. Therefore for the North Wales training group this was two months after the completion of the training course and for the Cardiff training group eight months after completing the course. Both types of evaluation are reported below.

All the data from both questionnaires were entered onto an SPSS data file by Emma Munro, a research assistant working only during the analysis period who had no details about the nature of the course or the trainers. She summarised the responses to all the questions (e.g. see Appendix 2) and independently created coding categories for open questions.

Phase 1: Course feedback

Method

The course feedback form was modelled on an established form regularly used during training at the Lorna Wing Centre. The form consisted of just four questions, with a further option for participants to provide additional comments (See Appendix 2). The questions were as follows: (1) *Do you think your knowledge of the autism spectrum was broad enough to understand the concepts of the questions?* (2) *Which aspects of the course did you find most useful?* (3) *What improvements/additions to the course would you suggest?* (4) *Having completed the course, will you implement the ideas in your working practice? If yes, how?* The questionnaire was distributed on the final Part 2 training day (Day 3) for both the Cardiff and Llanfairfechan courses and participants were asked to return the form by the end of the day. Completing the form was not a course requirement and all responses were anonymous. Due to an oversight, course feedback forms were not distributed to the Carmarthen course group. Of the 30 participants attending the Cardiff and Llanfairfechan training courses and returning for both Part 1 and Part 2, 29 (97%) completed and returned the forms.

Results

Question 1: Breadth of knowledge sufficient to understand concepts? The majority of clinicians indicated that their knowledge of autism was sufficient to enable them to understand the concepts of the questions in the DISCO Abbreviated (22/29: 76%). The remaining seven clinicians indicated either that their knowledge had been a little 'rusty' or not quite sufficient to complete the pre-course work, or gave ambiguous responses that indicated that their knowledge had been improved by the course; for example, one clinician noted that they now had "*improved depth of knowledge of ASD*" while another stated "*understanding of ASD increased*".

Question 2: Which aspects of course useful? All clinicians indicated that they had found at least part, if not all, of the course useful, and several different aspects of the course were highlighted in clinicians' responses. Comments provided by trainees were coded into themes from identifying key phrases within the comment; each theme needed to occur at least twice to be included. Seven

different themes were identified from clinicians' responses to this question. The aspect of the course most frequently noted as being useful was the use of real examples (or case studies) and role play during the course (12/29: 41%). The discussion of ratings, or coding for the items was also frequently mentioned (9/29: 31%), with a further three clinicians highlighting the benefits of more general discussion. The use of the DVDs that were developed specifically for this training course was also reported as a positive element of the course (7/29 clinicians: 24%). Two other recurring themes in response to this question were the opportunity to learn about the Welsh Government's ASD strategy and the All Wales network (3/29: 10%) and training in the use of the algorithms (2/29: 7%).

Question 3: Improvements/additions? When asked for suggestions regarding potential additions/improvements to the course, nine clinicians (31%) either responded 'none' or did not answer this question. Themes were identified from the remaining clinicians' responses as above. Six clinicians (21%) indicated that they would have liked more practice, either in terms of role play or in coding responses, including the use of more examples. Five clinicians (17%) commented on the coursework requirements: two would have liked more feedback on their coursework, while one questioned how useful the pre-coursework had been. One practitioner felt they had needed more notice to complete the pre-coursework, and one reported difficulty in coding the DVD as part of the interim coursework. Finally, four clinicians (14%) suggested either additional information about the algorithms or the introduction of the algorithms at an earlier point in the course.

Question 4: Will you implement ideas in clinical practice, and if so how?: All clinicians indicated that they would implement the skills and knowledge they had learned during the course, with 23 of the 29 (79%) indicating that they would use what they had learned in clinical practice. Responses included: *"Yes, use assessment regularly"*, *"Yes, in complex cases"*, *"Yes, developing a diagnostic pathway (hopefully)"*, and *"Yes, I have my first assessment next week..."* Six clinicians (21%) gave slightly more ambiguous responses, suggesting that they would apply the themes learned during the course to their practice. For example, one response stated *"At present, will use information to gather clinical information rather than code. It will raise awareness in clinical practice of ASD and will use the website and network with colleagues"* while another suggested that they would use the ideas from the course in *"forming part of a peer group to support diagnosis"*.

