Appendices

Appendix 1. Descriptions of each Bough

Below are detailed descriptions of each bough of psychotherapy in our classification, along with example codes for use in Registers. These are intended both to provide readers with a greater understanding of the nature of each bough, to allow other researchers and organisations to replicate our classification, as well as to support information specialists in the utilisation of this classification in registers.

> *Thought/Action {T/A}*:*"Teaching different behaviours and thought patterns leads to change".*

This predominant interventions in this bough are variations of Cognitive Behavioural Therapy, however it includes any interventions which are primarily focused on changing behaviours and thought patterns as a way of treating schizophrenia/mental illness.

Many interventions that aim to change behaviours do so by altering thought patterns, whilst many that aim to change thought patterns use behavioural techniques. For this reason we have combined cognitive and behavioural interventions under one category – however in order to distinguish interventions which are identifiably affiliated with one of the two areas, we have preserved the sub-divisions of Cognitive {{COG}} and Behavioural {{BEH}}. If an intervention cannot be easily assigned to just one of these sub-divisions, it should be coded as both (e.g. "Cognitive Behavioural Therapy {PSY} {T/A} {{COG}} {{BEH}}").

However, this bough does *not* include interventions that focus on training cognitive skills and functions, such as emotion recognition (see below).

> *Cognitive Functioning {CFN}: "Improving cognitive functioning and skills leads to change".*

This bough includes interventions which are focused on improving cognitive skills and functioning, as a means to address the cognitive sequelae of schizophrenia/mental illness. Typically, these interventions are referred to as 'cognitive remediation', but not all interventions of this kind will refer to themselves as such. Cognitive functioning and skills are those fundamental cognitive abilities which are present to some degree in physically and neurologically typical humans, but which can be impaired by schizophrenia and other mental illnesses.[2] Examples include facial and emotion recognition, memory, auditory perception, attention, proprioception, visuospatial awareness, and problem solving.

Cognitive remediation was defined by the Cognitive Remediation Experts Working Group in the following terms: "Cognitive remediation is a behavioral training intervention targeting cognitive deficit (attention, memory, executive function, social cognition, or metacognition), using scientific principles of learning, with the ultimate goal of improving functional outcomes. Its effectiveness is enhanced when provided in a context (formal or informal) that provides support and opportunity for extending to everyday functioning".[1]

Following these definitions, for the purposes of this classification, we defined *Cognitive Functioning* psychotherapy interventions as those which treat deficiencies in these fundamental abilities arising due to mental illness/psychopathology, and aim to remediate these abilities to – or near to – the premorbid level of that person, or aim to improve existing strengths in these abilities.

Humanistic {HUM}:"Empowering the patient leads to change".

Perhaps the most heterogeneous of the boughs, 'Humanistic' therapies are those whose primary mechanism is the empowerment and personal development of the patient. Whilst many therapies may be empowering to some degree, humanistic therapies are distinct in that this empowerment and personal development is the active ingredient in change, rather than any focus on behaviours, relationships, or past experiences.[3]

Examples of humanistic therapies include:

Client-Centred Therapy – which requires the therapist to avoid questions, diagnoses, reassurance, or judgement, and places the patient in charge of their treatment.

Gestalt Therapy – which involves the patient reflecting on their immediate thoughts and feelings in the current moment.

Existential Therapy – which involves a patient reflecting on their illness through a philosophical lens, based on existentialist philosophy. Patients are encouraged to develop understanding of their capacities, and to take personal responsibility for finding meaning in their life and their illness.

Similarly, an example of a partially humanistic therapy would be Dialectical Behavioural Therapy, which uses behavioural techniques to promote behaviour change, whilst simultaneously taking the humanistic approach of emphasising the patients' acceptance of themselves as they are in the present moment. Hence, Dialectical Behavioural Therapy would be coded "Dialectical Behavioural Therapy {PSY} {T/A} {{BEH}} {HUM}".

As can be seen, all of these therapies – whilst heterogeneous – share a common thread of patient empowerment and development as a means in itself to treating mental illness.

