

# BIOPSYCHOSOCIAL CASE FORMULATION FOR PEOPLE WITH INTELLECTUAL DISABILITIES AND MENTAL HEALTH PROBLEMS: A PILOT STUDY OF A TRAINING WORKSHOP FOR DIRECT CARE STAFF

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## Introduction

People with intellectual disabilities have an increased vulnerability to mental health problems (Chaplin, 2004); however, mental health in intellectual disability services are somewhat limited and have been criticised (Hassiotis *et al.*, 2000). Traditionally the framework for understanding difficulties in intellectual disability services has been one of challenging behaviour rather than mental health. Overlap between mental health and challenging behaviour exists, but it is not clear what the relationship between the two is (Emerson *et al.*, 1999; Rojahn *et al.*, 2004), and so using a challenging behaviour framework may be inappropriate. Modern specialist mental health in intellectual disability services may need to adopt more appropriate service models. Hatton and Tay-

lor (2005) suggest following mainstream mental health services, whereby biological, psychological and social approaches are provided in an integrated manner, i.e. using a biopsychosocial model (Engel, 1980).

Biopsychosocial approaches encourage the use of multi-disciplinary case formulation to integrate different strands of clinical information, explain the development and maintenance of mental health problems; and select appropriate interventions to address those problems (Kinderman, 2005). The interventions targeted by the formulation may then be managed by different members of the multi-disciplinary care team according to whether the intervention is biological, psychological or social (Kinderman, 2005).

There has been some application of biopsychosocial approaches to mental health

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problems for individuals with intellectual disabilities (Hatton, 2002) and, to a limited extent, they have been applied to mental health in intellectual disability inpatient services (e.g. Gardner and Hunter, 2003; Isherwood *et al.*, 2004). However, this is currently an area of poverty within mental health in intellectual disability services (Stenfert Kroese *et al.*, 2001; Raghavan, 2004). Therefore, training for care staff involved with mental health in intellectual disabilities services needs to be extended to improve the skills base in biopsychosocial approaches.

It is also important to consider how an understanding of formulation could subsequently lead to an improvement in care and support for people with intellectual disabilities and mental health difficulties. There is a considerable and developing literature base suggesting that responses of care staff to individuals with intellectual disabilities who are challenging are mediated by attitudes and attributions held by staff in relation to those individuals they are supporting (e.g. Hastings, 1996; Allen, 1999; Dagnan *et al.*, 1998; Wanless and Jahoda, 2002; Bailey *et al.*, 2006). In particular, there is a suggestion that incorrect attributions in relation to the challenges they are presented with can lead to unhelpful staff responses to those challenges. Therefore it should follow that correcting those attributions would lead to more helpful staff responses. One way of doing this would be through care staff having a shared understanding of (and, potentially, contributing to the development of) biopsychosocial case formulations for the individuals they are supporting. Providing direct care staff with an awareness of formulation could then facilitate their understanding of, and ability to contribute to, case formulations within their day to day practice.

In the service where this study is located there has been a focus on developing

direct care staff skills in using a biopsychosocial case formulation approach to case management on acute mental health in intellectual disability inpatient wards. The case formulation approach used consists of understanding a patient's mental health problems in terms of the relationship between five different areas. These are: an individual's presenting issues or problems, predisposing factors (what has led to the problems?), precipitating factors (what triggers off the problems?), perpetuating factors (what is keeping the problem going?) and protective factors (what prevents the problem from escalating?) (see Dudley and Kuyken, 2006). This approach will be referred to as the 'Five Ps' in this paper. Training needed to be designed and introduced to develop awareness and skills in biopsychosocial formulation through use of the 'Five Ps' approach.

A few studies have specifically examined biopsychosocial formulation training (e.g. Misch, 2000). However, no studies have examined training in biopsychosocial case formulation in intellectual disability acute mental health inpatient settings. This study will pilot an initial part of such a specific training programme in this setting.