Question 5: Additional comments: 21 of the 29 (72%) clinicians provided additional comments on their evaluation form, the majority of which were highly positive. For example, responses included *"Excellent, informative, and useful course"*, *"Thank you for an enjoyable three days"*, *"Network support of those on the course will be useful"* *"Thank you for the work that has done into developing this wonderful shorter version of the DISCO and evidence base"*, and *"very well organised, clinical approach from the whole team, many thanks"*. Some clinicians used this opportunity to highlight areas for further development; for example, responses included *"I think production of an even briefer set of 'screening' questions would be helpful for clinical practice"*, *"Perhaps more examples rather than own client..."*, *"A DISCO template report letter for the examples we went through would be useful"*. One practitioner raised concerns about how they could use the assessment (*"Not sure how I'm going to fit this into my day-to-day assessment"*) and finally, one practitioner suggested that the algorithm coding sheets could follow a format similar to that used by the ADI-R, and noted a lack of space for recording observations on the DISCO scoring sheet.

For a summary of all responses on the course feedback forms, please see Appendix 2.

Phase 2: Online questionnaire

Method

Google surveys were sent by email to the clinicians at least two months after Part 2 training was completed. The questionnaires were sent out on 13/05/14 with three follow up reminder emails (18/5/14 and 28/5/14). The survey consisted of 14 questions relating to participants' diagnostic practice both before (questions 1 and 2) and after (questions 3 and 4) the course, their use of the *DISCO Abbreviated* diagnostic algorithms (questions 5 and 6), how useful they found both the interview and the training course (questions 7, 8, and 9), whether any additional support or training was required (questions 10-12) and finally, how confident they felt in using the *DISCO Abbreviated* following the training (questions 13 and 14). For the full survey please see Appendix 3. No identifiable data were collected and completed questionnaires could not be linked back to individuals.

Twenty nine clinicians who attended the courses completed the online survey, corresponding to a response rate of 64%. However two emails were not delivered, therefore the response rate was 67% of the number who received the online questionnaire.

Results

Diagnostic practice before the course (Questions 1 and 2): Prior to the *DISCO Abbreviated* training course, only nine of the 28 clinicians who responded to this item (32.1%) were involved in assessment for autism diagnosis. Of these nine individuals, all but two used diagnostic tools or guidelines, such as the *Autism Quotient*, *DISCO*, or *ICD-10* descriptions or checklists. Of those seven clinicians who listed their methods for diagnosis, one used a single tool, two used two, and four used three tools. Figure 1 depicts the range of instruments used by these seven clinicians.