***Psychodynamic/Psychoanalytic {ANA}*:** "Understanding of the self, past experiences, and the unconscious leads to change".

One of the oldest boughs of psychotherapy, Psychodynamic and Psychoanalytic therapies use exploration of a patients past experiences, as well as their unconscious thoughts and impulses, as a means both to understand the patients' psychopathology, as well as to treat it.

Many interventions which do not specifically refer to themselves as psychodynamic of psychoanalytic fit into this category. Interventions which aim to treat schizophrenia/mental illness primarily by illuminating and/or addressing unconscious thoughts, feelings, and past experiences may be described as psychodynamic/psychoanalytic.

Social {SOC}:*"Changing interpersonal/intergroup relationships leads to change".*

This bough includes a variety of interventions whose primary focus is on changing or utilising social relationships as a means of treating schizophrenia and other mental illnesses. It should be separated into three main sub-divisions.

Family {{FAM}}: Interventions which aim to treat schizophrenia/mental illness by changing inter-family relationships and dynamics. These can include interventions which are delivered to family members rather than directly to the patient, such as educating family members about support mechanisms and coping techniques.

Social Skills {{S-SK}}: Interventions which aim to treat schizophrenia/mental illness by improving patients' abilities to develop, maintain, and utilise social relationships and networks. Interventions such as Interpersonal Psychotherapy would be included in this sub-division.

Social Support {{S-SP}}: Interventions which aim to treat schizophrenia/mental illness by directly building or providing patients' with supportive social networks. This differs from the Social Skills sub-division in that the provision of a social network is the intervention, rather than the training of a patient to develop their own social networks. Examples include interventions which connect patients with peers or supporters, or enlist patients in activity and social groups.

*Other {OTH}:*Psychotherapies that do not fit into any of the above categories, or containing an element which is not captured by any of the above categories.

"Other" is a broad bough that exists by necessity to describe those interventions which do not fit into any of the other boughs, but which are unusual enough not to justify the creation of a new bough. Coding interventions to this bough should be avoided where possible, but there are three main circumstances in which it may be necessary:

1. Where a previously undescribed intervention is clearly a psychotherapy, but not enough information is provided on it to assess what is mechanism is, therefore it cannot be assigned to any of the other boughs.
2. Where elements of a psychotherapy clearly correspond to a non-Other bough of psychotherapy, but other elements of the same psychotherapy are not adequately described by any of the non-Other boughs. In these instances, the intervention category should be coded as both Other {OTH} and the non-Other bough in question (e.g. "Life Coaching Program {PSY} {T/A} {{BEH}} {OTH}")
3. Where the entirety of the intervention, whilst a psychotherapy, does not correspond to any of the non-Other boughs of psychotherapy (e.g. "Thought Discontinuation Technique (Distraction) {PSY} {OTH}"). Care should be taken with this category to take note of emerging trends – over time, with the development of new psychotherapy techniques, an entirely new bough may be justified.

Appendix 2. How the Cochrane Register Works

The Cochrane Schizophrenia Group register is essentially a database – designed to be comprehensive – of all Schizophrenia RCTs conducted.

Each **Study** (or "Trial") might have several unique **References –** these could be journal articles, study registry entries, conference proceedings, or any other form of reference.

Each **Reference** is linked to one or more **Intervention Categories**.

An **Intervention Category** is a description of an element of that **Reference**, and by extension its **Study**. A single **Intervention Category** may be linked to multiple different **References** corresponding to multiple different **Studies**.
For example: a study into psychoanalytic psychotherapy might be linked to an intervention category titled "Psychoanalytic Psychotherapy", as well as potentially several other intervention categories describing other aspects of the study.

Each **Intervention Category** is comprised of its title and one or more **Codes** – these codes allow intervention categories to be grouped together by various commonalities, thus allowing the database to be searched such that one or more of these groups can be isolated (along with all of their linked **References**).
For example: the full entry for "Psychoanalytic Psychotherapy" might appear as follows: "Psychoanalytic Psychotherapy {PSY} {ANA}". In this example {PSY} groups this intervention category with all other psychotherapies, whilst {ANA} groups it with all Psychoanalytic and Psychodynamic therapies.