The aim of this study was to pilot a novel training workshop in biopsychosocial formulation (as part of a wider training programme in biopsychosocial approaches) in terms of its effect upon awareness of biopsychosocial case formulation within direct care staff working in an acute inpatient mental health in intellectual disabilities setting. The main hypothesis was that awareness of the features of a biopsychosocial case formulation would increase as reflected by differences in performance on a biopsychosocial formulation measure (that assessed ability to critically appraise the quality of a formulation) before and after training in formulation. More specifically, the workshop aimed to increase knowl-

edge of the typical content of a biopsychosocial case formulation based on the 'Five Ps' approach. It also aimed to develop skills in applying the 'Five Ps' approach to case formulation to people with mental health problems and intellectual disabilities.

## **Method**

### *Setting and context*

The workshop was designed and delivered in a UK NHS Trust that provides mental health in intellectual disability services. The Trust provides inpatient assessment of mental health problems to up to 43 people with intellectual disability across three wards over two hospital campus sites.

The present study relates to the pilot of a novel training workshop in basic awareness and skills in biopsychosocial case formulation. Staff members participating in the workshop were drawn from two of the wards that were on the same hospital campus site.

### *Participants*

Ten unqualified nursing, direct care staff participated in the workshop. Staff completed demographic information on their clinical experience and training. None of the participants had received training in case formulation or biopsychosocial interventions. They had between two and six years of clinical experience working with patients with mental health problems and intellectual disabilities.

The workshop was facilitated by a consultant clinical psychologist employed within the present service who was also the lead for implementation of biopsychosocial

approaches within the Trust and a trainee clinical psychologist.

### *Procedure*

The procedure will outline the needs assessment that took place to inform the design and delivery of the workshop. The content and delivery of the workshop will then be presented, followed by a description of the measures used to evaluate the workshop.

### *Needs assessment*

Aims and objectives for training on biopsychosocial case formulation were agreed between the multi-disciplinary team (including ward managers, senior nurses, creative therapists, and clinical psychologists) as stakeholders in the mental health in intellectual disabilities service. A flyer outlining the aims, objectives and other details of the training was distributed to all staff within the wards prior to the training to help prepare them for the content and nature of the training.

### *Workshop delivery*

The workshop was introduced with an overview of the rationale for the training and a direct needs assessment of the participants' expectations of the training. This introduction included an explanation of the evaluation component of the training. It was explained to the participants that this was part of a service evaluation and that participation was voluntary. They were then provided with a formulation task that

was used as an evaluation measure (see below for details). The training itself began with an overview of biopsychosocial formulation and its application to clinical practice within mental health in intellectual disabilities (see APPENDIX 1 for an outline of the workshop structure). Next, a vignette containing historical and current assessment information for a woman with mental health and intellectual disabilities was presented (see APPENDIX 2 for this vignette). The vignette was adapted from a book chapter on mental health and intellectual disabilities (see Hatton and Taylor, 2005) and was presented in the workshop as the source material participants would be using to develop a formulation. After participants had read the vignette, each of the 'Five Ps' of a biopsychosocial formulation (i.e. presenting issues, predisposing factors, precipitating factors, perpetuating factors, and protective factors) were described in turn. Small group discussion of how each aspect related to the presented vignette was then facilitated. These aspects were then integrated to demonstrate the connectivity of biopsychosocial formulations. The evaluation measure was then re-administered alongside a generic workshop evaluation and descriptive feedback was sought (see below for details).

### *Workshop evaluation*

The training workshop was evaluated using two measures. The first was a specific biopsychosocial formulation measure developed especially for this study to assess whether the training met its aims and objectives. The second was a generic workshop evaluation questionnaire to provide verbal and written feedback from participants. The development and use of these measures will now be outlined.

