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# Social Problem Solving, Cognitive Defusion and Social Identification in Wellness Recovery Action Planning.


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**Doctorate in Clinical Psychology**

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# Lay Summary

The thesis has two chapters:

Chapter one is on studies that have been done about a mental health workshop called Wellness Recovery Action Planning (WRAP). It looks at what happens to adults that have been to a WRAP workshop about recovery. Overall it found that adults who go to WRAP workshops tend to have less symptoms and more hope after. They might have more hope because the workshop is often run by people who have had mental health problems too. There are also some other benefits of WRAP workshops and some things that might be bad about them. These are discussed in the study so WRAP workshops can be done better and the ways we try to find out about WRAP workshops can also be improved.

Chapter two looks at people that have been to WRAP workshops too. This study explores four things that might be important in helping these people in their mental health recovery. These things are what they know about WRAP, how they solve problems, if they can let go of tricky thoughts and how they felt about their WRAP group. The results showed that all these things are important in recovery, but the way people felt about their WRAP group seemed less important. The study suggests the way people solve problems and let go of tricky thoughts should be made more important in WRAP. This could help people recover better.

# Abstract

**Objective:** The concept of recovery has become an integral part of modern mental health care. Understanding the outcomes and underlying mechanisms of key recovery interventions, such as Wellness Recovery Action Planning (WRAP), is essential in order to expand the theoretical understanding of recovery and inform how to target recovery in treatment. Therefore a systematic review of the literature was conducted to evaluate the mental health outcomes of WRAP for adults. The empirical study then explored three constructs in relation to WRAP and recovery. These were social problem solving, cognitive defusion and social identification.

**Method:** The systematic review of the mental health outcomes of WRAP was conducted by searching four databases, contacting the authors of WRAP research and seeking evaluative information from organisations that deliver WRAP. Fourteen relevant studies met the inclusion criteria. Whereas, the empirical study recruited participants on a trans-diagnostic basis from across Scotland. Using a quantitative cross sectional design, 109 participant's completed 5 self-report questionnaires. These were the Knowledge, Attitudes and Beliefs about WRAP Questionnaire (WRAP beliefs), the Recovery Assessment Scale – Short (RAS-S), the Social Problem Solving Inventory - Revised - Short (SPSI-R-S), the Four Item Measure of Social Identification (FISI) and the Cognitive Fusion Questionnaire (CFQ). Correlation, regression and mediation analysis were used to explore relationships, and in particular, the predictors and mediators of recovery.

**Results:** The systematic review provided strong evidence that WRAP has a significant positive impact on hope and also reduces the symptoms of mental illness. However, whether WRAP improves personal levels of recovery was unclear and a possible risk of disempowerment was

found. Promising preliminary mental health outcomes in the areas of confidence in managing mental health, quality of life, service use, self-advocacy and knowledge attitudes and beliefs about recovery were highlighted. Only studies that did not use peer facilitators failed to find significant increases in hope compared to treatment as usual control groups. In the empirical study, the results indicated that all the constructs examined were correlated to recovery. In the regression analysis, WRAP beliefs, social problem solving and cognitive defusion also demonstrated a predictive relationship with recovery. Mediation analysis indicated that, social problem solving mediated two distinct relationships. One between WRAP beliefs and recovery, and another between cognitive defusion and recovery. The social problem solving subscales also showed how the two predictors relate to recovery through social problem solving in different ways. Social identification with the WRAP group did not significantly predict or mediate recovery.

**Conclusions:** The systematic review indicated having peer facilitators delivering WRAP is key to helping participants foster hope and that a further randomised control trial could help clarify if improved personal recovery is an outcome of WRAP. It additionally suggested how the relationship between WRAP beliefs and recovery could be explored, as per the design of the empirical study. Findings from the empirical study implied that improving participants' social problem solving and cognitive defusion should be specifically targeted in WRAP delivery. The studies combined indicate that to achieve the best recovery results interventions, like WRAP, should target inspiring hope through peer support, improving knowledge, attitudes and beliefs about recovery and cognitive defusion from unhelpful thoughts.

# Chapter 1. Systematic Review

## Mental Health Outcomes of Wellness Recovery Action Planning:

## Symptom Reduction and Increased Hope

(Written according to the author guidelines of The International Journal of Mental Health Nursing, see Appendix 1)

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## Abstract

The concept of recovery has been accepted and widely promoted within mental health. Knowing the outcomes of key recovery interventions such as Wellness Recovery Action Planning (WRAP) is essential for developing services that can provide effective recovery orientated care. This study reports the findings of a systematic review of mental health outcomes of WRAP. Fourteen relevant studies were identified. They evidenced that WRAP has a significant positive impact on hope and also significantly reduces the symptoms of mental illness. Whether WRAP improves personal levels of recovery was unclear and a possible risk of disempowerment was found. Results also highlighted promising preliminary mental health outcomes in the areas of confidence in managing mental health, quality of life, service use, self-advocacy and knowledge attitudes and beliefs about recovery. Only studies that did not use peer facilitators failed to find significant increases in hope compared to controls. This indicates having peer facilitators delivering WRAP is key to helping participants foster hope. A further randomised control trial is required to clarify if improved personal levels of recovery are an outcome of WRAP. Future studies could also explore the relationship between knowledge, attitudes and beliefs about recovery and an individual's personal level of recovery. This could increase the theoretical understanding of the underlying mechanisms between WRAP and personal recovery.

## Introduction

It was once expected that people with mental health problems would not recover, yet the concept of recovery is now widely accepted (Department of Health, 2001). Mental health recovery is considered to be possible for anyone, and people can, and do recover (Scottish Recovery Network, 2018). Anthony (1993) prominently defined the modern meaning of recovery as:

"… a deeply personal, unique process of changing one's attitudes, values, feelings, goals, skills, and/or roles. It is a way of living a satisfying, hopeful, and contributing life even with limitations caused by illness. Recovery involves the development of new meaning and purpose in one's life as one grows beyond the catastrophic effects of mental illness." (Anthony, 1993. p. 14)

This idea of recovery initially developed in the USA through the service user movement during the 70s and 80s as people with lived experiences of mental health difficulties refused to be defined by disability or prevented from living valued lives (Davidson et al., 2005; Deegan, 1996). Evidence of clinical recovery also supported its growth (Harrison et al., 2001; World Health Organisation, 2001). Now recovery orientated care is an integral part of mental health strategy and national initiatives continue to support putting recovery into practice (NHS England 2016; The Scottish Government, 2017; Scottish Recovery Network, 2018; Implementing Recovery through Organisational Change, 2018).

Recovery is promoted through various interventions and WRAP is considered key amongst

these (Mead and Copeland, 2004; Slade et al., 2014). WRAP is a trans-diagnostic, structured self-management approach that incorporates recovery concepts and peer support to help people recover. It is delivered through workshops by accredited facilitators who use their lived experience of mental health and recovery to emphasise the expertise everyone has on their own lives. The use of peer support in WRAP creates a mutual and empathic atmosphere where peers support and challenge one another to find new ways of thinking and coping as they move towards recovery (Mead and Copeland, 2004).

Recovery in WRAP is conceptualised as occurring through key concepts of recovery (see Table I). However, no measure of personal recovery specifically measures the recovery concepts of WRAP. Instead, recovery measurement has been challenging because recovery measures are developed by using ever shifting service user views of recovery, which are individually defined (Shanks et al. 2013; Sklar et al. 2013). This makes finding an adequately fitting measure across cultures, systems and interventions very difficult. Fortunately, the CHIME framework of recovery (Leamy et al. 2012) is a good fit with the concepts of WRAP. CHIME is an acronym of the recovery processes it outlines: connectedness, hope and optimism, identity, meaning and purpose, and empowerment (Leamy et al. 2012). As the CHIME processes have been used in scrutinising the adequacy of recovery measures (Shanks et al. 2013), this review considers recovery measurement in the CHIME context.

WRAP is a popular intervention and is used throughout the United States. Its popularity has been supported by WRAP participants who tend to promote WRAP as demonstrated by the qualitative narratives of people who passionately advocate for its life changing benefits and favourable outcomes (Gordon & Cassidy; MacGregor et al. 2014; Keogh et al., 2014.).

Likewise, WRAP has been found to be empowering for the peer facilitators who deliver it (Higgins et al., 2012; Pratt et al., 2013; Keogh et al. 2014).

WRAP is also the most widespread intervention of its kind internationally (Copeland, 2002; Sterling et al., 2010; Pratt et al., 2010; Mak et al., 2016). Its growth has been supported by the good applicability of its two key aspects. Firstly, WRAP is a personal recovery intervention used to improve the mental wellbeing of mental health service users. Secondly, it can be used to increase the recovery knowledge and understanding across a range of different people including various staff, carers, family members and service users. This second aspect introduces a diversity to the participants of WRAP studies, which is acknowledged throughout this review. Due consideration is therefore given to participant type and how this impacts upon the outcomes of WRAP.

The evidence base for WRAP is very varied and many different outcomes have been, explored with a lack of consistency in their measurement (Higgins et al., 2012). The empirical mental health outcomes of WRAP are further obscured by studies that have approached WRAP in different ways using diverse methodologies. This is unfortunate, as it is important to know WRAP's value relative to its cost (Cook et al. 2013). Past reviews have indicated WRAP to be a low cost and effective intervention (Washington State Institute for Public Policy 2014; Results First, 2016), however, a full review of the WRAP evidence base and its outcomes for mental health will further elucidate this area.

Table I. Key Concepts of recovery in WRAP

| Recovery Concept | WRAP Description of Concept |
|---|---|
| Hope | The role hope plays in life and how to find it. |
| Personal Responsibility | Deciding to take responsibility for personal wellbeing. |
| Education | Learning how to make the best decisions to aid recovery. |
| Self – Advocacy | Communicating well and fighting for beliefs and rights. |
| Support | Developing a support system that will promote recovery |

(Copeland, 1997)

## An overview of WRAP

WRAP workshops support people to explore key concepts of mental health recovery and provide a structure to help people deal with challenging times by promoting pre-emptive action planning, focussing on wellbeing and increasing their self-awareness. WRAP was developed in 1997, in the United States, as a way of dealing effectively with emotional and physical symptoms (Copeland, 2002). It is an approach that emphasises that the person who will use the plan must be the one who develops it. Copeland, (2002) outlines how people must make their own WRAP folder for themselves.

In WRAP workshops, the 5 key recovery concepts (Table I) are outlined and discussed using real life stories to create empathy and encourage mutual sharing. The recovery concepts are fundamentally important to WRAP and recovery. For example, it is known that even small changes in an individual's hope can be clinically meaningful (Berg, Snyder & Hamilton, 2008). In the workshop participants are encouraged to make notes on how the concepts apply to

themselves. WRAP then introduces a wellness toolbox for participants to list all the strategies that help keep them well. There is also a daily maintenance plan for them to record what they are like when they feel well and what they need to do to keep feeling good. Action plans are created for participant's individual triggers, early warning signs and signs of when things are breaking down. This is to help them activate these plans when needed to maximise their wellbeing (Copeland, 2010). Crises planning and post crises planning are also considered to help participants think about how to maximise their support and allow them more power in contributing to their care when unwell. The person who creates the WRAP is then encouraged to update it regularly and share it with those they choose.

## Aim of Systematic Review

WRAP is a popular intervention used to promote mental illness self-management and recovery. Its widespread use and growth has created an expanding evidence base to support its efficacy. This review seeks to answer the question: What are the mental health outcomes of WRAP for adults?

## Methods

### Search Strategy

Electronic databases were searched with a date filter that removed studies published before the date WRAP was developed. Therefore the date searched from was the 1st if January 1997 and the date searched until, was the date at searching, which was the 4th of January 2018. The PsychINFO, MEDLINE, EMBASE and SCOPUS databases were searched using Boolean operators to operationalise key concepts with corresponding search terms as per Table II:

Table II. Key concepts of review and associated search terms

| Key Concept | Search Terms |
|---|---|
| Self-management | "WRAP", "Wellness Recovery Action Plan*", "Self-help", "Self-management" |
| Mental health program | "Training", "Workshop*", "Group*", "Intervention*", "Program*" |
| Recovery orientated | "Peer*", "Consumer*", "Recovery", "Lived experience*" |
| Mental health outcomes | "Outcome*", "Evaluat*", "Result*", "Symptom*", "Quality of life", "Self-advocacy", "Wellbeing", "Well-being", "Mental health" |

* indicates the use of truncation.