Prior to the undertaking of this analysis there was no systematic method for (a) assigning psychotherapy interventions – in the form of references to studies of psychotherapy interventions – to intervention categories, and (b) for assigning codes to intervention categories. The construction of a new systematic classification of psychotherapy interventions described in the main text allowed all intervention categories for psychotherapy interventions to be recoded according to the "bough" of psychotherapy they correspond to.

With this completed, each reference can be reviewed and re-linked to intervention categories according to the systematic approach described in Appendix 3.

Appendix 3. Cross Check Method & Findings

Method

The cross-checking process – for intervention categories which had been semi-automatically coded based on the title assigned previously by an information specialist – involved two populations: those categorised as psychotherapies and those categorised as not psychotherapies.

For each population, a 10% sample was randomly selected by assigning each intervention category an integer number ascending in alphabetical order of the categories, then using a random number generator (https://www.random.org/) to select a quantity of intervention categories equivalent to 10% (rounded up) of the total for each population.

Where any of the categories selected by this process only had foreign-language references, they were discounted and the random number generator rolled again to generate a replacement intervention category to be sampled.

Each intervention category selected by this process was then manually examined, with its linked references checked to establish whether the semi-automatic coding was accurate. This was recorded, and any inaccuracies were also amended in the main database, along with any other corrections that were inferred to be necessary during the cross-check.

Prior to the undertaking of the cross-check, it was decided that an accuracy rate of 80% - meaning that that in 80% or greater of cross-checked intervention categories for each population, the coding established by manual examination corresponded with that given during the semi-automatic stage – would be accepted. If the accuracy rate for a population fell below that number, all semi-automatically coded intervention categories would be manually re-examined and re-coded.

Findings

Psychotherapies

Sample	
Total size of population:	205
Number randomly sampled:	21
Discounted and replaced due to foreign-language:	1
Accuracy	
Number found to be accurate:	18
Number found to be inaccurate:	3
Accuracy Rate:	85.7%

Characteristics of Inaccurate Samples

- 2 instances of intervention categories titled “Cognitive…” which were assumed to represent cognitive content interventions, but which were in fact cognitive functioning interventions.
- 1 instance of an intervention category titled “Cognitive…” which was correctly assigned as a cognitive content intervention, but also had a humanistic component which had not

been coded.
Further Actions Taken All intervention categories beginning with "Cognitive…" and coded as psychotherapies were manually re-examined. 2 further changes were made, both involving categories coded as cognitive content which were actually cognitive functioning. 4 could not be manually re-examined due to all references being in a foreign language.

Not Psychotherapies

Sample	
Total size of population:	408
Number randomly sampled:	41
Discounted and replaced due to foreign-language:	3
Accuracy	
Number found to be accurate:	39
Number found to be inaccurate:	2
Accuracy Rate:	95.1%

Characteristics of Inaccurate Samples

- 1 instance of a "Vocational Training" intervention category which corresponded to an intervention which was designed to improve cognitive functioning.
- 1 instance of a "Game (Visuospatial Puzzle)" intervention category which under examination fit our definition of a psychotherapy, coded as "Cognitive Functioning" and "Other".

Further Actions Taken

All intervention categories involving vocational counselling-related interventions and not coded as psychotherapies were manually re-examined – no further changes were necessary. Additionally, two further "Game" intervention categories not previously categorised as psychotherapies were manually re-examined and recoded as psychotherapies.

References

1. Bowie, C.R., Bell, M.D., Fiszdon, J.M., et al. Cognitive remediation for schizophrenia: An expert working group white paper on core techniques. *Schizophrenia Research,*2020;*215:*49-53. doi:10.1016/j.schres.2019.10.047
2. Smith, A., Kelly, A.Cognitive Processes. In S. Whitbourne, The Encyclopaedia of Adulthood and Aging. Chichester, England: Wiley 2000.
3. Watkins, C. Psychotherapy: Approaches. In A. Kazdin, Encyclopedia of Psychology . Washington, D.C., USA: American Psychological Association 2000:466-469