### *Biopsychosocial formulation measure*

A measure was required to assess whether the training achieved its aim of increasing awareness of biopsychosocial case formulation. One of the expected effects of this was that the training would improve participants' ability to critically appraise the quality of a biopsychosocial case formulation. Within this, it was expected that training would lead to participants being more likely to notice how well key elements of the 'Five Ps' approach to formulation were reflected in a formulation example when one was presented to them. No measure existed to do this so one was developed. The measure developed involved participants assessing (before and after the workshop) to what extent a case formulation vignette contained different key elements of the 'Five Ps' approach to case formulation. If the workshop had an effect on participants' appraisal of a formulation then we would expect there to be a change in participants' response on the measure after the workshop (i.e. they would be more likely to discern, and give higher rating to, elements of the Five P's formulation in a good enough case formulation vignette presented to them). The measure needed to be developed to make sure that it detected such a change and that ceiling, floor and practice effects were controlled as part of this development process.

The first step in the development of this measure was to construct a rating scale to allow participants to rate the extent to which they agreed that a number of statements relating to each aspect of the 'Five Ps' approach (e.g. "The predisposing factors to the individual's current difficulties" and including "The recommendations about what should be done to improve the individual's difficulties") were present within a case formulation vignette (see below for details of the vignette). Each statement was

constructed with a seven-point likert agreement scale to allow participants to compare the statement to a case formulation example (see APPENDIX 3 for the rating scale). Two consultant clinical psychologists reviewed the rating scale and changes were made to ensure face validity.

A biopsychosocial case formulation vignette (see APPENDIX 4) was provided alongside the rating scale. The case formulation used was adapted from a case study by the first author using the 'Five Ps' approach provided in the training as a model. The function of the case formulation vignette was to provide source material for the participants to critically appraise (in conjunction with the rating scale) before and after training. Therefore the vignette needed to be neither very good or very poor or missing a key element as this may then make it too easily judged at the start of training thus producing a ceiling or floor effect. To facilitate this, the formulation was reviewed by two consultant clinical psychologists and adaptations made to the content to ensure that the formulation represented only a 'good enough' formulation (i.e. that it was coherent and provided an adequate explanation of an individual's difficulties). It was then anticipated that this would then be scored at a moderate level before training as it was not obviously of high or low quality or clearly flawed. It was anticipated that after training participants would have a better understanding of the nature of case formulations so would rate the vignette differently, and most likely more positively, as they noticed the presence of elements within the vignette that they had just learned to be important within a formulation. Thus there was a prediction that ratings would be higher after the workshop. The same vignette was used when the measure was administered pre- and post-training in order to reduce the potential confound of content if two different

case formulations were used.

Once completed, the measure (including vignette) needed to be piloted to ensure that it was, in the first instance, feasible and that there were no significant practice, ceiling or floor effects likely to occur. The measure was initially piloted with trainee clinical psychologists (n=3) to ensure that the measure was feasible and did not produce clear ceiling or floor effects that interfered with feasibility. In order to control for practice effects of being exposed to the same vignette and examine ceiling and floor effects further, this measure was provided to a group of assistant psychologists (n=10), who had not received formal biopsychosocial formulation training, on two occasions with a three-hour period between exposures. Using Wilcoxon Matched-Pairs Signed-Ranks and alpha level of .05, there was no significant difference in overall rating before (median = 5.7) and after (median = 5.6) the three-hour period ( $z = -1.611$ ,  $N - \text{Ties} = 8$ ,  $p = .107$ ). This indicated that there was no significant practice effect of repeating the measure using the same case formulation example. The median scores were not at the extreme top or bottom end of the scale indicating that there were unlikely to be ceiling or floor effects.

### *Workshop evaluation questionnaire*

Learner satisfaction with the training was sought through a workshop evaluation questionnaire based on a measure provided by Milne and Noone (1996). This consisted of nine statements relating to a participant's perceived effectiveness of training and improvements in their understanding and confidence in relation to the nature of the training. Each item was rated on a four-point scale. Open questions relating to strengths and weaknesses of the train-

ing were also asked to allow participants to provide descriptive information not accounted for in the rest of the evaluation. This workshop evaluation questionnaire was provided to participants at the end of the workshop.