### Grey Literature

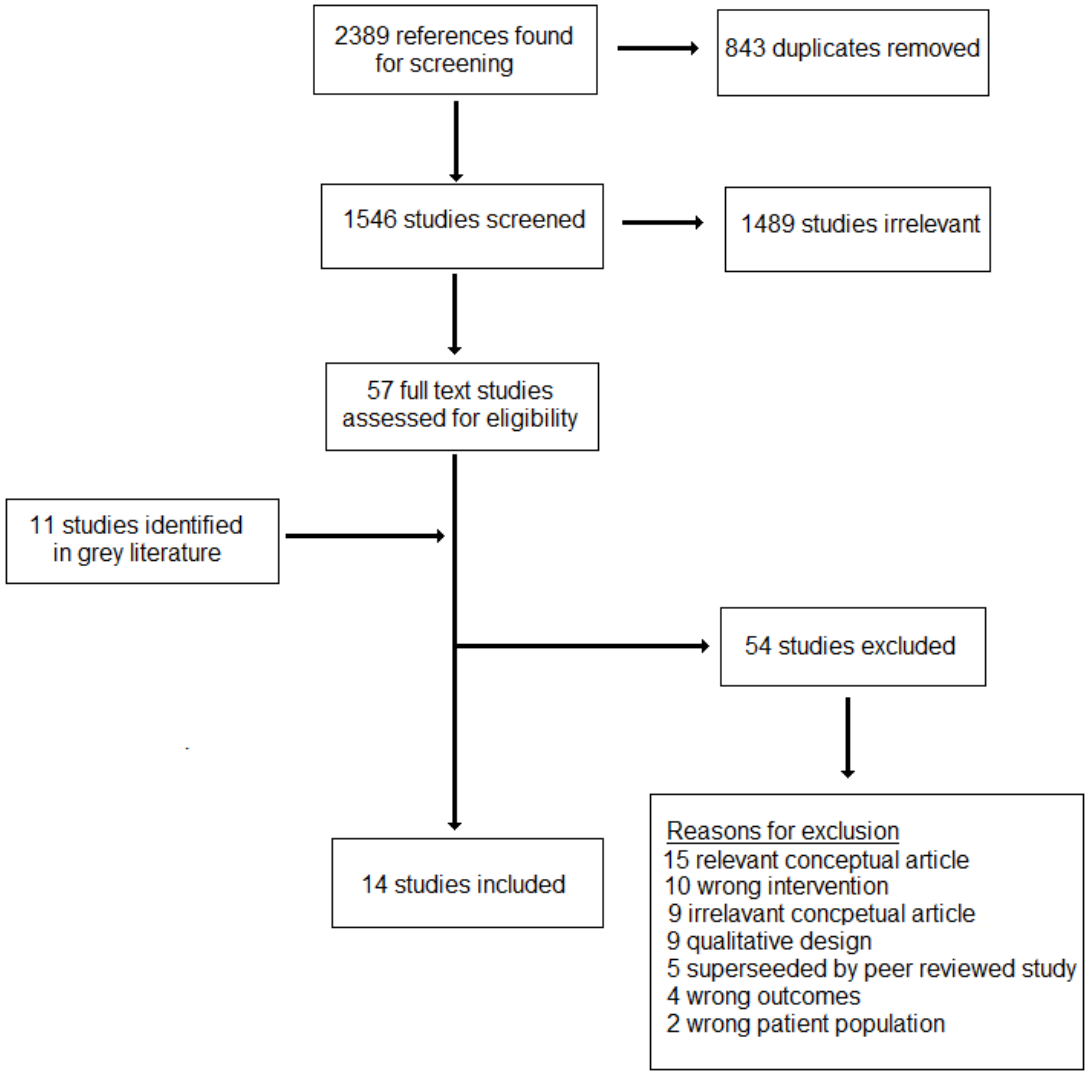
In order to gather the relevant literature on WRAP it was necessary to source information that was not readily available. Ten providers of WRAP identified through internet searching and the authors of all studies eventually selected were contacted. These parties were asked for research or evaluative information regarding WRAP that was not in the public domain, or that was ongoing. Additionally, all studies relevant to WRAP whether included or excluded were reference searched for additional literature pertaining to the intervention. Websites that detailed information relating to the evidence base for WRAP were also searched. These included the Copeland Centre's website (mentalhealthrecovery.com/research-findings) and

SAMHSA's National Registry of Evidence-based Programs and Practices website (https://nrepp.samhsa.gov/ProgramProfile.aspx?id=1231.).

**Study Selection**

The search strategy identified 2389 articles, which after the deduplication of 843 left 1546 articles for title and abstract screening. Those that were not applicable or irrelevant were excluded. This resulted in 57 studies for full text review against the inclusion and exclusion criteria. Studies that were identified in the grey literature also underwent full text review. This entailed 3 studies identified by reference searching, 3 evaluations identified by contacted organisations, 3 reports highlighted from contacting 1st authors and 2 evaluations identified by web site searching. Figure I shows the selection process.

Figure I. Selection process flow chart.



## Inclusion and Exclusion Criteria

In order to be included studies had to be able to statistically contribute to the way WRAP impacts mental health outcomes. They also had to be reporting findings for adults (18+). This was decided because conceptually recovery for children is understood differently due to their ongoing development. Given the cross diagnostic nature of WRAP and its focus on wellbeing, studies were not excluded on the basis of demographics (except for under 18's), patient diagnosis or including mental health staff, carers or students as participants. Furthermore studies were included regardless of whether they were run by government, healthcare, social work or the voluntary sector.

To promote inclusivity, studies from non-peer reviewed resources and of many methodological designs were also reviewed. The location, duration and frequency of WRAP delivery was allowed to vary. Accepted studies included RCTs, quasi-experimental studies, matched control designs and pre/post cohort studies. Multi-site and single site studies were also equally accepted. Methodologically only qualitative studies, case studies and case series designs were excluded due to their limited generalisability. Initial evaluations that were subsequently reported in a peer reviewed journal articles were excluded. This was on the basis that the journal articles were reviewed and therefore better quality. Studies not available in the English language were not accepted as there was no translation service available.

Study selection criteria specific to WRAP delivery and measurement:

- WRAP delivery had to be led by mental health peers using lived experience of mental health challenges or by Copeland Center trained non-peer facilitators using their life experiences. Studies where experience of recovery, life experience or self-help had not been used were excluded.

- The intervention had to have fidelity with the Copeland Center developed WRAP programme. Data about WRAP information sessions or facilitator training was excluded.
- WRAP delivery had to be didactic and interactive teaching, as well as experiential learning occurring in a workshop, training or group context. Purely self-educational, one to one interventions and online learning were excluded.
- Studies that used both self-rated and researcher tested psychometric measures to provide quantitative data were included. Studies that reported only qualitative data were excluded.

## Results

After the study selection criteria had been fully applied, 14 studies were deemed to be suitable for further evaluation (Table III). Methodological quality was assessed as per the quality assessment criteria.

### Quality Assessment Criteria

In order to assess the quality of selected studies the National Institute for Health and Clinical Excellence (NICE, 2014) and Scottish Intercollegiate Guidelines Network (SIGN, 2015) were reviewed for best practice approaches to reviewing research evidence. As recommended, the Critical Appraisal Skills Programme (CASP, 2018) checklists and the "Cochrane handbook for systematic reviews of interventions" were subsequently appraised for their suitability to assess the selected research. However, the CASP checklists could not be used due to their restricted application to specific designs, equally Cochrane handbook was also only applicable to RCTs.

Therefore, guidance from the Centre for Reviews and Dissemination (CRD, 2009) and the Agency for Healthcare Research and Quality (AHRQ, 2002) was used to identify a system/checklist to assess the quality that could accommodate variation in quantitative research design. On this basis Downs and Black's (1998) checklist was selected as being one of the broadest and best rated systems, however it required some further adaption to fit our review. Firstly, its items were grouped into quality areas taken from the AHRQ (2002) for ease of reference. These quality areas were: study question, study population, comparability of subjects, exposure/intervention, outcome measure, statistical analysis, results and discussion. Whereas bias was considered in regard to quality areas of external validity, internal validity and guarding against selection bias.

Table III. Summary of studies included.

| Author | Study | Aims | Design | Method | Results | Mental Health Outcomes |
|---|---|---|---|---|---|---|
| Doughty, Tse, Duncan & McIntyre (2008) | The Wellness Recovery Action Plan (WRAP): workshop evaluation. | To determine if WRAP changed attitudes and knowledge about recovery, what the differences were between participants and if the program could be improved. | Pre and post cohort study using a 16 item knowledge and attitudes about WRAP Questionnaire (WRAP beliefs) | Consumers and mental health professionals (*n*: 187) in New Zealand completed pre and post WRAP workshop questionnaires. | In pre and post-tests there was a significant change in total attitudes and knowledge about recovery in the expected direction ($t$ = 12.13***). With a large effect size ($d$ = .82), no differences between consumers and professionals. | Evidence supports WRAP positively changing knowledge and attitudes about WRAP and recovery. |
| Cook, Copeland, Hamilton, Jonikas, Razzano, Floyd, Hudson, Macfarlane & Grey. (2009) † | Initial Outcomes of a Mental Illness Self-Management Program Based on Wellness Recovery Action Planning. | To examine changes in psychosocial outcomes among participants. | Pre and post, preliminary evaluation using the Brief Symptom Inventory (BSI), Recovery Assessment Scale (RAS) and the Hope Scale (HS). | Individuals with a serious mental illness (*n*: 80) at 5 Ohio sites in the USA completed telephone interviews at baseline and one month after the intervention. | Pre and post $t$ tests were computed showing improvement in symptoms ($t$ = 4.64***, $d$ = .35), recovery ($t$ = -4.30***, $d$ = .42), hopefulness ($t$ = 2.99**, $d$ = .39), self-advocacy ($t$ = 3.33**, $d$ = .35) and physical health $t$ = -2.68**, $d$ = .21). Empowerment decreased ($t$ = 3.70***, $d$ = .33) and no significant change in social support ($t$ = 1.58, $d$ = .13). | Evidence WRAP benefits hope, self-advocacy, recovery and physical health and reduces symptoms and empowerment. Attendance positively related to level of improvement. |

| | | | | | | |
|---|---|---|---|---|---|---|
| Cook, Copeland, Corey, Buffington, Jonikas, Curtis, Grey and Nichols (2010) | Developing the Evidence Base for Peer-Led Services: Changes among Participants following Wellness Recovery Action Planning (WRAP) Education in Two Statewide Initiatives. | To explore whether participants across large scale WRAP initiatives experience the same self-management, crises planning and recovery benefits as those reported by participants in smaller scale initiatives. | Comparative review of 2 pre and post multi-site studies. Specially developed pre and post-test surveys were used in each study with one modelled on the other. | Evaluations from 2 USA statewide WRAP initiatives for mental health service users (*n*: 381) were explored with a focus on changes in specific attitudes and behaviours that were common to both states, as well as changes in areas that pertained to only one. | Pre and post-test increases for both studies in hope ($t$ = 4.37***, $d$ = .41), ($t$ = 3.40***, $d$ = .97), personal responsibility ($t$ = 3.87***, $d$ = .34), ($t$ = 2.79**, $d$ = .83) symptom management ($t$ = 6.26*** $d$ = .67), ($t$ = 3.18***, $d$ = .73) and social support ($t$ = 5.72***, $d$ = .62), ($t$ = 2.45**, $d$ = .64). Separately found better use of support groups ($t$ = 3.90***, $d$ = .34), better medication use ($t$ = 1.96*, $d$ = .29), recovery lifestyles ($t$ = 5.11***, $d$ = 1.17) | Significant increases in hope, personal responsibility, social support and symptom management. Individual studies reported better use of support, medication management recovery lifestyles and ability to promote recovery. |
| Starnino, Mariscal, Holter, Davidson, Cook, Fukui & Rapp (2010) | Outcomes of an Illness Self-Management Group Using Wellness Recovery Action Planning. | To assess the impact of WRAP on the ability of individuals with severe mental illnesses to achieve key recovery related outcomes. | Pre and post, cohort study using the HS, the Modified Colorado Symptom Index (MCSI) and the Recovery Markers Questionnaire (RMQ). | Participants were service users (*n*: 30) from 3 mental health centres in a single US state took part before and after attending WRAP. | Increases at post intervention found for hope (*M* 6.07, *SD* 8.60, $t$ = -3.86**, $d$ = .71) and recovery (*M* 3.82, *SD* 5.00, $t$ = -4.11***, $d$ = .76). Non-significant decrease at post intervention for symptoms (*M* -3.54, *SD* 9.38, $t$ = 2.00, $p$ = .056, $d$ = .38). | Evidence WRAP has a positive effect on self-reported hope and recovery. Suggestion of some improvement in symptoms. |

| | | | | | | |
|---|---|---|---|---|---|---|
| Fukui, Starnino, Mariscal, Davidson, Cook, Rapp & Gowdy (2011) | Effect of Wellness Recovery Action Plan (WRAP) Participation on Psychiatric Symptoms, Sense of Hope and Recovery. | To examine the effects of WRAP participation on psychiatric symptoms, hope, and recovery outcomes for people with severe and persistent mental illness. | Quasi-experimental study, with an experimental and comparison group using measures including the HS, MCSI and RMQ. | All participants were service users. In the WRAP condition (*n*: 58) attended peer and staff led sessions at 5 community mental health centres in a Midwestern state, USA. A comparison group (*n*: 56) also completed pre and post, and at 6 month follow up measures. | In the WRAP condition Improvement found for symptoms (*M* 0.33**, *d* = .34) and hope (*M* 0.58*, *d* = .39). However there was a non- significant increase for recovery (*M* 0.09, *d* = .37). Non-significant changes in the same directions also occurred for the comparison group across all measures. | Evidence that WRAP participation has a positive effect on psychiatric symptoms and feelings of hopefulness, but not significantly so on recovery. |
| Cook, Copeland, Floyd, Jonikas, Hamilton, Razzano, Carter, Hudson, Grey & Boyd (2012a) † | A Randomized Controlled Trial of Effects of Wellness Recovery Action Planning on Depression, Anxiety, and Recovery. | To test the effectiveness of WRAP in reducing depression and anxiety and in increasing recovery among individuals with a serious mental illness and over time. | Single blind RCT, with control group reporting measures including the BSI and RAS. | Within 6 Ohio (USA) mental health settings, service users (*n*: 519) were assigned to WRAP or to services as usual and assessed at baseline and at two- and eight-month follow-up. | Multivariable random regression analysis found over time WRAP condition reduced depression (*B* = -1.48*) and anxiety (*B* = -.94*) and had greater increase in total recovery (*B* = 1.06*) and personal confidence (*B* = .52*) and goal orientation (*B* = .32*). Positive pre and post change in WRAP condition for recovery (*M* 5.1, *SD* 14.68, *d* = .35), Depression (*M* 4.2, *SD* 11.18, *d* = .38) and anxiety (*M* 4.00, *SD* 12.93, *d* = .31) | Training in WRAP reduced depression and anxiety and improved participant self-perceived recovery over time. |

| | | | | | | |
|---|---|---|---|---|---|---|
| Cook, Jonikas, Hamilton, Goldrick, Steigman, Grey, Burke, Carter, Razzano & Copeland (2012b) † | Results of a Randomized Controlled Trial of Mental Illness Self-management Using Wellness Recovery Action Planning. | To determine the efficacy of WRAP by comparing it with usual care. | Single blind RCT, with control group reporting measures including the HS, BSI and World Health Organization Quality of Life Brief (WHOQOL-BREF). | Within 6 Ohio (USA) mental health settings, service users (*n*: 519) were assigned to WRAP or to services as usual and assessed at baseline and at two- and eight-month follow-up. | A mixed effects random regression found significant reduction in psychiatric symptoms (*B* = -0.05*), enhanced hopefulness (*B* = 0.40*), and improved QOL (*B* = 0.39**) vs control. Positive pre and post change in WRAP condition for symptoms (*M* .19, *SD* .67, *d* = .28), hope (*M* .95, *SD* 4.60, *d* = .21) and QofL (*M* .8, *SD* 2.92, *d* = .27) | Evidence WRAP reduces symptoms and improves hopefulness and quality of life over time. |
| Gillard, Adams, Edwards, Lucock, Miller, Simons, Turner, White, White & Self Care in Mental Health research team (2012) | Informing the development of services supporting self-care for severe, long term mental health conditions: a mixed method study of community based mental health initiatives in England. | To inform the development of support for self-care in mental health by considering how self-care policy is implemented in services supporting people with severe mental health problems. | Mixed method study, alternative self-care intervention comparison groups. Measures included the user empowerment measure, mental health confidence scale. Service use and QOL also recorded. | A cohort study of adult service users referred (*n*: 120) to three contrasting initiatives supporting mental health self-care in England, UK. Quantitative measures completed and qualitative interviews with cohort study participants at both baseline and follow up. | Combined results for WRAP, a peer support group for personality disorder and a community arts group to report significant change in quality of life (*M* 5.6, CI (-11.1, -.02), *ES* 0.25) empowerment (*M* 3.0, CI (-4.9,-1.2), *ES* 0.26) confidence (*M* 0.32, CI (-0.50, -0.15), *ES* 0.32). Overall there was also a significant decrease in A&E use**. Non-significant increases across all results when WRAP group only. | Non-significant improvements in quality of life, empowerment and mental health confidence and decrease in A&E attendances for WRAP attendees. |