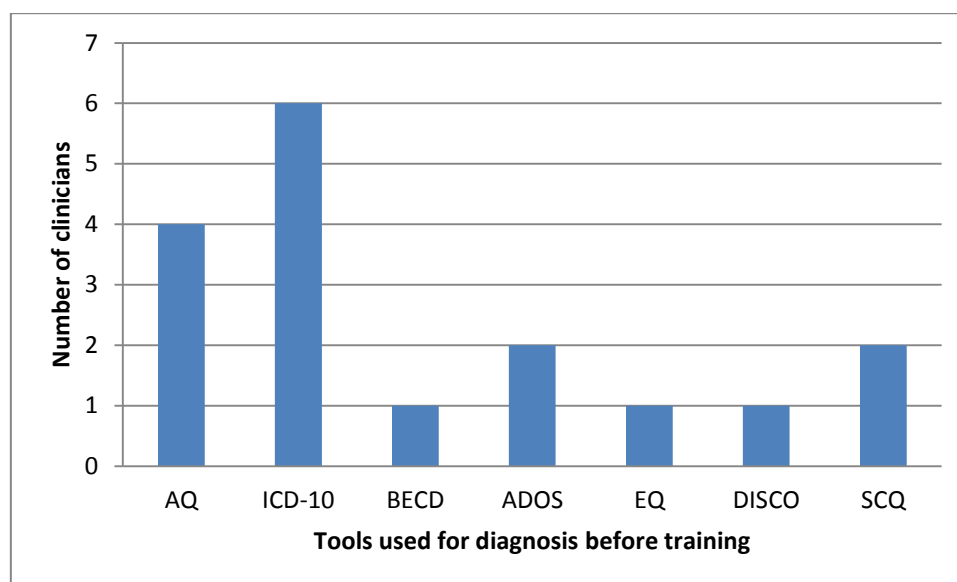


Figure 1: The number of clinicians using a range of different diagnostic instruments before attending the *DISCO Abbreviated* training course. AQ=Autism Spectrum Quotient; ICD-10= descriptions and checklist; BECD=best estimate clinical diagnosis/clinical global impression; ADOS=Autism Diagnostic Observation Schedule; EQ=Empathy Quotient; DISCO=Diagnostic Interview for Social and Communication Disorders; SCQ=Social Communication Questionnaire.

Diagnostic practice following the course (Questions 3 and 4) and use of the DISCO Abbreviated algorithms (Questions 5 and 6): After completing the training course, the number of clinicians involved in assessment for diagnosis of autism rose to 82.8% (24/29), with 79.2% of these individuals

using the *DISCO Abbreviated* for all ($n=7$) or some ($n=12$) of their assessments. Of those 19 individuals who indicated that they had used the *DISCO Abbreviated*, 18 (95%) had used the diagnostic algorithms in addition to the interview with some ($n=7$) or all ($n=11$) of their clients.

Diagnostic algorithms are used to guide decisions about diagnoses according to criteria or guidelines, such as *ICD-10* or *DSM-5*. Of the 18 clinicians who indicated that they had used the diagnostic algorithms, 17 indicated that they used the *ICD-10* algorithm, either alone or in conjunction with other diagnostic algorithms (see Figure 2 for the different algorithms). Indeed only three clinicians used just one diagnostic algorithm; of these three, two used the *ICD-10* algorithm, while one used the *DSM-5* algorithm.

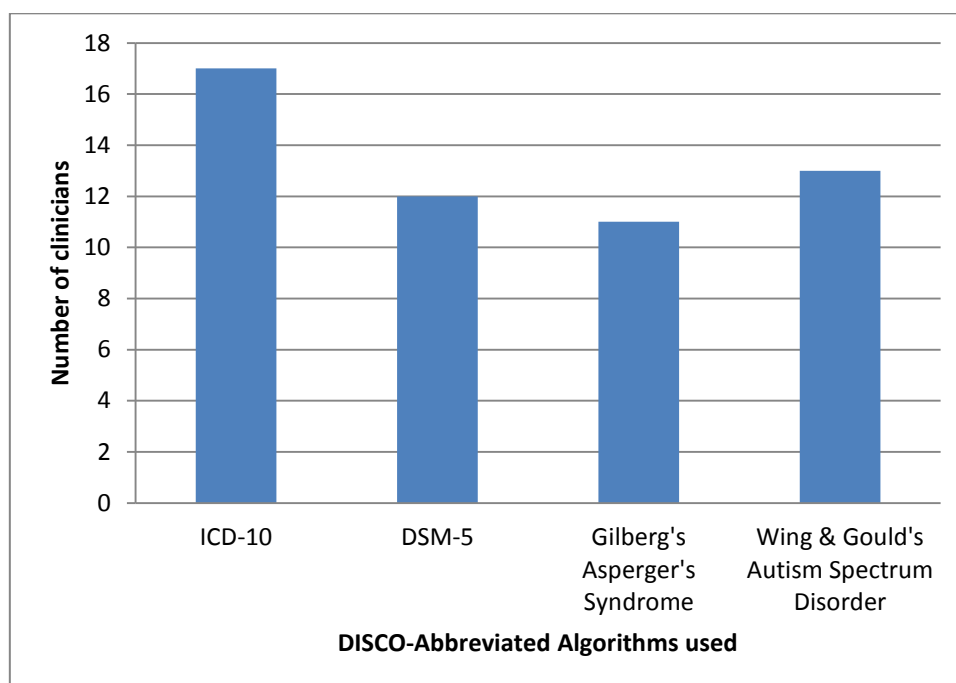


Figure 2: The number of clinicians using the *DISCO Abbreviated* algorithms

Usefulness of interview and course (Questions 7, 8, and 9): All of the clinicians who responded to this survey attended the course agreed that the *DISCO Abbreviated* was a useful tool for diagnosis. Regardless of whether they used the *DISCO Abbreviated*, 27 of the 28 (96%) of the clinicians who responded to this question felt that the training had influenced their practice. The clinicians were then asked how their practice had been influenced (Question 9). Themes were identified by reading the comments and establishing key phrases, such as “*much more confident*”, “*Improved skill set when considering assessment and intervention for adults with ASD*”, “*It has helped direct me in the areas of questioning so that I have become more specific and less likely to miss out key areas*”, “*more aware about looking for signs and symptoms*” and “*more knowledge*”. Each theme needed to occur more than once to be included.