Demographic information was also obtained from the participants including years of clinical experience working in mental health and intellectual disabilities and amount of prior training received in formulation and biopsychosocial interventions.

## Results

The data were entered and preliminary analysis was conducted to ensure data integrity. Mean differences in the formulation measure before and after training were then examined using descriptive and non-parametric statistics. Descriptive statistics were then used to present feedback from participants obtained via the workshop evaluation questionnaire. Analysis was conducted using SPSS for Windows 13.

### *Preliminary analysis*

Entered data were initially screened for accuracy. Aberrant values within the data were identified, checked and corrected. None of the data within the key response variables on the biopsychosocial formulation measure contained missing values.

### *Biopsychosocial formulation measure*

The participants completed the measure before and after completing the train-

ing workshop. The mean ratings across all participants for specific statements within the measure, and an overall mean that combined ratings for all statements, were compared across these two time points as shown in FIGURE 1.

The mean rating across participants was higher for all statements after the training, except for the predisposing factors statement that was rated slightly lower after the training. This indicated that the training had an effect upon the participants' responses to the formulation task in terms of being more likely to identify key elements within a biopsychosocial formulation.

Inferential statistics were used to measure overall difference between ratings before and after training. First, the variables were checked for extreme cases and outliers. One outlier was found for the 'after training' summary variable and this was winsorised into the distribution identified by the boxplot. Using Wilcoxon Matched-Pairs Signed-Ranks and an alpha level of .05, there was a significant difference in overall mean rating scores before (median = 4.5) and after (median = 5.6) training ( $z = -2.194$ ,  $N - \text{Ties} = 9$ ,  $p = .028$  (two-tailed)). Overall, participants were more likely to identify key elements of a biopsychosocial formulation approach within a case formulation after the workshop. This indicated that there had been a change in their ability to appraise the quality of a formulation after they had received training in biopsychosocial formulation.

### *Workshop evaluation questionnaire*

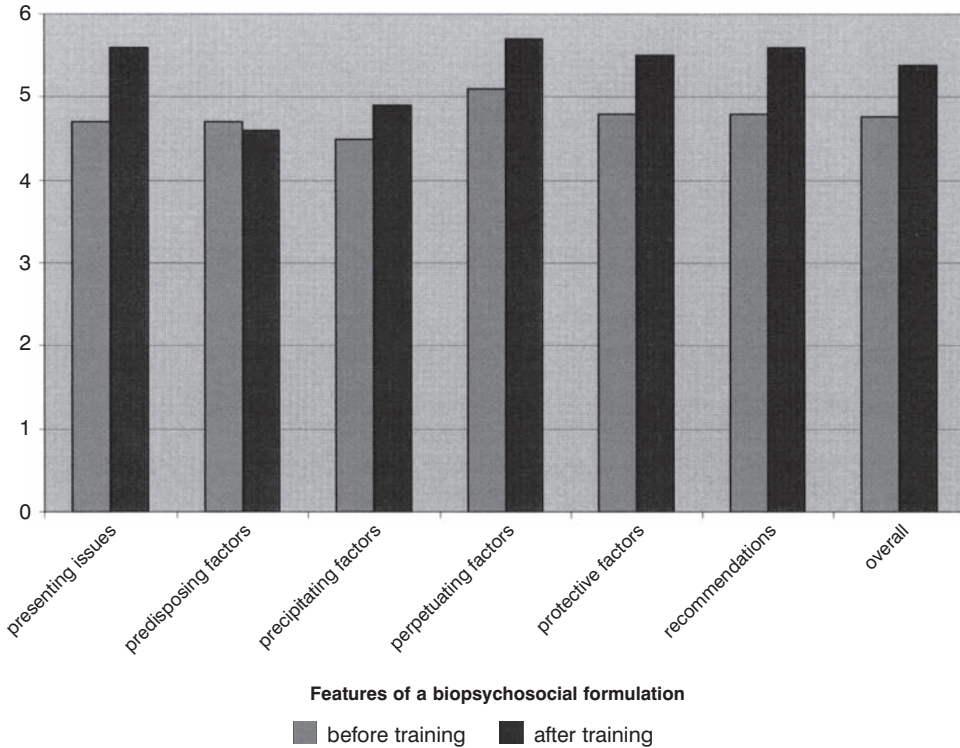
At the end of the workshop, participants were asked about the effectiveness of the training using the workshop evaluation questionnaire where each statement was rated on a four-point scale, where 1