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|---|---|---|---|---|---|---|
| Higgins, Callaghan, deVries, Keogh, Morrissey, Nash, Ryan, Gijbels, Carter (2012) | Evaluation of mental health recovery and Wellness Recovery Action Planning education in Ireland: a mixed methods pre–post evaluation. | To evaluate the effectiveness of a WRAP education programme. | Mixed method study, pre and post evaluation. Measured Recovery Knowledge Questionnaire (RKQ), Recovery Attitudes Questionnaire 7 (RAQ -7) and WRAP beliefs. | Questionnaires and focus groups used to evaluate WRAP programmes delivered to mixed groups of mental health service users, professionals and carers (*n*: 197) across Ireland. | WRAP significantly increased knowledge of WRAP and recovery ($t$ = 4.59***, $d$ = .33) and attitudes towards WRAP and recovery ($t$ = 3.27***, $d$ = .23). Also found high levels of confidence in managing mental health (*M* 4.46, *SD* 0.65). | Evidence WRAP changes knowledge attitudes and beliefs about recovery and suggestion that confidence in managing mental health also increased. |
| Cook, Jonikas, Hamilton, Goldrick, Steigman, Grey, Burke, Carter, Razzano & Copeland (2013) | Impact of Wellness Recovery Action Planning on Service Utilization and Need in a Randomized Controlled Trial. | To compare WRAP on the use of and need for mental health services over time versus nutrition and wellness education | Single Blind RCT design, with nutrition education control group. Measured Support Service Index (SSI) and Global Symptom Severity Index (GSI) of BSI. | In Chicago, USA community mental health settings, service users (*n*: 143) were assigned to WRAP or to non-peer led nutrition education delivered over the same schedule and assessed at baseline and at 2-month and 8-month follow-up. | In regression analysis WRAP participants had significantly greater reduction over time in service use ($B$ = -0.78*), and service need ($B$ = -0.63*). Pre and post change in expected direction for WRAP conditions service use (*M* 3.15, *SD* 4.925, $d$ = .64) and service need (*M* 2.25, *SD* 3.48, $d$ = .65) scores. | Evidence of a reduction in need for services and service use. Suggesting greater autonomy, self-perceived wellbeing and psychological resilience. States symptoms and recovery were also significantly improved without providing the statistics. |

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|---|---|---|---|---|---|---|
| Jonikas, Grey, Copeland, Razzano, Hamilton, Floyd, Hudson & Cook (2013) † | Improving propensity for patient self-advocacy through Wellness Recovery Action Planning: Results of a randomized controlled trial. | To test if WRAP participants report better self-advocacy and if this is maintained over time and positively and significantly associated with lower symptoms, greater hopefulness and quality of life. | Single blind RCT, with control group. Measures included the Patient-Self-Advocacy Scale (PSAS), HS, WHOQOLBREF and GSI of BSI. | Within 6 Ohio (USA) mental health settings, service users (*n*: 519) were assigned to WRAP or to services as usual and assessed at baseline and at two- and eight-month follow-up. | Mixed effects random regression at post-intervention and 6-month follow-up showed WRAP participants were significantly more engaged in self-advocacy (*B* = 0.05*). Pre and post improvement in self-advocacy scores in the WRAP condition (*M* 0.16, *SD* 0.51, *d* = .31). Self-advocacy was associated with hope (*r* = 0.45***), better environmental QofL (*r* = 0.28***), and fewer symptoms (*r* = -.023**). | Evidences that WRAP improves self-advocacy. Also reports self-advocacy's association with better hopefulness, environmental quality of life and fewer symptoms. |
| Pratt, MacGregor, Reid & Given (2013) | Experience of Wellness Recovery Action Planning in Self - Help and Mutual Support Groups for People with Lived Experience of Mental Health Difficulties. | To assess the recovery and wellness benefits of WRAP, how participants used WRAP and examine the role of self-help and mutual support in recovery and wellness planning. | Mixed methods, interviews and focus groups, pre and post cohort measures included RAS – S and the Warwick - Edinburgh Mental Well-being Scale (WEMWBS) | Service users (*n*: 21) took part from 4 organisations throughout Scotland. They completed pre and post measures and provided qualitative information. | WRAP's positive impact on recovery wellbeing and learning about self-management reported. Recovery scores increased in all groups: pre (*M* 71.44, Range 39-99), post (*M* 79.48, Range 38-99). Wellbeing increased in all but 1 group: Pre (*M* 43.39. Range 16-63), post (*M* 47.72, Range 22-67) (Standard deviation not provided) | Suggests improved levels of recovery and wellbeing after WRAP. |

| | | | | | | |
|---|---|---|---|---|---|---|
| Mak, Chan, Randolph, Pang, Chung, Yau & Tang (2016) | Effectiveness of Wellness Recovery Action Planning (WRAP) for Chinese in Hong Kong. | To examine the effectiveness of WRAP on psychosocial and recovery-related outcomes and obtain feedback on the process of running WRAP to allow for wider dissemination and cultural adaptation. | Matched controls. Measures included subscales of the Youth Empowerment Scale, ENRICHD Social Support Inventory, RMQ, HS and the MCSI. | Service users (*n*: 59) from Hong Kong were recruited to learn WRAP and matched with controls. The WRAP program consisted of eight weekly sessions delivered by staff who were certified WRAP facilitators. Assessments were completed pre/post and 3 months after. | MANOVA showed WRAP participants reported significant increase in perceived social support ($\Lambda$=.94, $F(1, 115) = 3.39$*). Positive pre and post change in social support scores (*M* 0.19, *SD* 0.78, *d* = .24) No significant change was noted in empowerment, hope, self-stigma, social network size, symptom severity or recovery. | Evidences change in perceived social support. Participants had non-significant positive change in empowerment, hope, stigma resistance and social network size. |
| O'Keeffe, Hickey, Lane, McCormack, Lawlor, Kinsella, Donoghue & Clarke (2016) | Mental illness self-management: a randomised controlled trial of the Wellness Recovery Action Planning intervention for inpatients and outpatients with psychiatric illness. | To evaluate the effect of WRAP on personal recovery, quality of life, and self-reported psychiatric symptoms. | Single blind RCT with control group measuring Mental Health Recovery Measure, Mental Health Recovery Star, WHOQOLBREF and measures of anxiety and depression (HADS, BDI II) | Mental health service users (*n*: 36) in Ireland were randomly allocated to intervention or treatment as usual non-intervention group with measures taken at pre/post intervention and six moth follow up. | Wilcoxon signed ranks test showed WRAP had a significant effect on addictive behaviour (*M* 1.09, *SD* 1.73, *z* = -1.97*, *d* = .63), identity and self-esteem (*M* 1.00, *SD* 2.73, *z* = -2.10*, *d* = .37). WRAP did not have significant effect on personal recovery, QofL or symptoms vs control group. There was a non-significant reduction in relationships for those who attended WRAP. | Evidence WRAP improves personal recovery in the areas of (i) addictive behaviour and (ii) identity and self-esteem. Quality of life and symptoms improved for both groups significantly. Hope improvements and relationship decreases but both non-significant. |

†These article's all reported results from the same randomised control trail. * = $p < .05$, ** = $p < .01$, *** = $p<.001$

Secondly, Downs and Black (1998) had used a points system to rate articles and this was also adapted based on CRD (2009) guidance. The CRD considers using numeric scales and summary scores to distinguish between the quality of studies not to be recommended and questionable. This is because standardised techniques are not generally used to develop such scales and the weighting assigned to methodological items tends to vary between scales without adequately accounting for bias (CRD, 2009). Therefore an alternative system was created. In this study Downs and Black's (1998) initial yes, no or unclear response options were maintained, but instead of point scoring these, the subheadings were given an overall ratings ('High', 'Moderate', 'Low', or 'Very Low'), as per an adapted GRADE system considered to be best practice (Higgins and Green, 2011; NICE, 2014). In the GRADE system reviewers comment on the quality, but their judgement process operates within a transparent structure. This is where evidence downgrades are classified as 'serious', downgrading the quality rating by one level or 'very serious', downgrading the quality grade by two levels. For a fuller description and classification system of downgrading see Higgins and Green (2011) for a review. The quality assessment checklist used can be seen in appendix 2.

The quality assessment process still retained a degree of subjectivity and the extent to which a study met criteria was still dependent on the individual reviewer's judgement. Twenty nine percent (*n* = 4) of studies selected for full review were therefore appraised by a second reviewer (HP, a doctoral student in clinical psychology) to ensure consistency and minimise bias (SIGN, 2015). The second reviewer used the same quality assessment checklist and criteria. Interrater reliability was high with a kappa co-efficient of 0.64. This indicates the quality assessment and rating system was robust and clear. All discrepancies were discussed, clarified and agreed by the reviewers. A summary of quality ratings is shown in Table IV.

Table IV. Quality assessment criteria ratings

| Study Name | Study Question | Study Population | Compar-ability of Subject | Interve-ntion | Outcome Measures | Statistical Analysis | Results | Discussion | External Validity | Internal Validity | Guarding Against Selection Bias |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Doughty et al. (2008) | High | Low | Low | High | High | High | High | High | Low | Moderate | Low |
| Cook et al. (2009) † | Low | High | High | High | Low | Moderate | High | High | Moderate | Moderate | High |
| Cook et al. (2010) | High | High | Very Low | High | Moderate | High | High | High | Moderate | Low | Low |
| Starnino et al. (2010) | High | High | High | High | High | High | High | High | Moderate | Moderate | Moderate |
| Fukui et al. (2011) | High | High | High | High | High | Moderate | High | High | Moderate | Moderate | Moderate |
| Cook et al. (2012a) † | High | High | High | High | High | High | High | High | Moderate | Moderate | High |
| Cook et al. (2012b) † | High | High | High | High | High | High | High | High | Moderate | Moderate | High |
| Gillard et al. (2012) | High | High | High | Low | High | Low | High | High | Low | Low | Low |
| Higgins et al. (2012) | High | Moderate | Moderate | High | High | High | High | High | Moderate | Moderate | Moderate |
| Cook et al. (2013) | High | High | High | High | High | High | Moderate | High | Moderate | High | High |
| Jonikas et al. (2013) † | High | High | High | High | High | High | High | High | Moderate | Moderate | High |
| Pratt et al. (2013) | High | Low | Low | High | High | Low | High | High | Moderate | Moderate | Moderate |
| Mak et al. (2016) | High | High | High | Moderate | High | High | High | High | Moderate | Moderate | Moderate |
| O'Keeffe et al. (2016) | High | High | High | High | High | Moderate | High | High | Low | Moderate | Moderate |

†These article's all reported results from the same randomised control trail.

## Summary of Findings

Studies are summarised in turn within this section. However, several matters that pertained to all studies are first highlighted here. None of the studies reviewed adequately considered possible adverse effects (Mak et al., 2016). This is likely to be because there is very little indication of negative impact from WRAP (Pratt et al., 2013). Quality was not downgraded for any study on this basis. Nor were studies downgraded for their widespread use of self-report measures, which could have been susceptible to response biases, such as, social desirability bias, or interviewer bias (Fukui et al., 2011). However, difficulties with how all studies struggled to make clear how those who took part compared to the wider sample from which they had volunteered and the universally small geographic scale of studies were considered serious. Therefore each studies rating for external validity was reduced to at least a moderate level. It was also of note that the general non-blinding of participants and researchers to the WRAP intervention could have caused an overestimation of effects. Additionally, all the studies lacked active control for factors such as participant contact with other people.

For the purposes of the following critique studies have been grouped by their research design into the categories: randomised control trials, quasi-experimental studies and pre and post evaluations. Table V provides an overview of the outcome measures used by the studies reviewed.

## Randomised Control Trials (RCTs)

Double blind randomised control trials are widely considered to be the gold standard

research design with limited susceptibility to bias in testing the effectiveness of interventions. No WRAP studies were designed in this way because WRAP is a branded intervention and therefore participants cannot both attend WRAP and be blind to it. As a next best alternative, single blind RCT designs have been used. This is where only the researchers administering questionnaires and managing the data were blind to whether participants had been in the intervention or control group. Three WRAP studies were of single blind RCT design and a total of 5 journal articles have been published from their full results. Cook et al. (2012a, 2012b) and Jonikas et al. (2013) all reported findings from the same RCT that took place across 6 sites in Ohio. These studies report on the largest sample tested (n: 519) in the WRAP evidence base and were highly rated in quality and validity. All these studies reported pre/post results as well as follow up results 8 months after baseline.

Cook et al. (2012a) reported on the mental health outcomes of WRAP well by using widely accepted and validated measures. They found statistically significant reductions in anxiety and depression and improvements in participants' self-perceived recovery over time in comparison to the waiting list control group. However, only the anxiety and depression subscales of the Brief Symptom Inventory (BSI) were reported with 7 further subscales absent (Derogatis L. R., 1993).

Cook et al. (2012b) reported the BSI more fully including its global severity index score and positive symptom score. They found that WRAP reduces symptoms and improves hopefulness and quality of life. They also found little difference between those who had received WRAP and the treatment as usual control group's self-perceived ability to make successful action plans. This suggests whilst WRAP improves confidence, people need further

scaffolding to rebuild their lives in the community (Cook et al., 2012b). They went on to outline the need for further exploratory work to investigate the inner workings of the WRAP intervention.

Jonikas et al. (2013) added to the reported findings of the RCT by revealing the initial inclusion of a measure of self-advocacy that was analysed in relation to the other previously reported positive outcomes. They found that after WRAP and at follow up participants reported engaging in self-advocacy significantly more. Higher self-advocacy was also associated with greater hopefulness, better environmental quality of life, and fewer psychiatric symptoms (Jonikas et al., 2013).