Practice was influenced by the training in five main ways; increasing confidence in diagnosing ($n=11$), improving assessment skills ($n=8$), improving questioning skills ($n=5$), increasing knowledge about ASD ($n=5$) and recognising ASD symptoms and behaviours more readily ($n=4$). One practitioner had felt that the course had enabled them to reverse diagnoses of psychosis and borderline personality disorder and change them to ASD. Although this is an important and noteworthy point, it did not occur frequently enough to be considered a theme. Overall, the training appeared to have a positive effect on practice, with no clinicians reporting negative effects of the training on their practice.

Need for additional support or training (Questions 10-12): Clinicians from the course were also asked whether they felt they needed any other support, in addition to the training, for on-going use of the *DISCO Abbreviated*. Again, themes were identified by reading comments and identifying key phrases, which occurred more than once. Clinicians were able to suggest multiple types of support (Figure 3). Of the 29 clinicians, 21 answered the question, with 38% suggesting more than one type of support. The two most popular answers were peer support and networking with peers, where one practitioner had already set up a peer supervision group and reported it as being “*really useful in helping us maintain and develop our skills in this area*”, and having supervision from an experienced clinician. Refresher training referred to having “*top-up courses*” or “*periodic updates*” to remind clinicians of the training they had received. Clinicians indicated ongoing advice would be useful and suggest this would come from a “*lead psychologist*” or via “*email or phone should I have a diagnostic query*”. Training in pre and post diagnostic counselling was suggested. Some clinicians indicated that they simply wanted to “*build up experience*” and “*put new skills into practice*”.

Some clinicians suggested having the full *DISCO* training to support the training they had received in the *DISCO Abbreviated*, “*I would like to continue on to the full DISCO training when I feel very competent and confident in using the abbreviated tool*”. When asked directly about the additional benefit of training in the use of the full *DISCO* (Question 11), 16 of the 28 (57%) clinicians who responded said they would like to receive the full *DISCO* training.