**TABLE I**  
Average ratings from the workshop evaluation questionnaire completed by whole sample  
(n = 10)

	Min	Max	Mean	Sd
1. Did the training improve your understanding?	2	4	3.1	.57
2. Did the training help you to develop work-related skills	2	4	2.9	.74
3. Has the training made you more confident in your work?	2	4	2.8	.67
4. Do you expect to make use of the training in your work?	2	4	3.1	.60
5. How competent were the trainers?	3	4	3.6	.52
6. Overall, how satisfied are you with the training?	3	4	3.6	.52
7. Did the training cover the topics it set out to cover?	3	4	3.7	.48
8. To what extent has the training met its aims?	2	4	3.5	.71
9. Would you recommend the training to a colleague?	3	4	3.8	.42

Min = minimum value observed within sample  
Max = maximum value observed  
Sd = standard deviation of scores observed

**FIGURE 1**  
Changes in mean rating on individual statements and overall for the biophysical formulation  
measures before and after training



indicated little satisfaction and 4 indicated that they were very satisfied with that aspect of the training. The participants' ratings on this questionnaire are summarised in TABLE I.

Overall, the participants felt the workshop was very satisfactory. Notably, there were specific items (5-9) relating to satisfaction and these were rated highest. Earlier items (1-4) relating to effectiveness of the training also showed that the participants felt that the training had been effective in developing their knowledge and skills in this area.

### *Descriptive information*

Participants were asked to provide verbal and written feedback on the training. The verbal feedback was provided at the end of the training where participants were asked what they felt the nature and content of further training sessions in this area should entail. The participants were enthusiastic for further training in biopsychosocial formulation, and felt that the present workshop should be repeated for other nursing staff within the present service. They also suggested that participants in future training should include a wider range of professions from the multi-disciplinary team within the service. In particular, they felt that psychiatrists should be facilitated to attend as they currently play an integral and lead role in the care of patients and working through a biopsychosocial model should incorporate psychiatry or biopsychosocial approaches would fail.

Written, anonymous feedback was also received at the end of the workshop. Generally, participants reported that they enjoyed the workshop and felt that it gave them a better understanding of how patient information is integrated within a for-

mulation to explain mental health problems experienced by individuals they work with. Participants also enjoyed the opportunity to discuss clinical practice openly with each other and the trainers. Most participants felt that no changes to the workshop were necessary. Participants found the workshop enjoyable and interesting and reported that they would take what they had learnt and apply it to their practice.

## **Discussion**

The present study aimed to provide a pilot evaluation of a novel training workshop to develop knowledge and skills in biopsychosocial formulation for direct care staff in a specialist mental health in intellectual disability inpatient setting. Unqualified nursing staff within this setting were more likely to identify the presence of key elements of a 'Five P's' approach to biopsychosocial formulation within a case formulation vignette following the workshop. This suggested that staff ability to appraise a formulation changed following the training. The implication is that the workshop increased awareness of biopsychosocial formulation within direct care staff, thus supporting this novel workshop as an initial part of a wider training programme in biopsychosocial approaches within a mental health in intellectual disabilities service. It also added to the limited number of empirical papers examining training in biopsychosocial formulation (e.g. Misch, 2000).