In considering the internal validity of these studies the research teams blinding appeared to have been successful. The few occasions when participants did indicate whether or not they had received WRAP to the research team this was reported (Cook et al., 2012a; 2012b; Jonikas et al., 2013). This group of studies was rated to have guarded against selection bias to a high level in their participant assignment and single blinding procedures. However, multiple articles reporting the data from the same trial makes it hard to decipher what the initial hypotheses actually were. Only Jonikas et al. (2013) was transparent about reporting additional findings from the same RCT. The risk of data dredging, or at least, multiple hypothesis testing was therefore considered to be a serious weakness and internal validity was reduced to a moderate level. Cook et al. (2012b) also inadequately reported the validity of measures, but this was not considered serious enough to warrant a further reduction. A further non serious limitation was highlighted by Cook et al. (2012a) in their use of a waiting list control group rather than a control group receiving a comparable intervention, which

they went on to address in their subsequent work.

In the second RCT conducted, Cook et al. (2013) focussed on service use in community mental health settings in Chicago where 147 participants were assigned to either WRAP or a nutrition and wellness education programme. This study was of high quality and addressed mental health outcomes by examining service use. Unfortunatley, despite having measured the Brief Symptom Inventory (BSI) and Recovery Assessment Scale (RAS), they failed to adequately report the results. They merely stated there had been a reduction in the BSI and improvements in the RAS. This omission was considered serious enough to reduce the results section rating to moderate. This studies internal validity was still considered to be high for the service use findings that were reported and the study maintained its high rating for its management of selection and its randomisation procedures.

The final RCT design took place in Ireland as reported in the article by O'Keeffe et al. (2016). They sought to evaluate the effect of WRAP on personal recovery, quality of life, and self-reported psychiatric symptoms versus a treatment as usual control group. A wealth of novel measures that were robust and well validated were used and the study was considered highly relevant to this review. O'Keeffe et al. (2016) found improvement across a range of measures, but these were not significant, with the exception of very positive changes in "identity and self-esteem" and "addictive behaviour". The study also identified a decline in WRAP participants rating of their relationships over time. The main weakness of this study, was its number of participants (n: 36), which resulted in low power to detect effects. The statistical analysis rating was therefore reduced to moderate. Like the other RCTs, this study also conducted follow-up assessments, however, in this case these were not blinded. Only the

experimental WRAP group undertook follow up measures as it was considered unnecessary, for control participants to wait an additional six months, before receiving WRAP themselves. O'Keeffe et al. (2016) used mental health professionals trained by the Copeland Center as facilitators and unlike in other studies reported here (unless otherwise stated) they were not service users themselves. This in combination with it being the facilitators' first time delivering WRAP caused serious concern about the WRAP delivery reducing the studies internal validity rating to a moderate level. The rating for the studies management of selection bias was also reduced to moderate. This was due to the lack of clarity regarding the randomisation procedures and how possible confounding factors within the sample were handled. The studies external validity was reduced to a low level given the especially small sample of volunteers who took part, which limits the generalisability of the study's findings.

### Quasi-experimental Designs

Fukui et al. (2011) used a matched comparison group design in a single Midwestern state in the US with 114 participants. This articles reporting was of high quality. Fukui et al. (2011) highlighted significant effects found in symptom reduction and improvements in hope. One of the other findings of interest was the non-significant change in participant level of recovery as measured by the Recovery Markers Questionnaire (RMQ). However, the article highlights the limited information pertaining to the RMQ construct validity and also reported a low Cronbach's alpha of .69 for the measure (Fukui et al., 2011). Some RMQ questions are about tangible changes, such as differences in accommodation and employment (which are not treatment targets of WRAP). This suggests it may not be as good a fit as some other measures of recovery to detect mental health outcomes in this area. In addition, Fukui et al. (2011) considered the RMQ to have been affected by inadequate statistical power to detect change and subsequently this paper's statistical analysis rating was reduced to moderate.

Table V. Overview of outcome measures

| Study | Recovery | | | Hope | Symptoms | | | Various other measures | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Recovery Assessment Scale (RAS) | Recovery Markers Questionnaire (RMQ) | Other measure of recovery | The State Hope Scale (HS) | Brief Symptom Inventory (BSI) | Modified Colorado Symptom Index (MCSI) | Other measure of symptoms | Quality of life | Empowerment | Confidence | Other mental health outcome† |
| Doughty et al. (2008) | | | ✓ | | | | | | | | |
| Cook et al. (2009) | ✓ | | | ✓ | ✓ | | | | ✓ | | ✓ |
| Cook et al. (2010) | | | ✓ | | | | | | | | |
| Starnino et al. (2010) | | ✓ | | ✓ | | ✓ | | | | | |
| Fukui et al. (2011) | | ✓ | | ✓ | | ✓ | | | | | |
| Cook et al. (2012a) | ✓ | | | | ✓ | | | | | | |
| Cook et al. (2012b) | | | | ✓ | ✓ | | | ✓ | | | |
| Gillard et al. (2012) | | | | | | | | ✓ | ✓ | ✓ | ✓ |
| Higgins et al. (2012) | | | ✓ | | | | | | | ✓ | |
| Cook et al. (2013) | ✓ | | | | ✓ | | | | | | ✓ |
| Jonikas et al. (2013) | | | | ✓ | ✓ | | | ✓ | | | ✓ |
| Pratt et al. (2013) | ✓ | | | | | | | | | | ✓ |
| O'Keeffe et al. (2016) | | | ✓ | | | | ✓ | ✓ | | | ✓ |
| Mak et al. (2016) | | ✓ | | ✓ | | ✓ | | | ✓ | | ✓ |

†Other mental health outcomes included the Warwick - Edinburgh Mental Well-being Scale (WEMWBS, Tennant et al., 2007), Patient Self Advocacy Scale (PSAS, Brashers et al., 1999), and measures of physical health, stigma, social support and service use. Note: RAS from Corrigan et al. (1999), RMQ from Ridgway & Press, (2004) HS from Snyder et al. (1991), BSI from Derogatis (1993), and MCSI from Conrad et al. (2001).

This study's transparent methods, good use of a comparison group, description of analysis and effort to control for sufficient exposure to WRAP were positive. However given the RMQ's questionable suitability, validity, consistency and reliability, and the quasi-experimental design, this was serious enough to reduce the studies internal validity to a moderate level. The potential for selection bias was also rated as moderate as the potential participants for the comparison group were selected by case managers in a way that could have led to bias. There was also a potentially confounding difficulty in the variability of methods of data collection. This was where the mail and interview methods were used which were acknowledged by the author to be susceptible to bias (Fukui et al., 2011).

Gillard et al. (2012) report on a quasi-experimental design in their mixed methods study that was quality rated as being of a low level. The study's interest in WRAP stemmed from its aim to consider policy implementation in relation to mental health self-care in the UK, which was considerably different to our reviews aim. However, the article does consider WRAP within self-care promotion and evaluates it describing outcomes of 120 participants who were split into three cohorts, one of which was a WRAP group (Gillard et al., 2011). They found modest statistical outcomes for improvements in quality of life, empowerment and mental health confidence as well as a decrease in A&E attendees. The paper frames its findings in regards to the high average service use time of 15 years. Unfortunately, the WRAP intervention is not described in detail with regard to duration or quality of facilitation and this is considered to be of a very serious nature reducing the article's intervention quality rating to low. The statistical analysis used by Gillard et al. (2012) was underpowered to detect an effect in the WRAP intervention group. They accounted for this by combining different groups of participants, including a personality disorder self-management group from London, the WRAP attendees from south England and individuals from a mental health community arts

project in the north of England and analysing their outcomes together. This affected the study's validity. This was also considered to be a very serious limitation of the statistical analysis, which was rated as low for being inappropriate and not accounting for potentially confounding factors within the participant groups. This also consequentially demonstrated the study's low ability to guard against selection bias with this being considered very seriously limited. The external validity in the Gillard et al. (2012) study was also considered to be very seriously limited and was rated at a low level. Whilst participants were recruited from 3 places, it was unclear how these locations were selected or if the services offered were representative of other places. For example, it is known that WRAP and peer support approaches are much more developed in the area researched, than in other regions of the UK. Internal validity was equally low, it was judged serious that neither the time of year when the different interventions were run, or when data was collected, were provided. It was also considered serious that reliability and validity of measures had not been adequately reported.

Mak et al. (2016) examined the effectiveness of WRAP on mental health outcomes for a group of 59 Chinese participants in Hong Kong that were quasi-experimentally matched with controls. They found WRAP participants reported significant increase in perceived social support, but no significant change was noted in empowerment, hope, self-stigma, social network size, symptom severity or recovery. They also used the RMQ as previously discussed in summarising Fukui et al. (2011). However, Mak et al. (2016) used a translated version alongside several other measures to assess the impact of WRAP on mental health in a broad way. Their limited findings were mostly attributed to cultural differences within the eastern culture, which they suggested was more socially driven and less individualistic with better cultural adaption of WRAP required (Mak et al. 2016). However, there was a high severity of

symptoms (50% diagnosed with schizophrenia) and duration of illness (17 years) within the studies participants. This along with the workshops not being peer led, but delivered by Copeland Center trained mental health staff, could have also potentially accounted for the low levels of effectiveness found. Mak et al. (2016) suggested that it would have been beneficial to have had peers delivering the training. The limitation of not using peers or randomisation in their design was serious and its internal validity was reduced to moderate accordingly. The study's efforts to guard against selection bias was also reduced to moderate, due to a lack of randomisation. The study made a good effort to account for potential confounders in the matched controls by using appropriate statistics to test for any significant effects between the WRAP participation group and the matched cohort pre intervention.

### Pre and Post Evaluations

The first WRAP evaluation summarised is the brief report by Cook et al. (2009). They shared preliminary results from their larger ongoing RCT (Cook et al., 2012a; 2012b; Jonikas et al., 2013) and reported a pre and post analysis of 80 initial participants using *t*-tests to indicate some good preliminary outcomes for WRAP. They found statistically significant decreases in symptoms and significant increases in recovery, hopefulness, social support and physical health. Scores on the Patient Self-Advocacy Scale (PSAS) also indicated improvement. However, significant decreases were observed in participants' empowerment.

A weakness of the Cook et al.'s (2009) evaluation was that no main aim or hypothesis is formally stated with the paper more evaluative and exploratory in nature. The outcome measures were also inadequately described and this was considered a very serious limitation, with the paper's quality rated low in this area accordingly. This paper's use of statistics was rated as moderate due to its lacking both full *p* values and details of the analytic methods

used. Its internal validity and selection bias quality areas were rated as moderate due to the lack of clarity in design described, whilst it is likely that this may have been higher, given the good design reported in later papers following up from this study (e.g. Cook et al., 2012a; 2012b; Jonikas et al., 2013). It is also of note that this study, along with those that followed up, all listed the developer of WRAP as a co-author. This could have effected these studies level of investment in finding positive outcomes.

Cook et al. (2010) combined two previously unpublished evaluations of WRAP by Vermont Psychiatric Survivors Inc. (2000) and Buffington (2003) in their article. Cook et al. (2010) did this to develop the evidence base for WRAP at a time when there was little published. The two evaluations involved 381 participants in total, however not all these participants completed both pre and post measures. Both studies found significant increases in hope, personal responsibility, social support and self-management after WRAP. In addition the Vermont evaluation described decreased difficulty in accessing information and improvements in support preferences, whereas the Minnesota study, reported better participant medication management, recovery lifestyles and less difficulty in promoting recovery (Cook et al. 2010). Whilst this article's findings were an important development for the evidence base, the overall quality of the research was considered to be low. The comparability of subjects within this study was rated as very low, due to several seriously limiting factors. These factors include participants lost to follow up not being described, potential confounders not being explored and the studies combined being from different times and places without adequate control. Subsequently the study's guarding against selection bias was also rated as low. The quality rating given to the outcome measures used was also reduced, but to a moderate level due to missing detail in the introduction of the measures, and discrepancies in the measures. The Vermont evaluation used a Likert scale

whereas the Minnesota participants answered slightly adapted questions dichotomously (yes/no). A strength of this study was its consideration of WRAP outcomes more broadly than in just one state, and with bigger samples than some other studies comparatively improving its external validity. The internal validity of the study was rated as low due to the poor design and the issues with measurement previously mentioned.

The Doughty et al. (2008) evaluation was a publication developed from the university report of McIntyre (2005). McIntyre's (2005) report had been more concerned with the development of the Beliefs about Recovery and WRAP questionnaire (WRAP beliefs), whereas, Doughty et al. (2008) focussed on comparing mental health consumer's to mental health practitioners and the effect WRAP had on altering their knowledge and attitudes about recovery. Using their sample of 187 participants they found WRAP to have a significant effect on participants' knowledge and attitudes about recovery. However, characteristics of the participants were not described in detail. Only their age, location and status as either a mental health practitioner or consumer were described. This seriously reduced the comparability of subjects rating to Low. This article's external validity was also rated as low due to this study's additionally limited recruitment from specifically targeted areas of New Zealand. This increased the likelihood of participants being those that were motivated to change. Internal validity was rated as moderate based on the simplistic design that does not use any type of randomisation or comparators to address potential bias. The study's guarding against selection bias was also considered to be low given the possible motivation of volunteers and the lack of participant demographic information.

Higgins et al. (2012) also reported on an evaluative pre and post design with a relevant

sample of 197 participants made up from service users, mental health professionals and carers. They found evidence that WRAP changes knowledge, attitudes and beliefs about recovery, and increases participants' confidence in managing mental health. This study's quality ratings were moderate and high. However, there were several areas where it could have been better. For example, the educational level of participants could have been included as this could have affected participant ability to engage with WRAP as an educational initiative. For this reason, as well as the article's failure to address potential confounding factors in the study population, comparability of subjects and the guarding against selection bias quality areas were reduced to moderate. The study's internal validity was also rated as moderate due to its evaluative design and an issue with the Recovery Knowledge Scale, which, due to its inability to discriminate adequately between higher levels of recovery knowledge was considered inadequate.

Pratt et al. (2013) conducted a small (*n*: 21) mixed methods study that found support for the wellness and recovery benefits of WRAP. Whilst this study used good quality measures, it was both underpowered and potentially confounded due to only including ratings for those who completed the intervention. A relative strength in this study was that the study did take place across four different sites in Scotland. However, both the study population and comparability of subjects was rated as low due to the serious lack of participant demographic information. Statistical analysis was also rated as low given the lack of statistical power and the failure to analyse the results in a way that could test for significance. Internal validity and selection bias were both considered to be moderate given the design was absent of any type of blinding, the voluntary nature of recruitment and the absence of any attempt to deal with potentially confounding factors within the participants.