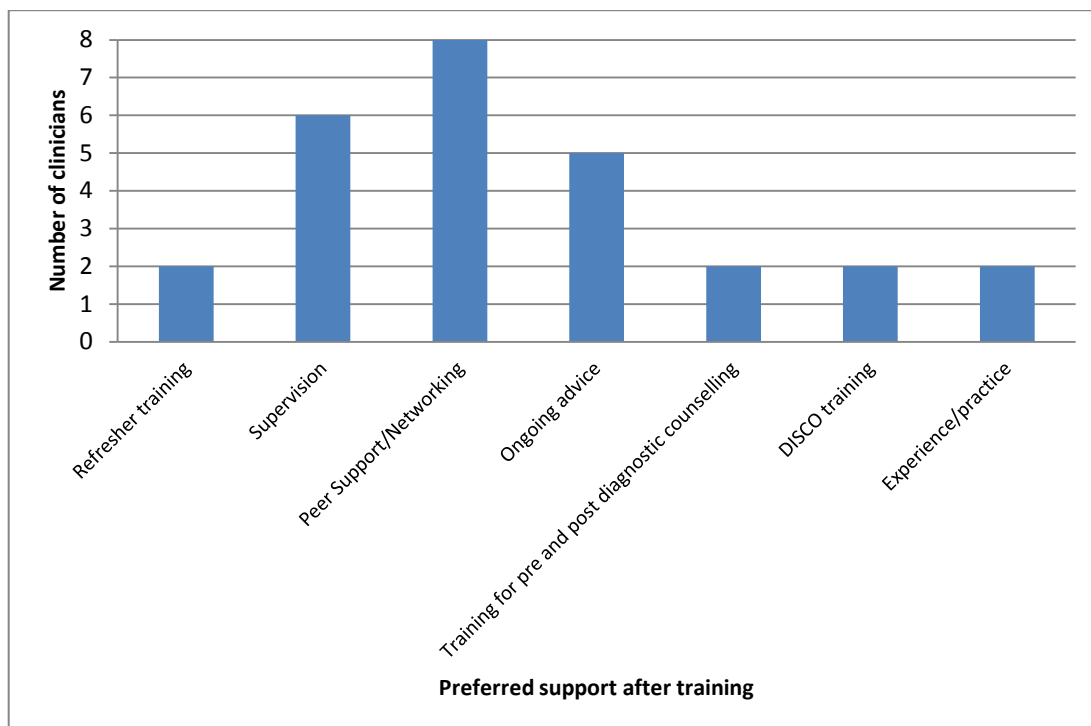


Figure 3: The number of clinicians advocating additional or on-going support in a range of areas following the *DISCO Abbreviated* training course

Confidence in using the DISCO Abbreviated (Questions 13 and 14): The *DISCO Abbreviated* interview is a standardised way to guide clinicians in obtaining a developmental history; 26 of the 28 (93%) clinicians who responded felt more confident in eliciting a developmental history having received the training. Furthermore, confidence for assigning codes to different items in the interview was high, with most clinicians feeling ‘quite’ or ‘very’ confident (Figure 4).

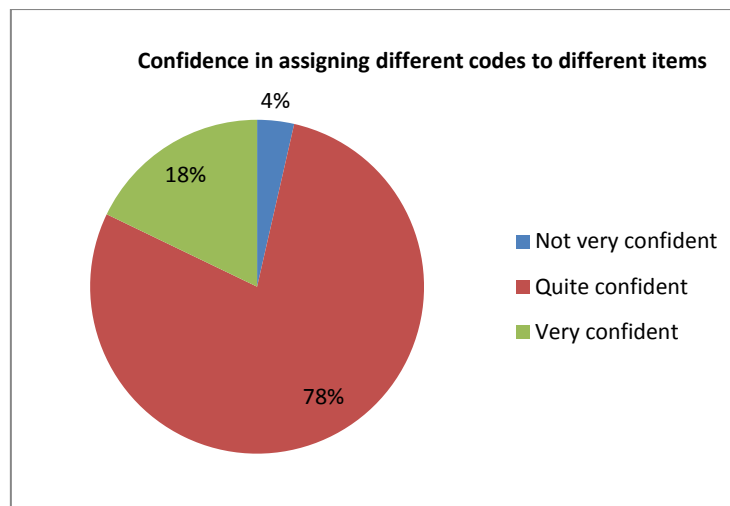


Figure 4: Clinicians typically reported that they were confident in assigning codes for the interview items.

Additional comments/feedback: Clinicians were also asked for any comments and feedback regarding the course and the *DISCO Abbreviated*. There were 13 clinicians who answered the question; the majority reported positive comments about either the course or the *DISCO Abbreviated*, although there were some criticisms. Positive comments about the course included statements such as, “Excellent course” and “...a good training event which equipped me with the necessary skills to provide diagnostic appointments”. There was only one criticism of the course, where the practitioner had felt that the course had rushed through an area and would have liked “a slightly longer training course”. Positive comments of *DISCO Abbreviated* included “The *DISCO Abbreviated* is a really useful tool to enable the clinician to get a good clinical picture of the client and it helps with diagnosis along with clinical judgement to assist with accuracy of the diagnosis”; “I find the tool very helpful overall and feel it has contributed to improved practice for me”; “Multiple tools add to some complexity in assessment but abbreviated disco and others all improve confidence and validity of diagnosis or non-diagnosis”; “I find the thoroughness of the *DISCO Abbreviated* very useful as a means of eliciting information from the client”. Regarding the *DISCO Abbreviated*, some clinicians (n=3) “question the accuracy” and found it “time consuming”. The remaining comments were problems encountered due to clinicians missing one of the days of training and finding it difficult to catch up on what they had missed.

Appendix 1: Essential and desirable requirements for acceptance on the DISCO-Abbreviated course.