Although the workshop was effective, this was a pilot study and there was no examination of the transfer of training to practice or the potential impact of a fuller training programme in formulation and biopsychosocial approaches in general. It could be hypothesised that providing direct care staff with an awareness of formulation



could then facilitate their understanding of, and ability to contribute to, case formulations within their day to day practice. In turn this could help to correct faulty attributions in relation to the individual with intellectual disabilities the care staff are supporting and potentially provide the basis for more helpful behaviour from staff (see Allen, 1999). This transfer of training was not examined in this study, but could be examined in the next steps of research in this area. This was a novel training workshop for a direct care staff group that had not previously had training in biopsychosocial approaches, but were experienced in working with individuals with mental health and intellectual disabilities. It is possible that extending training for this group would lead to not only increasing their awareness of formulation, but also increasing their application of case formulation approaches to everyday practice. This study demonstrated the initial feasibility of an extended training programme in biopsychosocial formulation across the specialist mental health in intellectual disabilities service within an NHS Trust. Any extended training programme in formulation should also be evaluated to examine whether formulation understanding and use develops as would be expected within direct care staff.

The participants perceived the workshop as effective and satisfactory training. They reported greater feelings of mastery and an improved understanding of formulation. Specifically, some participants reported that they were in a better position to understand their patients' difficulties through use of formulation. There was a feeling amongst participants that this approach to training in formulation should be repeated and extended as it would be beneficial to others. Overall, staff felt that this training provided some basic awareness and skills in biopsychosocial formulation

necessary for all staff to possess in order for multi-disciplinary biopsychosocial approaches to be effective. The positive response to this training fits with UK NHS policy that aims to increase mental health workforce development in biopsychosocial skills (Department of Health, 2004).

The study also provided an initial evaluation of training in biopsychosocial approaches to a staff group that rarely receive such input (Hatton and Taylor, 2005). The staff in this service were enthusiastic about the benefits of this training in biopsychosocial formulation and the potential usefulness of widening the training to cover more topics (e.g. the link between formulation and intervention) and other staff members (e.g. psychiatry). This implies support from direct care staff for the increasing application of biopsychosocial approaches as used in mainstream mental health services (Kinderman, 2005) to mental health in intellectual disability services (e.g. Gardner and Hunter, 2003; Isherwood *et al.*, 2004)

### *Limitations of the study*

The study was limited to an evaluation of participants' knowledge and skills in formulation within a brief, somewhat artificial task. In order to determine whether this training was effective then it would be necessary to evaluate other aspects, in particular the impact upon practice. For instance, a follow-up evaluation may be conducted where participants were asked to construct formulations of patients in their care and these could be analysed in terms of their quality and coherence using a formulation coding scale (e.g. Eells *et al.*, 1998). There is also the possibility that this training could lead to improvements on outcomes for patients. There is little

existing evidence that demonstrates a link between formulation and outcome generally (Bieling and Kuyken, 2003), but it would be anticipated that providing staff with a framework for understanding biopsychosocial problems would lead to improved outcomes. There were also small numbers of a specific staff group involved in the evaluation and no comparison group and this may affect generalisability.

Future replication of this study should take place to establish the effect of training in this area. This future research should include wider examination of whether transfer of training had taken place (e.g. do staff construct more comprehensive case formulations within patient notes following training?) with follow-up of staff involved in such training, measurement of outcomes for patients and comparison with other direct care staff groups not receiving this training (e.g. comparison with another group of staff waiting for training).

## Summary

A strategy for training in biopsychosocial formulation may be a key element to supporting the implementation of biopsychosocial approaches in mental health in intellectual disabilities services. The novel workshop piloted in this study showed some signs of effectiveness and could form an initial step in such a training strategy. Further training could then accommodate wider topics, such as the transfer of training and the use of formulation to inform interventions. The future evaluation of this training should use an adaptation (to overcome limitations) of the method described here to establish its effectiveness.