Starnino et al. (2010) reported a pre and post cohort study that was the pilot study for Fukui et al. (2011) summarised earlier. It aimed to assess the impact of WRAP to achieve key recovery outcomes. Whilst limited in its small sample of 30 participants it evidenced WRAP has a positive effect on self-reported hope and recovery and suggested some improvement in symptoms. It was of note that this was the only study in this review that used the previously discussed RMQ and found statistically significant improvements. With regard to quality, this research was mostly rated as high across the areas assessed for quality. A key strength of this study's analysis was how it addressed the issue of comparing those who dropped out against those who did not. However, as there was no randomisation in the pre and post design internal validity was reduced to a moderate level. Guarding against selection bias was also rated as moderate, due to the high likelihood of confounding factors in such a small sample.

## Discussion

The results of moderate to high quality studies found WRAP significantly improved hope and reduced symptoms for service users. Whereas, the results for personal recovery were more mixed and its status as an outcome for service users remains unclear. Evidence of varied quality found that increased knowledge, attitudes and beliefs about recovery, along with better confidence in managing mental health were likely WRAP outcomes. This was for a range of participants including mental health practitioners, carers, family members and service users. Additionally, it is likely improved quality of life is an outcomes of WRAP for service users. There were also promising preliminary findings for service use and self-advocacy and risks were highlighted that WRAP could possibly be disempowering, or harmful to service user relationships.

### Hope

Hope is closely conceptually linked to recovery (Copeland, 1997; Leamy et al. 2011) and after recovery it was the most popularly tested for mental health outcome. The studies that measured hope were rated as being of moderate to high quality throughout their quality criteria. Hope has also been consistently measured in the evidence base by a good quality measure (HS). Therefore we can have strength in our confidence that hope is an outcome of WRAP. The variance in the size of hope improvements means we are less sure how much WRAP improves hope. Although, even small gains in this area are important (Berg et al., 2008). In WRAP, hope is considered to be inspired by the use of peer support in facilitation (MacGregor et al., 2014) which is considered key (Mead and Copeland, 2004). The evidence reviewed above found that where peer facilitators were not used, the changes in hope were either non-significant or were less significant than in other studies. This supports the idea that peer support is key in WRAP developing hope. This justifies the centrality of hope and

peer support in the theory of WRAP.

### Symptom Reduction

Copeland, (2002) purports symptom reduction to be one of the main benefits of WRAP. Of the evidence reviewed here, 9 studies measured symptoms and only 2 studies did not find a significant reduction. One of these studies, set in Hong Kong, sighted cultural difficulties (Mak et al. 2016) and the other found a reduction, but just below significance ($p$ = .056, Starnino et al., 2010). The studies that found significant reductions had the overwhelming majority of their quality ratings at a moderate or high level. There was also good consistency in their use, of at least one of the two well validated main symptom measures, used in the WRAP evidence base (BSI & MCSI). This review subsequently considers, the evidence in favour of WRAP reducing symptoms, to be strong. Furthermore, there were indications that symptom reduction also increased over time (Cook et al., 2012a) and with greater exposure to WRAP (Cook et al., 2012b). Therefore, Copeland's claim that WRAP causes symptom reduction, appears correct.

### Personal Recovery

Slade et al. (2014) state WRAP is a key technology of recovery, yet surprisingly, the evidence for improvements in participants' personal levels of recovery is unclear. Whilst one RCT with many quality areas rated at high, (Cook et al. 2012a) found a significant increase in recovery, this is not well supported by the other studies that reported recovery outcomes. Therefore, there is a lack of certainty in recovery as an outcome of WRAP. This could be because of the difficulties in theoretically defining recovery (Sklar et al., 2013) and measuring it in a consistent way (Higgins et al., 2012). In the evidence reviewed, there were difficulties due to weak statistical power and the frequent use of the RMQ; a measure poorly matched to

WRAP, which has poor theoretical support (Fukui et al., 2011). In contrast, Shanks et al. (2013) who reviewed measures of recovery highlighted the RAS measure to be the most popularly used and to be amongst the best fit to the CHIME framework. In the evidence reviewed, the RAS also, always found increases in participants' level of recovery. The WRAP intervention provides a good example of how the difficulties in measuring recovery is consequential for recovery technologies.

### Knowledge, Attitudes and Beliefs about Recovery

Two studies of varying quality and rated as having low (Doughty et al., 2008) and moderate (Higgins et al., 2012) external validity examined WRAP knowledge, attitudes and beliefs. These two studies differed from the others in the review because in addition to service users they included mental health staff, carers and family member's outcomes after WRAP. The studies found unequivocal improvements across all participant types in their knowledge attitudes and beliefs about recovery. Their outcomes had good statistical power and occurred across cultures with one study from Ireland and the other New Zealand. However due to the few times knowledge attitudes and beliefs about recovery has been explored, and those studies having been of varied quality, this can only be said to be a likely outcome of WRAP. Yet, due to the prevalent importance of recovery orientated care (NHS England 2016; The Scottish Government, 2017) WRAP is still increasingly used to target participants' recovery orientation, despite the limited evidence base.

### Confidence

Participants' confidence in managing mental health was noted to increase by two studies. However, analysis was of low quality in one paper (Gillard et al. 2012) and whilst in the other (Higgins et al., 2012) quality of analysis was rated as high, the outcome was reported in a

secondary way and was for mixed participants including service users, mental health practitioners, carers and family members. However, increases in confidence in managing mental health is still indicated to be a likely outcome, but it is an outcome of unknown proportion.

### Quality of Life

Quality of life is a good theoretical fit with WRAP given its focus on reducing and resolving difficulties, helping people to stay healthy and living their life well (Copeland, 2002). The best evidence in support of quality of life came from O'Keeffe et al.'s (2016) study that was mostly rated as moderate to high quality, as well as, Cook et al.'s (2012b) study, which was almost all rated as high quality. Both studies found significant increases in quality of life using a high quality measure (WHOQOL-BREF). Therefore the evidence suggests there is improvement in quality of life due to WRAP. However, in part due to one study's issues with statistical power, we can only be confident in quality of life being a likely outcome of WRAP, and its strength as an outcome is uncertain.

### Other Outcomes

In a largely high quality study Cook et al. (2013) reported significantly greater reduction in service use over time compared to a nutrition and wellness education control group. This indicates WRAP could help provide effective low cost services that reduce demand. This is of note as WRAP has also been previously found to be an effective (WSIP, 2014), and low cost intervention (Results First, 2015). Jonikas et al. (2013) focussed on self-advocacy as an outcome of WRAP in a mostly high quality study and found it to be a significant outcome. A strength of this finding is that it theoretically fits the WRAP concept of self-advocacy well.

Whilst there was an indication of improvements in social support in studies of very varied levels of quality, O'Keefe et al. (2016) found a non-significant decrease in relationships. This is unusual. It could be the case that the way WRAP attendees are encouraged to stand up for their rights and reclaim their personal responsibility could adversely affect their relationships. There is also doubt about whether WRAP is empowering. Studies of various quality that have tried to measure empowerment have failed to find significant effects for it (Mak et al. 2016; Gillard et al. 2015). Cook et al.'s (2009) mostly moderate to high quality study also found a significant decrease in empowerment. Perhaps if the WRAP facilitators are empowered by delivering WRAP (Higgins et al., 2012; Pratt et al., 2013; Keogh et al., 2014) this may unwittingly have a disempowering effect on the participants through psychodynamic counter transference or via social comparison.

**Limitations of WRAP**

WRAP benefits have been found across western culture as evidenced by studies from the USA, New Zealand, UK and Ireland. However the benefits of WRAP do not seem to transcend into eastern culture due to its focus on individualism (Mak et al., 2016). This suggests there may be limits to WRAP's good applicability. Poor model fidelity could also be a limitation of WRAP. Whilst some organisations (e.g., Scottish Recovery Network) have developed systems of accreditation to protect model delivery standards, there is a risk of those without proper training in WRAP, delivering the intervention. There is also a risk that recruiting facilitators on the basis of lived experience of mental health challenges, rather than professional competencies, may mean they are less well equipped to stay true to the WRAP model. Additionally, the qualitatively reported life changing benefits and favourable outcomes of WRAP (Gordon & Cassidy; MacGregor et al. 2014; Keogh et al., 2014) appear excessive comparatively to the statistical results reviewed. WRAP could be particularly susceptible to

social desirability in qualitative reports, due to the personal information shared by those running the course. This could leave participants feeling socially obligated not to respond negatively.

### Limitations of Review

This review had several limitations. Firstly, it did not consider the qualitative evidence base for WRAP. Qualitative methods are also often used to study recovery due to the individual nature of personal recovery definitions and difficulties with its measurement. Therefore there may be further outcomes of WRAP indicated by the qualitative evidence base that are not reflected in this review. Secondly, there was a large degree of subjectivity in the quality assessment and rating. Despite good inter-rater reliability this detracts from the validity of our findings. Thirdly, the rating tool we used did not issue a final overall mark or statement as to the strength of each piece of research. This was because it was decided that a simplistic overall rating of strong or weak would not adequately reflect the intricacies of the evidence. However, offering a definitive rating for each study may have proved more straightforward making findings simpler to interpret. Finally, some of main outcomes of WRAP considered could be combined in meta-analysis and this could have provided a better indication as to the strength of some of the outcomes considered.

### Future Research

More research is needed to substantiate if knowledge, attitudes and beliefs about recovery is well targeted by WRAP. This is especially the case as mental health services seek to continually improve their recovery orientation. Interestingly, the relationship between knowledge, attitudes and beliefs about recovery and personal levels of recovery could also be explored. This could help satisfy the unmet need of better understanding the underlying

mechanisms between WRAP and personal recovery (Cook et al., 2013).

In addition, there is a need for more studies to focus on WRAP. Areas indicated to be susceptible to enquiry could include examining the importance of peer support within the intervention, better quantifying the size of the mental health outcomes or exploring the importance of problem solving skills in WRAP. It is also important to continue to identify the way in which new constructs relate to recovery. Especially as our scientific understanding of what helps people cope has continued to improve since the development of WRAP. For example, in the field of contextual behavioural science, increasing psychological flexibility through processes such as cognitive defusion, would be considered likely to be important in recovery. Yet this remains untested. However, future studies should also exercise caution in their selection of adequate measures when exploring recovery (see Shanks et al., 2013). On the basis of the evidence reviewed here, future WRAP studies should specifically consider using the RAS measure and should avoid using the RMQ.

What is clearly missing from the evidence base in relation to WRAP is a further RCT and there have been many calls for this (Cook et al., 2012a; Fukui et al., 2011; Pratt et al., 2013; Starnino et al., 2010). A further RCT could help clarify if personal recovery is an outcome of WRAP and possibly confirm its hope improving and symptom reducing benefits. It could also establish whether confidence in managing mental health and quality of life are robust WRAP outcomes.

Future studies should also consider the cost effectiveness of WRAP, how well it can meet service demand and its effect on subsequent service use. It would be good to know this information within the UK context where the intervention is popularly used despite a paucity

of any UK quantitative evidence for its efficacy. Evidence suggests future studies should also consider possible disempowerment and negative effects on relationships following WRAP.

## Conclusion

This review provides a first overarching outline of the mental health outcomes from WRAP. It usefully found with good certainty that WRAP reduces symptoms and increases hope. Peer support was also found to be potentially key in developing hope. Increased confidence in managing mental health and improved quality of life are also likely outcomes of WRAP. Collated evidence suggests WRAP may be used to improve recovery orientation, however there is doubt about how WRAP affects personal recovery. Based upon this study's new and unique understanding of WRAP's mental health outcomes it subsequently specified good quality guidance and recommendations for future research and practice.

## Relevance for Clinical Practice

This review clarifies the mental health outcomes of WRAP which are important In considering WRAP delivery. Based on the outcomes above WRAP appears best suited to helping people improve their mental health or change their knowledge, attitudes and beliefs about mental health to be more recovery orientated. Whilst WRAP has very good early evidence of outcomes for recovery orientation, services and facilitators should also be cautious in how they approach using the intervention on this basis. This is not what WRAP was initially designed to do. Facilitators are therefore urged to insure that those undertaking to attend a WRAP workshop are doing so for themselves and voluntarily. This is because studies that showed positive changes in recovery orientation all used volunteers, who were likely to be positively orientated to recovery prior to attending workshops. They would also have been more amenable to improving their recovery orientation further.

In clinical practice, WRAP should be promoted by advertising its hope improvement and symptom reducing benefits. It would also be more accurate to describe it to improve knowledge, attitudes and beliefs about recovery, rather than improving actual personal levels of recovery. In measuring the impact of WRAP our study considers measures of hope (such as HS, Snyder et al., 1996) to be the best suited outcome measures. The use of symptom measures would also be warranted. There is also good preliminary evidence for a WRAP specific measure of knowledge, attitudes and beliefs about recovery (WRAP beliefs), as developed by Doughty et al. (2008).

Peer facilitators delivering WRAP seems to be a key element to helping those taking part to foster hope. In the future WRAP should be delivered using peer facilitators wherever possible. WRAP facilitators also need a good degree of insight, social awareness and the capability to manage potentially complex groups of people. Those delivering WRAP should also take extra care in how they approach discussing relationships. Whilst WRAP encourages people to speak up for themselves and advocate for their rights in their relationships, it is important to emphasise how precious relationships are too. This needs to be prioritised in WRAP delivery throughout. Facilitators should also exercise care and caution in how they present themselves as being recovered, bearing in mind how this could disempower others that are not recovered, or who think they cannot recover. The way peers share their experiences should also be given special attention in facilitator training and practice, bearing in mind, how this links WRAP to improved hope.