	ESSENTIAL	DESIRABLE
<u>QUALIFICATIONS</u>		
Professional clinical qualification	✓	
Registered with professional body	✓	
Masters or equivalent higher qualification		✓
Past training in assessment instruments		✓
Evidence of attendance on MH/LD ASD course	✓	
<u>EXPERIENCE</u>		
At least three years post qualification experience in MH/LD services	✓	
Evidence of leading assessment of complex mental disorders in day to day work	✓	
Previous experience of participation in ASD assessments		✓
<u>EMPLOYMENT</u>		
Formal support from employing Health Board to attend course	✓	
Formal support from employing Health Board to attend future CPD activities of diagnostic network		✓

Appendix 2: Responses to the Course Feedback form given out at Part 2 of the DISCO-Abbreviated Course

	Sufficient knowledge to understand concepts?	Which aspects of the course did you find most useful?	What improvements/additions would you suggest?	Will you use ideas? If so, how?	Additional comments
1	Yes	Examples, discuss discrepancies in scoring	Small group work, role play	Apply to ASD network diagnostic work	Excellent, informative, useful
2	Work in progress, understanding improved, theory to practice	Teasing out nuances, conceptual clarity	No answer	Routine clinical practice, train colleagues	Well done
3	Yes	Case examples and ratings	More on couples/multiple problems	Use regularly as part of role	Very good, realistic use
4	Yes	All of it	No answer	With patients	No answer
5	Yes	Practice, discussions, presentations, audio clip very useful	More on algorithm, want understand bigger picture	Assessing children	Enjoyed, thank you
6	Yes	Discussion of details of ASD	Themes stated at beginning	Assessment in adult rehab	Useful, identify clients' problems
7	Yes	Utilise tool, "second opinion" cases, assess older children	Practice scoring, difficult shifting from A01.R	Yes	Algorithm score could be on 1 sheet, need better instructions to find course
8	Yes	Discussing clinicians response to DISCO items	No answer	Yes, in complex cases	No answer
9	Yes	Learning how to use, hearing about network	None	Yes use regularly	Very good
10	Yes	Structure and course work	No answer	Yes, involved in diagnostic assessment	No answer
11	Yes	Case studies, discussion of scoring, role play	Discussion assessment, experience for client, feedback	More assessment for ASD, increase confidence	Thank you
12	Yes	Working through tool, information about network	None	Yes utilise tool	Thank you

	Sufficient knowledge to understand concepts?	Which aspects of the course did you find most useful?	What improvements/additions would you suggest?	Will you use ideas? If so, how?	Additional comments
13	Yes, learned more about ASD	Formulation about strengths and needs, hearing ASD strategy, networking with colleagues, practice via DVDs and role play	Info about algorithms earlier in training	Yes, inform formulation and intervention plans	Very enjoyable, well presented, useful, interesting
14	Yes	Reminder of good practice of developmental interview	No answer	Yes, share with team.	No answer
15	Yes, knowledge and understanding increased	Practicing using DISCO Abb with video	Assessments marked, score checked	Yes, complete assessments in pairs,	Thank you, lunch was great
16	Yes	Abbreviated assessment and algorithm	Give algorithm sheet on day2, info about ASD before coming on course	Yes, use assessment regularly	Source forms for coding
17	Yes	Role play and group coding	More notice on course work	Yes, developing diagnostic pathway	Great to have been involved
18	Mainly, would prefer to increase general knowledge of ASD	Final day, bringing it all together	More practice	Yes, first assessment next week	Not sure how to fit in with day-to-day assessment
19	Improved depth of knowledge of ASD	Questionnaire after watching video	Recompleting questionnaire	Undertake ASD assessment, increase awareness of other explanations for patients behaviour	No answer
20	Yes perhaps more background	DVD work, examples, practical	More examples,	Liaise with lead, get individual network	More examples rather than own client
21	Probably, but less knowledgeable on key indicators	Real examples to practice	Difficult coding 2nd DVD, required informed guess	Undertaking assessments	DISCO template report letter for examples would be useful
22	Yes, would have liked to do full DISCO first to have more knowledge	Discussions recoding, practical coding sessions	Discussion of algorithms sooner, reassurance that clinicians have different views	Use to gather clinical info, raise awareness in practice of ASD	Thank you, enjoyable