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## Appendix 1 - Workshop outline

The following is an outline of the structure and content of the workshop:

- *Introduction* (Trainers and participants introduced to each other. Context, aims, objectives and plan for the workshop outlined.)
- *What is case formulation?* (Definition of formulation provided, i.e. an explanation, using assessment information, of the person's difficulties that accounts for origins, development and maintenance of the problem that guides intervention)
- *Introduction to the Five Ps approach* (Overview of a five section framework for organising current and historical information to develop a biopsychosocial case formulation. Participants are told that they will be given separate descriptions of what each of the five sections entails and after each section description participants will contribute what they feel is relevant for that section in relation to a provided case presentation. At the end the sections will be integrated to identify key dimension within the formulation that could then be used to guide intervention.)
- *Case presentation* (Presentation of assessment information relating to a case where the presenting problems are predominantly mental health and intellectual disabilities. This assessment information is then used as the basis for developing a formulation using the Five Ps approach. The vignette presented is provided in Appendix 2.)
- *Presenting issues* (This section identifies what are the current problems the person faces primarily in terms of difficult behaviours, emotions and thoughts. The importance of describing these problems in a detailed and individual way is emphasised. The development of a problem list is considered as a way of determining short, medium and long term goals.)

- *Predisposing factors* (Participants are asked to consider what were the origins and development of the problems. There is an emphasis here on considering historical events and considering both the quantity and quality of these events in relation to the individual (i.e. a large number of difficult past events could have a significant impact but the meaning of past events for the individual is also important).
- *Precipitating factors* (This section asks participants to identify what triggers the problems in terms of recent difficult situations and their relation to the person. These can be external (e.g. time or place) or internal (e.g. thoughts or feelings) events.
- *Perpetuating factors* (Participants are asked to identify what keeps the problem going. The concept of maintenance cycles, such as one sees in the maintenance of phobias, is explained to participants)
- *Protective factors* (This section identifies the individual's strengths including personal and social resources that stop the problem from escalating.)
- *Integration and Recommendations* (The case formulation is integrated by drawing together the different sections completed. Key themes are identified and these are developed as hypotheses that can be tested out in the form of interventions.)
- *Summary and close* (Opportunity for questions and feedback from participants.)

## **Appendix 2 - Case presentation used within the workshop**

Joan was a 45-year old woman with mild intellectual disabilities. She was compulsorily detained under the Mental Health Act 1983 for treatment in an acute mental health ward of a specialist intellectual disability hospital service. Joan was the youngest of six siblings, her twin sibling died at birth. Her mother died of cancer when Joan was 4 years old. Joan attended special school due to her learning difficulties, but on leaving school she got a job in factory that she enjoyed. She married her first husband in her early twenties and had a child soon after. Her husband was violent and sexually abused their daughter. They had two more children together, but after nine years of marriage Joan separated from her husband. She re-married, but this mar-

riage lasted for only a few months. Thereafter Joan was supported by her family, and in particular her older brother.

Joan had a long history, starting at the age of 16, of contact with mental health and intellectual disability services due to difficulties with coping with life stressors, self-injury and suicide attempts. During the previous few years one of Joan's sisters died of cancer and her oldest sister emigrated. Her brother re-married and her father became frail. In this context of dwindling support, Joan's most recent contact with mental health services followed her overdosing on prescribed medication because she felt unable to cope with her children. She had a period of inpatient treatment, during which she reported experiencing sexual abuse from another patient. Her children were taken into care and Joan was eventually discharged home. Unfortunately, shortly after this Joan set fire to her house in a further attempt to kill herself because she felt unable to cope once more. These events precipitated her admission to her current placement where she had been for 18 months.