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# Chapter 2: Empirical Study

## Social Problem Solving, Cognitive Defusion and Social Identification in Wellness Recovery Action Planning.

(Written according to the author guidelines of The Psychiatric Rehabilitation Journal, see Appendix 3)

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## Abstract

*Objective:* The purpose of this study was to examine the relationship between a mental illness self-management intervention, called Wellness Recovery Action Planning (WRAP), and levels of mental health recovery. The three constructs of social problem solving, cognitive defusion and social identification were explored in relation to WRAP and Recovery. *Method:* Participants were recruited on a trans-diagnostic basis from across Scotland. Using a quantitative cross sectional design, 109 participants completed 5 self-report questionnaires. These were the Knowledge, Attitudes and Beliefs about WRAP Questionnaire (WRAP beliefs), the Recovery Assessment Scale – Short (RAS-S), the Social Problem Solving Inventory - Revised - Short (SPSI-R-S), the Four Item Measure of Social Identification (FISI) and the Cognitive Fusion Questionnaire (CFQ). Correlation, linear regression and mediation analysis was used to explore relationships, and in particular, predictors and mediators of recovery in people who have completed WRAP. *Results:* WRAP beliefs, social problem solving and cognitive defusion were found to be predictors of recovery. Mediation analysis also indicated that, social problem solving mediated the relationships between WRAP beliefs and recovery. A selection of social problem solving subscales were also mediators. Social identification with the WRAP group did not significantly predict or mediate recovery, but was significantly correlated with recovery. *Conclusions and Implications for Practice*: Improving the social problem solving of participants should be specifically targeted in WRAP delivery. Cognitive defusion techniques could also be integrated into WRAP. Future research should further effects within key technologies of recovery to help develop the way recovery is theoretically understood.

## Introduction

Recovery from mental health illness is promoted globally and in modern times it has a new meaning (World Health Organisation, 2016). Recovery is the unique individually defined experience of focussing on personal strengths and living life with, or without, symptoms of mental illness (Scottish Recovery Network, 2018). Recovery was definitively reviewed by Leamy, Bird, Le Boutillier, Williams, and Slade (2011) who set out a conceptual framework known by the acronym CHIME. CHIME is multidimensional and identifies recovery to happen through the five components of connectedness, hope, identity, meaning in life and, empowerment.

Ten key interventions support recovery by targeting the components of the CHIME framework (Slade et al., 2014). Two of these are similar mental illness self-management interventions. In Illness Management and Recovery (IMR), mental health staff teach problem solving, symptom management, goal setting and how to develop support systems (Gingerich & Mueser, 2005). IMR has been found to decrease symptoms and increase hope, recovery, functioning and knowledge about mental health (Hssson-Ohayon & Kravetz, 2007; Mueser et al., 2002; Salyers et al., 2009). However IMR has not been promoted in Scotland. Instead there has been governmental support for the peer led Wellness Recovery Action Planning (WRAP, Copeland, 1997). In Scotland, WRAP is facilitated by Scottish Recovery Network (SRN) accredited experts who use their lived experience of mental health issues, emphasising the expertise everyone has on their own experience, to help people recover. WRAP is different from IMR in the way it openly discusses recovery concepts rather than focussing on practical recovery strategies. WRAP also has stronger focus on wellbeing and personal rights compared to IMR, which is more focussed on mental health psychoeducation, medication management and drug and alcohol use. Both interventions are concerned with developing

better ways to cope and with planning what to do in advance of challenging times.

**WRAP**

Internationally, WRAP is the most widely used program promoting mental health recovery (Copeland, 2002; Fukui et al., 2011; Gillard et al., 2012; Sterling, von Esenwein, Tucker, Fricks, & Druss, 2010). It has a mutual and empathic approach (Cook, Copeland, Floyd et al., 2012; Starnino et al., 2010) that encourages both staff and service users alike to consider their own mental health and wellbeing (Doughty, Tse, Duncan, & McIntyre, 2008; Higgins et al., 2012). WRAP's holistic nature means many types of people, including the peer facilitators have undergone WRAP training. A basic tenet of WRAP, is that everyone who undertakes to attend a WRAP workshop, must approach it with helping their own mental wellbeing in mind. This study therefore elected to recruit trans-diagnostically and various types of participants, inclusive of WRAP facilitators, were recruited to reflect the reality of those who actually take part in the WRAP workshops.

WRAP supports people to explore 5 key concepts of recovery including hope, personal responsibility, education, self-advocacy and support. It also provides a structure to deal with challenging times by promoting pre-emptive action planning, focussing on wellbeing and increasing self-awareness. WRAP consists of identifying personal wellness tools to use day to day; daily maintenance planning to record what it's like to be well, what needs to be done and personal goals; recognising triggers, warning signs and signs things are breaking down; creating action plans, crises planning and post crises planning. The approach fits well with the Scottish Government's (2017) mental health strategy (action point 25), which is concerned with developing more accessible psychological self-help resources. WRAP workshops are also an efficient and relatively low cost way to improve service provision and

help meet targets (Results First, 2016; Washington State Institute for Public Policy 2014).

The first large multi-site, randomised control trial (RCT) in the USA evidenced WRAP's positive effect on recovery, hope and symptom reduction. (Cook, Copeland, Floyd et al., 2012; Cook, Copeland, Jonikas et al., 2012). However, several other studies found WRAP not to significantly improve recovery compared to treatment as usual control groups (Fukui et al., 2011; Mak et al., 2016; O'Keeffe et al., 2016). These studies measured tangible changes such as employment in assessing recovery. This is a poor theoretical fit with WRAP, as it suggests a society defined rubric of recovery (e.g. employment). In contrast to the studies that assess employment, the evidence base regarding WRAP's hope improving and symptom reducing benefits is strong and unequivocal (Cook et al., 2009; Jonikas et al., 2013; Starnino et al., 2010). WRAP emphasises an individualised approach to the meaning of recovery, and therefore an individual's recovery beliefs may be a more suitable treatment target or rubric of a successful recovery outcome.

**WRAP Beliefs**

This study considers WRAP beliefs to be the knowledge, attitudes and beliefs people hold about WRAP (Doughty et al., 2008; Higgins et al., 2012). These WRAP beliefs are not exclusive to service users, and extend to others such as mental health staff, carers and family members. WRAP beliefs therefore fit well with the WRAP ethos, that WRAP can be helpful for everyone's mental health. Many organisations and services use WRAP to target peoples WRAP beliefs and to help mental health services become more recovery orientated (Implementing Recovery through Organisational Change, 2018).

The studies that have explored WRAP beliefs have found improvements across a range of

participant types in their knowledge, attitudes and beliefs about recovery after WRAP (Doughty et al., 2008; Higgins et al., 2012). On this basis it can be seen that WRAP beliefs can also be considered a primary treatment target of WRAP in addition to its other benefit's. However to date relatively little is known about WRAP beliefs in relation to the work that has been done into its other outcomes.

More research is needed to substantiate if knowledge, attitudes and beliefs about recovery are well targeted by WRAP as preliminary evidence has suggested. It is also of interest how WRAP beliefs may relate to levels of personal recovery and which of many potential psychological factors may affect this relationship. This paper considers the factors of social problem solving skills; needed to apply WRAP beliefs to daily living, cognitive defusion; which like WRAP beliefs helps people carry on towards recovery whilst getting less stuck on their inner difficulties, and social identification; which is likely to impact the value participants place on their WRAP experience and the WRAP beliefs they develop. By considering how factors like these may affect the relationship between WRAP beliefs and recovery this can help satisfy the unmet need of better understanding the underlying mechanisms between WRAP beliefs and personal recovery (Cook et al., 2013).

## Social Problem Solving

Problem solving, like WRAP, has also been found to be associated with increased hope and reduced symptoms. Biggam and Power, (2002) highlight how those in the direst circumstances have the greatest problem solving deficits, which significantly correlate with hopelessness and symptoms of distress. They found that by targeting social problem solving in treatment, this could cause significant reductions in symptoms of anxiety, depression and hopelessness (Biggam & Power, 2002). Social problem solving is pivotal to WRAP and

Copeland, (2002) describes WRAP as an intervention that is applicable to almost any problem situation. Therefore, considering social problem solving in relation to WRAP is highly important.

The theory of social problem solving outlines it to offer a way to consider the orientation, motivation and skills of people to tackle problems in their everyday lives (Nezu, A., Nezu, C., & D'Zurilla, 2013; Olivares & D'Zurilla, 1996). D'Zurilla, Nezu, & Mayeu-Olivares, (2002) describe how social problem solving theory measures problem orientation (positive and negative) and actual problem solving skills. The problem solving skills include rational problem solving, impulsivity/carelessness style and avoidance style. Sadowski, Moore, and Kelley, (1994) found these subscales to all significantly correlate with measures of positive psychological wellbeing in the expected directions. This included measures of self-esteem, life satisfaction and social skills (Sadowski et al., 1994), which would all be expected to correlate with mental health recovery. Furthermore, Chang, Yu, Kahle, Jeglic, and Hirsch, (2013) found the positive problem orientation subscale to significantly correlate with the hope scale (HS, Snyder, 1991). Symptoms across a range of clinical sample levels have also been found to have significant associations with the negative problem orientation subscale (Fergus, Valentiner, Wu, & McGrath, 2015).

Social problem solving impacts on many areas of daily life and several studies have considered its ability to mediate meaningful relationships. McMurran, Oaksford and Christopher, (2010) found it to mediate, at the level of subscales, between personality traits and personality disorders. Social problem solving has also been found to mediate the relationship between emotion control and aggression in adolescents (Kuzucu, 2016). However to date no study has considered social problem solving as a mediator in relation to

an intervention such as WRAP or a desired outcome like recovery.

## Cognitive Defusion

Cognitive defusion is a term that describes the process by which someone can untangle or 'defuse' themselves from maladaptive thoughts. This is an area targeted for change in the development of psychological flexibility where people can then be fully present to their experiences and either change or persist in their behaviours to reach the goals they value. Psychological flexibility is the theory that underlies contextual behavioural therapies that promote acceptance and mindfulness (Levin, Hildebrandt, Lillis, & Hayes, 2012). Cognitive defusion is one of the six process that are interdependent and overlapping in the development of psychological flexibility. The six processes are experiential acceptance, present moment focus, holding clear values, committing to action, being able to take different self-perspectives and cognitive defusion (Levin et al., 2012). In Accepatnce and Commitment Therapy (ACT, said as one word, not three letters; Hayes, Strosahl, & Wilson, 2011), helping people cognitively defuse is a main treatment target. Cognitive defusion has also been found to be a mediator in a number of ACT interventions. For example, Zettle, Rains and Hayes, (2011) found cognitive defusion to mediate between ACT and greater reductions in levels of self-reported depression compared to traditional CBT. As a process cognitive defusion is also likely to lead to recovery. In ACT, people with greater defusion are considered more able to choose their behaviour when faced with problems, when others may be less able to let go of their first thoughts (Gillanders et al., 2014). WRAP may also target cognitive defusion through its group processes that can highlight alternative perspectives and encourage participant sharing of ways that help people to become less stuck (Mead and Copeland, 2004).

Like ACT, WRAP also targets difficult thoughts, taking action and there is evidence it also targets the six processes of psychological flexibility. First, exercises that can lead to defusion such as relaxation and meditation are recommended in various sections of WRAP (Copeland, 2002). Second, the way attendees have greater awareness and ability to cope with negative experiences by accessing internal resources suggests WRAP may also target experiential acceptance (Higgins et al., 2012), which is shaped by facilitators who role model acceptance. Third, MacGregor, McConville, and Maxwell (2014) found after WRAP, that attendees described being more "in the moment". Fourth, WRAP explores individual values and the facilitator's role model recovery values (Pratt, MacGregor, Reid, & Given, 2010). Fifth, WRAP also inspires participants to commit to action and believe they can set and achieve goals and build a meaningful life whilst providing motivation for attitudinal and behaviour change (Cook et al., 2009; Cook, Copeland, Floyd et al., 2012; Cook, Copeland, Jonikas et al., 2012). Sixth, Higgins et al. (2012) describes the mutuality in WRAP facilitation to also help attendees to take different self-perspectives working towards a more positive valued identity, transcending stigma and illness roles.

WRAP and ACT can both be applied to a variety of physical and mental health problems. However, WRAP has been researched less in clinical contexts. Comparatively, the evidence base for ACT, shows it to have a greater evidence base with positive outcomes of good effect size (A-TJAK et al., 2014). Cognitive defusion and taking valued action is key to how ACT achieves these outcomes. This appears to fit well with how WRAP focuses on action planning and developing recovery based values. Both WRAP and ACT ultimately share the goal of supporting people to live well after mental illness. In contrast, CBT approaches still focus on symptom reduction and control.

As a process of psychological flexibility, cognitive defusion, also has known relationships with mental health improvements that are typically associated with recovery. Gloster, Klotsche, Chaker, Hummel, and Hoyer, (2012) highlight how psychological flexibility is strongly negatively correlated with anxiety, depression and stress. It also has a strong significant correlation with self-esteem (Gloster et al., 2012). Hayes, Luoma, Bond, Masuda, & Lillis, (2006) demonstrate how psychological flexibility also significantly correlates across many studies and measures of psychopathology and quality of life. This evidence suggests that by being a key part of psychological flexibility, cognitive defusion is very likely to be important in mental health recovery and subsequently targeted by recovery programs like WRAP, however this has not previously been examined. Cognitive defusion in WRAP may occur through facilitators role modelling and sharing experiences which help people learn to unhook themselves from perspectives they are stuck on and that are holding them back. In a likewise way, the powerful group experience in WRAP may help develop cognitive defusion and therefore support recovery.

**Social Identification**

In WRAP workshops, attendees particularly value the sense of social connectedness, being heard and being able to share their experiences with one another (Gordon & Cassidy, 2009; Pratt et al., 2013; Zhang et al., 2007). The powerful group experience has been considered to be transformational (MacGregor et al., 2014). The theory of social identification is therefore likely to provide a way of assessing the importance of the group dynamics in WRAP workshops and how this impacts on recovery.

Social identification is the positive emotional valuation between the self and a desired social in-group (Postmes, Haslam, & Jans, 2013). Social identification has been defined in this way

since the early 19th century (Postmes et al., 2013). The evidence in regards to social identification indicates that people tend to lowly rate their similarity in groups they perceive to have low status (Doosje, Ellemers, & Spears, 1995; Leach et al., 2008). In WRAP workshops, however, this is not the case, attendees tend to report to positively identify with their mental illness minority group. The centrality of personal experience and empowerment in WRAP groups encourages participants to make especially strong bonds (Copeland & Mead, 2000; Davidson, 2005). Cruwys et al. (2014) found social identification to moderate both recreation and psychotherapy group outcomes of reduced depression across both clinical and non-clinical samples. Their work indicates the importance of group members making meaningful bonds with one another (Cruwys et al., 2014). This is centrally considered in WRAP workshop facilitation (Higgins et al., 2012). However, Cruwys et al. (2014) also highlight the subjective and psychological nature of social identification, which limits its ability to be assessed free from bias. Additionally, social identification studies have historically been concerned with defining and measuring social identification rather than its effects. However, given the importance of WRAP group dynamics social identification provides an apt way to consider how WRAP workshops may relate to levels of recovery.