	Sufficient knowledge to understand concepts?	Which aspects of the course did you find most useful?	What improvements/additions would you suggest?	Will you use ideas? If so, how?	Additional comments
23	Understanding of ASD increased	Materials provided, presentations, talking through scoring	No answer	Forming part of a peer group to support diagnosis	No answer
24	Yes, related to ASD and LD	Completing assessment all the way through	More scoring, look at reports	As a group, support each other during initial assessments, provide advice and feedback on course to other teams	Network support would be useful
25	Yes	Case examples, style of lecture, pre course work	Course shorter - 2 days	Use as supportive tool in autism assessments, consider using in Specialist Autism Diagnostic Clinics	Thank you
26	Own knowledge was adequate for understanding concept of questions	Videos, discussions, views from experts in field	2 parts to DVD developmental history plus patient interview	Use for diagnosis	Well organised, clinical approach from whole team, many thanks
27	Is now but not when doing pre course work	Discussion of scoring	Limited value of pre course work	As part of clinical assessment	No answer
28	Just about, felt a bit rusty	Going through algorithms was thorough, DVDs good	DVD with real clients, may present more typical problems	Use themes in assessment, for formal diagnosis, use with existing	No answer
29	Yes	General exposure to questions and	Course well designed	Use for assessment	Production of briefer set of "screening" questions

Appendix 3: Online questionnaire sent to on the use of the *DISCO Abbreviated* in practice

Question	Coding
1) Before attending the DISCO Abbreviated training course, were you involved in the assessment for autism diagnosis?	0=No 1=Yes
2) If you were involved in assessment for autism diagnosis before coming on the DISCO Abbreviated training course, which tools (if any) did you use?	1=AQ 2=ICD-10 3=Clinical Global Impressions 4=Autism Diagnostic Observation Schedule 5=EQ 6=DISCO 7=Social Communication Questionnaire 8=Pre-diagnostic counselling
3) Since attending the training, have you been involved in assessment for autism diagnosis?	0=No 1=Yes
4) Have you used the DISCO Abbreviated since attending the course?	0=No 1=Yes, for some 2=Yes, for all
5) Have you used the diagnostic algorithms to guide your decision?	0=No 1=Yes, for some 2=Yes, for all
6) If you have used the diagnostic algorithms, which have you used?	1=ICD-10 2=DSM-5 3=Gilberg's Asperger's Syndrome 4=Wing & Gould's Autism Spectrum Disorder
7) Overall, do you feel that the DISCO Abbreviated is a helpful tool to use for the diagnosis of ASD?	0 = No 1= Yes
8) Do you feel that the training course influenced your diagnostic practice, even if you do not use the DISCO Abbreviated	0 = No 1= Yes
9) If you answered yes to the previous question, in what way has the training course influenced your diagnostic practice? <i>(THIS WAS AN OPEN QUESTION – CODED INTO THEMES BY AN INDEPENDENT RESEARCHER (Emma Munro) AFTERWARDS)</i>	1=Increase confidence 2=Improve assessment skills 3=Improve questioning skills (which to ask, how to ask them, etc.) 4=More knowledge about ASD 5=Recognise AS symptoms/behaviours more readily
10) What other support do you need for on-going use of the DISCO Abbreviated in your diagnostic practice? <i>(THIS WAS AN OPEN QUESTION – CODED INTO THEMES BY AN INDEPENDENT RESEARCHER (Emma Munro) AFTERWARDS)</i>	1=Refresher training 2=Supervision 3=Peer Support/Networking 4=Ongoing advice 5=Training for pre and post diagnostic counselling 6=DISCO training 7=Experience/practice 8=Nothing

11) Would you have liked to receive the full DISCO training rather than the training specifically for the DISCO Abbreviated?	0 = No 1= Yes
12) Do you have any comments? Are there any parts of the DISCO Abbreviated that you have found particularly helpful or that you have found difficult?	1=Positive comments about course 2=Positive comments about DISCO Abbreviated 3=Criticisms of DISCO Abbreviated 4=Problems caused by absence on course 5=Criticisms of training
13) Has the DISCO Abbreviated training course increased your confidence in eliciting developmental information during diagnostic assessment?	0 = No 1= Yes
14) How confident do you feel when assigning codes for the different items in the interview?	1=Not very confident 2=Quite confident 3=Very confident