In the past, Joan had been treated with ECT and was prescribed antipsychotic medication which she disliked taking because of its side-effects. Joan presented a number of challenges to the team working with her including frequent agitation and aggression, and occasional violence. She also reported, almost continuously, a range of negative and distressing beliefs and fears such as "I'm dead", "I'm brain-dead", "I'm dying", "I'm being poisoned", "No one loves me", "They (staff) hate me", "They (staff) don't believe me".

The formal assessments conducted in hospital indicated that she was significantly disorientated for time and place and her simple recall was poor. Joan also had very significant problems with ordering and recalling details of significant events in her life, with memory for recent events being even more compromised than for those from earlier in her life. For example, she could not recall or even estimate with any degree of accuracy her youngest child's date or year of birth. Assessment also indicated that Joan was experiencing a 'severe depressive episode with mood congruent psychotic symptoms'. The assessment of Joan's situation also suggested that the staff team were inconsistent in their responses to and management of her problems and distress.

### Appendix 3 Biopsychosocial case formulation rating scale used with the vignette

<b>The individual's presenting issues and difficulties</b>						
not at all			moderately			completely
1	2	3	4	5	6	7
<b>The predisposing factors to the individual's current difficulties</b>						
not at all			moderately			completely
1	2	3	4	5	6	7
<b>The precipitating factors to the individual's current difficulties</b>						
not at all			moderately			completely
1	2	3	4	5	6	7
<b>The perpetuating factors for the individual's current difficulties</b>						
not at all			moderately			completely
1	2	3	4	5	6	7
<b>The protective features of the individual's life</b>						
not at all			moderately			completely
1	2	3	4	5	6	7
<b>The recommendations about what should be done to improve the individual's difficulties</b>						
not at all			moderately			completely
1	2	3	4	5	6	7

*Instructions to participants: Read the case formulation and then rate how much you agree that each of the following aspects is accounted for by the formulation*

### Appendix 4 Biopsychosocial case formulation measure vignette used with the rating scale.

Steve is a 30 yr old man with a mild intellectual disability. His current difficulties include anxiety (including uncontrollable worrying), low mood and occasional aggressive behaviour. He lives with his grandmother four days a week, and with his parents for the other three days. He started living with his grandmother after the death of his grandfather to keep her company. Steve enjoys, and gets a lot of satisfaction from outdoor pursuits (e.g. watching football, jogging and camping). He needs to make sure that his

days are well planned out. In the past, Steve has completed a number of work placements including working at the Co-op and in an older adults residential care home. He has not worked since he began to experience his current difficulties around two years ago.

Steve's rigid approach to planning everyday activities may have led to his current difficulties. Steve becomes distressed when he is unable to plan activities or when activities/events do not go according to plan. Steve's intellectual disability may also contribute to his current difficulties as it impairs his ability to solve problems when plans go wrong. Uncertainty in Steve's everyday life, such as whether a trip to a football match will go ahead, triggers off worry and frustration. All matters relating to arrangements can trigger

worry and these worries are usually related to the activity being planned.

When Steve begins to worry about something, he finds it hard to stop and becomes increasingly distressed and frustrated. Steve's frustration can then lead to aggressive behaviour (e.g. throwing things and kicking out). He then feels guilty and ashamed about doing this and becomes worried that this will happen again, leading to further frustration. Thus, a vicious cycle of worry, aggression and further worry maintains Steve's current difficulties.

There are parts of Steve's life that may prevent his current difficulties from worsening. He is well supported by his family and has close relationships with many members of his family (especially his grandmother). Steve also has a range of interests (e.g. watching football and jogging), enjoys the social side of life and is keen to fill his day with activities (e.g. through employment).

On the basis of the formulation it was decided that direct therapeutic work with Steve may help him be more aware of what triggers off his worries and how to manage situations that lead to him becoming worried and distressed, thus helping to break the vicious cycle maintaining his problems. It was also decided to support Steve to gain employment in order to help provide a structured daily routine that will be more predictable for Steve and reduce the uncertainty in Steve's life to more manageable amounts.