## The Current Study

WRAP has been shown to lead to many indicators of recovery such as hope, reduced symptoms, improved quality of life, enhanced confidence in managing mental health, stronger self-advocacy, lower service use and better WRAP beliefs. However, there is still a need to further understand how WRAP leads to such positive changes (Cook, Copeland and Jonikas et al., 2012), what the theoretical implications of this are for recovery, and how best to hone future WRAP delivery.

Due to the many psychological factors that might influence how WRAP may lead to recovery careful consideration was given to the factors selected for exploration in this study. Firstly WRAP beliefs were selected due to WRAP's clear links to targeting what people know, think and believe about WRAP. These WRAP beliefs, provide an indication of the amount of WRAP that has been taken on board. Secondly, given the precedence of recovery focussed studies in the WRAP evidence base and its contentious and debated status as an outcome of WRAP, recovery was also selected. Recovery provides an indication, distinct from WRAP, of a participant's personal recovery. It was considered of particular interest to see if WRAP beliefs predicted recovery and how other factors might affect this relationship. Thirdly, social problem solving was selected, ahead of other factors, as it assesses how people deal with problems, which WRAP primarily sets out to improve (Copeland, 2002), through its recovery education and action planning. Fourthly, cognitive defusion, which is key in helping people to live well after mental illness in ACT, was considered to be important in WRAP, as it takes a similar approach. WRAP may also target this through facilitator storytelling and group processes which highlight alternative perspectives (Mead and Copeland, 2004). This is where people sharing how they have learned how to let go of their own troubling inner turmoil may help others to develop the ability to unhook themselves from views that hold them back. By examining this "cognitive defusion" it also allows a first look at how this modern concept of coping relates to WRAP. Finally, social identification was selected to capture the power of peer support, which is vigorously verbally reported within the evidence base to be the most distinct factor about WRAP programs (Gordon and Cassidy 2009; MacGregor et al. 2014; Zhang et al. 2007). By examining this area we can add to the evidence in this topical area and find out whether our study finds any further evidence of the importance of peer support approaches.

The research reviewed above suggests that WRAP might achieve its recovery related effects through increasing what people know, think and believe about WRAP, through enhanced social problem-solving, increased defusion from entangled thinking and through social identification with a recovery related peer group. The current research sought to address this gap in the literature relating to potential mechanisms of change in WRAP, by exploring the constructs of WRAP beliefs, social problem solving, cognitive defusion and social identification and how they individually and collectively are associated with recovery.

The research was designed to begin exploring this area guided by correlational and regression analysis. There were also a priori hypotheses about how social problem solving, cognitive defusion and social identification may mediate the relationship between WRAP beliefs and recovery in a population of people who had all experienced a WRAP workshop. Social problem solving was selected as a mediator because of the centrality of problem solving in WRAP and its similar links to distress and symptom reduction. Cognitive defusion was picked because of ACT's similarities to WRAP and evidence that 'defusion', where people become less entangled with their own thinking, supports people towards recovery. Whereas, social identification was elected due to qualitative reports that WRAP generates very positive social identification in those who attend, due to peer support, which may also explain variance in recovery.

This study tested three hypotheses. First, we predicted significant relationships between WRAP beliefs, social problem solving, cognitive defusion, social identification, and recovery. Second, we considered that WRAP beliefs, social problem solving, cognitive defusion and social identification would all be predictive of recovery when tested using regression analysis. Third, we proposed the relationship between WRAP beliefs and personal recovery would be

mediated by social problem solving, cognitive defusion and social identification.

## Methodology

### Design

A quantitative cross sectional design was used. Participants completed standardised self-report measures of demographic details, WRAP beliefs, social problem solving, social identification, cognitive defusion and recovery. The British Psychological Society's codes of ethics and conduct were adhered too and this study was ethically approved by the University of Edinburgh, NHS Tayside Research & Development Department (Appendix 6) and the North of Scotland Research Ethics Committee, application reference: 17/NS/0033 (Appendix 7).

### Sample Size Calculations

A mediational model has not previously been used to investigate WRAP or the factors that mediate between levels of WRAP beliefs and recovery. Research shows WRAP has a significant and positive effect on recovery as measured by the Recovery Assessment Scale (RAS). This relationship is considered to be of at least medium strength and power calculations have been conducted to detect a medium effect size (0.5) at a power level of 0.8 in a mediation model testing 3 mediators. Cohen's (1992) paper suggests a minimum of 76 participants would be needed to provide statistical power. Fritz and Mackinnon (2007) put forward that when using a bootstrapping approach, as per Hayes, (2013), then a sample of 71 participants is needed. Whereas Green's (1991) "new rule of thumb" formula calculates a sample of 107 to be required. This study aimed to recruit a larger sample than the 107

participants indicated to help insure statistical power.

## Participants

Those who took part had attended a WRAP workshop, were aged over 18 and able to undertake the questionnaires. Participants were encouraged not to take part if they were distressed or under the influence of alcohol or illicit drugs. In total, 109 participants took part in the study (73 Female, 22 Male, 14 Other/Missing or Non-Binary). The mean age was 46.46 (range 19 – 74) with a standard deviation of 11.79 years. The level of education, marital status and self-identified roles of participants at the time of the last workshop are shown in Table 1.

Table. 1 Participants level of education, marital status and self-identified roles

| Education, Marital Status and Self-identified Categories | | Sample (*n*: 109) | % |
|---|---|---|---|
| Highest educational qualification: | O grade/ GCSE | 15 | 14% |
| | A Level/ higher/ SYS | 16 | 15% |
| | Diploma | 19 | 17% |
| | Bachelor's degree | 32 | 29% |
| | Master's degree | 18 | 17% |
| | Doctoral degree | 4 | 4% |
| | Other | 4 | 4% |
| | Missing | 1 | 1% |
| Marital Status: | Single | 31 | 28% |
| | Separated/Divorced | 17 | 16% |
| | Widowed | 2 | 2% |
| | Married | 39 | 36% |
| | Co-habiting | 19 | 17% |
| | Missing | 1 | 1% |
| Self-identified categories*: | | | |
| Person who has experienced mental health challenges | | 73 | 67% |
| Mental health practitioner | | 61 | 56% |
| Carer of someone who experiences mental health challenges | | 10 | 9% |
| Family of someone who experiences mental health challenges | | 19 | 17% |
| Student | | 6 | 6% |

| | | |
|---|---|---|
| WRAP facilitator | 33 | 30% |
| Other | 6 | 6% |

*Percentages for self-identified categories are mutually exclusive as participants could select multiple categories

## Measures

### Demographic and Other Information

Information such as age, gender, education, marital status, self-identified roles at last WRAP workshop, duration of mental health challenges, amount of WRAP remembered and time since last workshop were gathered as provided by participants.

### WRAP Beliefs Questionnaire

The WRAP Beliefs Questionnaire is a 16 item (3 reversed) measure of a participant's knowledge, attitudes and beliefs about WRAP (Doughty et al., 2008). It has been used to evaluate WRAP by consumers and mental health professionals (Doughty et al., 2008; Higgins et al., 2012). Doughty et al. (2008) found the WRAP beliefs questionnaire to have good Cronbach's $\alpha$ score on all the items in both their pre and post-test questionnaire ($\alpha$ = 0.881). In this study the WRAP beliefs questionnaire had a Cronbach's $\alpha$ score of .81. It uses a Likert scale on which participants rate their level of agreement from 1 (strongly disagree) to 5 (strongly agree). Higher WRAP belief scores indicate better knowledge, more positive attitudes and beliefs about WRAP. The participants rate their agreement to statements like, "I have a clear understanding of what a Wellness Recovery Action Plan is".

### Recovery Assessment Scale – Short (RAS - S)

The RAS was originally developed from narratives of mental health service users. A further review of it by independent service users then resulted in this self-report measure of

recovery (Giffort, Schmook, Woody, Vollendorf, & Gervain, 1995). Corrigan, Salver, Ralph, Songster, and Keck (2004) developed the RAS – S that incorporates 5 factors of recovery that all have adequate Cronbach's $\alpha$s (0.74 – 0.87). The 22 item version of the RAS – S used is likely to have similar properties at to the RAS. The RAS total score has previously been found to have high internal consistency ($\alpha$ = 0.93), proven test-retest reliability (*r*: 0.88) and has moderate and strong associations in theoretically predicted directions with measures of psychosocial functioning and symptoms (Corrigan, Giffort, Rashid, Leary, & Okeke, 1999). In this study the RAS-S had a total score Cronbach's $\alpha$ of .93 and Chrobach's α scores varied within a good range for the five factors ($\alpha$ = .79 - .93). The RAS - S Likert scale uses an agreement scale ranging from 1 (strongly disagree) to 5 (strongly agree). Higher scores on the RAS - S indicate better levels of recovery. Whilst most of the RAS – S items pertained to mental wellbeing generally, 3 of the items directly related to mental health problems or symptoms (Items 13 – 15). These items were therefore not relevant to a minority of participants who may not have experienced mental health challenges themselves (*n*: 14, 13%). Participants are asked to rate their level of agreement to self- descriptions, such as, "I have a purpose in life".

### Cognitive Fusion Questionnaire (CFQ)

Cognitive defusion is the process whereby people become less entangled in and identified with their thought content and can be measured with the 7 item self-report CFQ (Gillanders et al., 2014). The extent to which people are fused with their cognitions reduces their ability to cope with health challenges. Gillanders et al. (2014) indicated that the CFQ has good construct validity and provides preliminary evidence for divergent validity. The CFQ has been shown to have good consistency (α = .88 – .93) and test re-test reliability ($r$ = .81, $p$ < .001) (Gillanders et al., 2014). In this study the CFQ had a Cronbach's $\alpha$ score of .95. The questionnaire

uses a 7 item Likert scale ranging from 1 (never true) to 7 (always true). The higher the score on the CFQ usually indicates greater cognitive fusion. However, in this study the score was revered to provide a measure of cognitive defusion. The CFQ asks participants to rate how true statements are for them e.g. “I tend to get very entangled in my thoughts”.

### Social Problem Solving Inventory - Revised - Short (SPSI-R-S)

The SPSI-R-S helps determine an individual’s problem-solving strengths and weaknesses and is a self-report measure available as a 25 item short version. D’zurilla et al. (2002) outlines this measures 5 subscales whereby 2 of these pertain to the individual’s orientation towards problems and the other subscales assess problem solving skills by considering rational problem solving, impulsivity/carelessness style and avoidance. Social problem solving ability is considered to be key in improving living with mental health symptoms (Biggam & Power, 2002). D’Zurilla et al. (2002) highlight the SPSI-R-S subscales have been shown to correlate with the long version well, with high scores across subscales and age groups ($r$ = .92 – 1). Internal consistency was also reported to be good over a range of age groups ($\alpha$ = .88 – .93) and overall test retest reliability relatively high ($r$ = .84) (D’zurilla et al., 2002). In this study the SPSI-R-S had a total score Cronbach’s $\alpha$ of .90 and Cronbach’s $\alpha$ scores varied within the following range for the subscales ($\alpha$ = .65 - .88) The measure uses a Likert scale that ranges from 0 (not at all true) to 4 (extremely true). Formulas are used to convert raw scores to scaled scores, which are then interpreted. Participants are asked to rate how true statements are of them, for example, “I feel threatened and afraid when I have an important problem to solve”.

### Four Item Measure of Social Identification (FISI)

Social identification is the positive emotional valuation between the individual and group

(Postmes, Haslam, & Jans, 2013). Postmes et al. (2013) highlighted that the specific combination of 3 items measured by Doosje et al. (1998) in addition to their Single Item measure of Social Identification (SISI) is a good predictor social identification and self-investment. The FISI has adequate internal consistency (α = .77) and a high correlation with self-investment (*r* = .96) (Postmes, 2013). ). In this study the CFQ had a total score Cronbach's *α* score of .90. The measure typically uses a 7 item Likert scale, however within this study there was an error in the administration of the measure which was with it distributed using a 5 item Likert scale instead. The scale used ranged from 1 (strongly disagree) to 5 (strongly agree), instead of the original scale which ranges from 1 (strongly disagree) to 7 (Strongly agree). Higher scores on the scale indicate higher social identification and self-investment with the WRAP group. To complete the FISI participants rate their agreement to statements like, "I identified with the WRAP group".

## Recruitment

There were two methods of recruitment in this study. Firstly, WRAP facilitators in Scotland distributed 60 paper packs of which 14 were completed and returned (23.3%). Secondly, the Scottish Recovery Network promoted a link they provided to an electronic version of the questionnaire that was hosted by Bristol Online Surveys (BOS). Of the 316 accesses of the online survey, 125 surveys were started and 97 surveys were submitted. Two surveys were excluded due to missing data > 20%. There was a total sample of 109.

## Analytic Plan

Data was analysed using SPSS 23 (IBM Corp. 2015). The data was explored for outliers, central tendency and distribution prior to analysis. Outliers were replaced to match the nearest result that was not an outlier using the winsorizing method (Field, 2016). Data was assessed

to see if it met the required assumptions for parametric tests. Histograms were visually inspected and skew and kurtosis *z*-scores were calculated. Participant differences were compared using independent sample *t* – tests. Pearson's correlational analysis and stepwise linear regression analysis was then used to examine the relationships between variables, their predictive power and combined strength. This helped inform the relevance of mediation analysis as a next step. In mediation analysis the main relationship was tested using simple mediation analysis that was applied using 5000 bootstrap samples, for each bootstrap confidence interval, via the PROCESS macro (Hayes, 2009; 2013).

# Results

## Missing Data and Outliers

Missing data was less than 5% across all variables and participants. Due to missing data two participant's results were totally excluded and one participant's SPSI-R-S results were removed. Little's MCAR test resulted in a chi-square. = 1158.63 (*df* = 1158; *p*= .489) confirming the missing data to be missing at random. Estimation maximisation and the specific SPSI-R- S rules were used to impute missing data. A total of 6 outliers were identified within the RAS-S factors and 2 outliers were identified amongst the SPSI-R-S subscales. These were winsorized and there were no other outliers. A summary of descriptive statistics pre and post winsorizing is provided in Appendix 8. No significant differences were identified between participants for the measures used in correlation and mediation analysis.

## Data Transformation

All variables used in analysis were normally distributed according to visual inspection and z scores, except for the FISI, which was negatively skewed (Appendix 10). Therefore the FISI was used following a reversed logarithmic transformation, which was able to restore the very negatively skewed score (*s* =-1.01; *z* = -4.35) and high kurtosis score (*k* = 1.27; *z* = 2.78) back into a more normal range, skewness(*s* = 0.36; *z* = 1.56) and kurtosis (*k* = -1.20; *z* = -2.62).

The CFQ score was reversed to provide a measure of cognitive defusion.

## Mental Health

Of the 109 participants 87% (*n* = 95) reported to have experienced mental health challenges in the past. First onset was reported to have been between the last 0 – 3 years for 14% (*n* =

13), between 3 – 10 years ago for 19% (*n* = 18), between 10 – 20 years ago for 30% (*n* = 28) and 20 years + for 37% (*n* = 35). One participant's date of first onset was missing. In contrast, at the time of completing the questionnaire only 50% (*n*= 54) of participants reported to be experiencing current mental health challenges. The duration this group had been experiencing mental health challenges for varied from less than 3 years for 28% (*n* = 16), to 3 – 10 years for 17.5% (*n* = 10), to 10 – 20 years for 17.5% (*n* = 10) and 20 years + for 37% (*n* = 21). Of the total sample, 67% (*n* = 73) reported to have been experiencing mental health challenges at the time they last attended a WRAP workshop.

All research participants had attended a WRAP workshop and 50% (*n* = 54) had attended 1 workshop, 21% (*n* = 23) had attended 2, 7% (*n* = 8) had attended 3-4 workshops and 22% (*n*= 24) had attended 5 or more. Various intervals of time had passed since participants had attended a workshop and 41% (*n* = 44) had attended a workshop in the last 6 months, 33% (*n* = 35) in the last 6 months – 2 years and 26% (*n* = 28) had attended a workshop more than 2 years prior to completing the questionnaire. The 12 components of WRAP workshops were recalled to varying degrees by the participants (Appendix 9). The wellness toolbox was the best recalled component of WRAP with 93% (*n* = 101) remembering it. The post crises plan was the most poorly recalled component with only 61% (*n* = 67) recalling it. On average research participants could recall 77% of the components of WRAP.

**RAS-S Factors and SPSI-R-S Subscales**

The RAS-S total score is reported here as it was more representative of overall recovery than any of its constituent factors. Results for the RAS-S factor correlations and mediation analysis can be seen in Appendix 11. The SPSI-R-S however, was examined at the level of its subscales. As the SPSI-R-S measures different constructs to assess problem orientation and problem

solving skills this warranted inclusion of its subscales in analysis. No other measures contained any factors.

## Correlational Analysis

Due to the increased family wise error rate in reporting multiple correlations, likelihood of type 1 error was managed by using a lower significance level ($p$<.01). A Bonferroni correction was not made as this would have increased the likelihood of type 2 error. All correlations were bivariate with many significant relationships identified between WRAP beliefs, social problem solving, cognitive defusion, social identification and recovery (Table2).

Many associations of note were revealed in the correlational analysis. It is of particular note that WRAP beliefs were significantly associated with social problem solving, social identification and recovery, but were not with cognitive defusion. Social problem solving had significant associations with all other measures apart from social identification. Cognitive defusion had correlations with social problem solving and recovery. Social identification only had significant correlations with WRAP beliefs and recovery. Whereas recovery was significantly correlated with all of the other measures and this included a strong correlation with social problem solving $r = 0.63$, $n = 107$, $p < 0.0001$.

Table 2: Pearson correlation analysis of measures.

| | WRAP beliefs | Social problem solving | Cognitive defusion | Social identification |
|---|---|---|---|---|
| WRAP beliefs | - | | | |
| Social problem solving | .37*** | - | | |
| Cognitive defusion | .06 | .49*** | - | |
| Social identification | .26* | .21 | .06 | - |
| Recovery | .46*** | .63*** | .55*** | .26* |

Note: Correlation is significant at levels of *$p$<.01, **$p$<.001, ***$p$<.0001 (2-tailed).

The subscales of the SPSI-R-S were also explored through correlational analysis to test for association with WRAP Beliefs, cognitive defusion, social identification and recovery (Table 3). Many significant correlations were found between the social problem solving subscales and other recovery related variables. In particular, better positive problem orientation was associated with higher WRAP beliefs, cognitive defusion, social identification and recovery. Whereas negative problem orientation was negatively correlated with cognitive defusion and recovery. Rational problem solving was positively associated with WRAP beliefs and recovery. Impulsivity/carelessness style and avoidance style were both negatively associated with cognitive defusion and recovery.

Table 3: Pearson correlation analysis of social problem solving subscales

| Social problem solving Subscale | WRAP beliefs | Cognitive defusion | Social identification | Recovery |
|---|---|---|---|---|
| Positive problem orientation | .45*** | .35*** | .32* | .60*** |
| Negative problem orientation | -.19 | -.66*** | -.07 | -.56*** |
| Rational problem solving | .31* | .14 | .19 | .38*** |
| Impulsivity / carelessness style | -.21 | -.26* | .03 | -.36** |
| Avoidance style | -.21 | -.31* | -.19 | -.39*** |

Note: Correlation is significant at levels of *$p$<.01, **$p$<.001, ***$p$<.0001 (2-tailed).

## Multivariate Analysis

The strength of WRAP beliefs, social problem solving, cognitive defusion and social identification in predicting recovery was tested in a stepwise linear regression model (Table 4). WRAP beliefs were entered in the first step of the regression given its direct relation to WRAP. The other predictors were entered using a stepwise procedure because there was no specific theoretical justification for why one predictor would be more important than another. Table 4 shows WRAP beliefs explained 22% of the variance in recovery, when

cognitive defusion was added 49% of the variance could be explained and with social problem solving this increased further to 56%.

Table 4: Stepwise regression model summaries in the prediction of recovery

| **Variables** | $R^2$ | **Change in** $R^2$ | *F* | *Df* |
|---|---|---|---|---|
| Variable added: | | | | |
| WRAP beliefs | .217 | .217 | 29.12*** | (1,105) |
| Cognitive defusion | .488 | .271 | 45.48*** | (2,104) |
| Social problem solving | .560 | .072 | 43.72*** | (3,103) |

Note: Correlation is significant at levels of *$p$<.01, **$p$<.001, ***$p$<.0001. Social identification did not contribute any significant variance and was therefore suppressed.

As the social identification predictor did not contribute any significant variance to the regression it was excluded form regression analysis. As table 5 shows WRAP beliefs, cognitive defusion and social problem solving accounted for 55% of the variance in recovery (Adj. $R^2$ = .55). This was highly statistically significant ($F$ (3,103) = 43.72, $p$ <.0001) and represented a large effect size ($f^2$ = 1.27).

Table 5: Stepwise regression coefficients table for the final models prediction of recovery

| **Variables** | ***B*** | ***b*** | ***T*** | $R^2$ | **Adj.** $R^2$ | ***F* (3,103)** |
|---|---|---|---|---|---|---|
| DV: Recovery | | | | | | |
| WRAP beliefs | .570 | .318 | 4.47*** | .560 | .547 | 43.72*** |
| Cognitive defusion | .426 | .364 | 4.81*** | | | |
| Social problem solving | .259 | .335 | 4.12*** | | | |

Note: Correlation is significant at levels of *$p$<.01, **$p$<.001, ***$p$<.0001. Social identification did not contribute any significant variance and was therefore suppressed.

## Mediation Analysis

The relationship between WRAP and recovery was examined for any mediating effects. Mediation analysis was based on the results of the stepwise regression which justified

exploring cognitive defusion (model 1) and social problem solving (model 2), but not social identification as mediators. Mediators were tested as outlined by Hayes (2009). The main relationship under test between WRAP beliefs and recovery was significant in these three models.

In mediation analysis if the bootstrapped 95% bias corrected and accelerated confidence interval (BCa CI) does not contain zero between the lower and upper limit it indicates significant mediation has been found (Hayes, 2013). In model 1 (Figure A) cognitive defusion did not mediate between WRAP beliefs and recovery (*b* = .06, BCa CI [-0.14, 0.24]) and there was a non-significant relationship on pathway "a" between WRAP beliefs and cognitive defusion (*b* = -0.09, *t* (106) = -0.63, *p* = .53). In model 2 (Figure B) social problem solving significantly mediated the relationship between WRAP beliefs and recovery (*b* = .35, BCa CI [0.16, 0.57]). Social problem solving accounted for 46% of the variance between WRAP beliefs and recovery (*F* = (2,104) = 44.52 *p* = <.001, $R^2$ = .46).

Figure A. Path mediation model for WRAP beliefs, cognitive defusion and recovery.

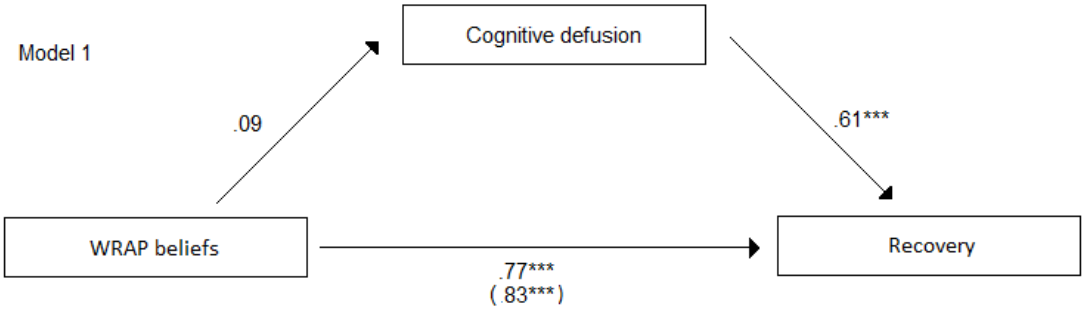


Diagram represents beta-coefficients and p-values (* = *p* < .05, ** = *p* < .01 *** = *p* < .001). Parentheses shows path data prior to mediation.

Figure B. Path mediation model for WRAP beliefs, social problem solving and recovery.

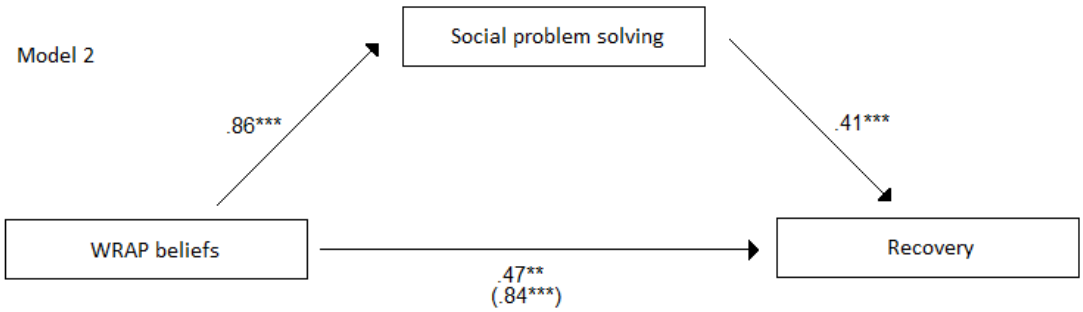


Diagram represents beta-coefficients and p-values (* = $p < .05$, ** = $p < .01$ *** = $p < .001$). Parentheses shows path data prior to mediation.

Social problem solving significantly mediated the relationship between WRAP beliefs and recovery. Therefore mediation analysis was also conducted at the level of the social problem solving subscales. Results for all the subscales tested as mediators between WRAP beliefs and recovery are shown by Figure C. and Table 6. Positive problem orientation most significantly mediated the relationship between WRAP beliefs and recovery (b = .39, BCa CI [0.20, 0.60]). This subscale accounted for 41% of the variance between WRAP beliefs and recovery (F = (2,104) = 35.47 p = <.001, R2 = .41). Negative problem orientation was the only social problems subscale that did not mediate the main relationship with its effect lying just outside of statistical significance (b = .17 BCa CI [-0.02, 0.36]).

Figure D. Mediation model path template to interpret Table 6.

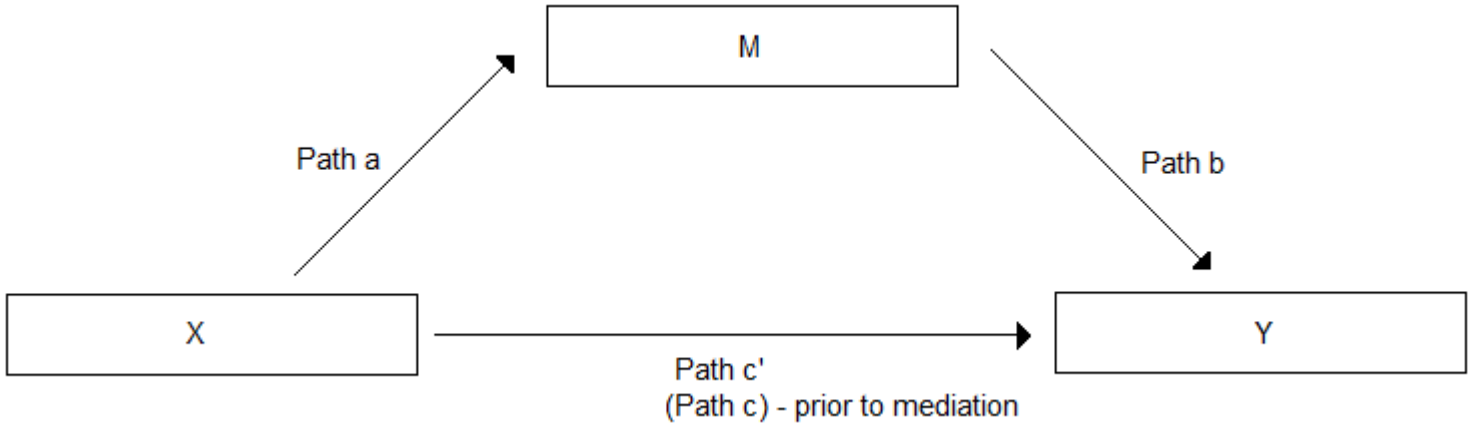


Table 6. Mediation analysis results for social problem subscales in simple mediation

| X | M (subscales) | Y | Path a (*b* ) | Path b (*b* ) | Path c (*b* ) | Path c' (*b* ) | Indirect Effect (*b* ) (BCa CI) | $R^2$ |
|---|---|---|---|---|---|---|---|---|
| WRAP beliefs | PPO | Recovery | 1.12*** | .35*** | .84*** | .45** | .39 [0.20,0.60] | 0.41 |
| | NPO | | -.53 | -.31*** | .84*** | .67*** | .17 [-0.02,0.36] | 0.45 |
| | RPS | | .73** | .20** | .84*** | .69*** | .14 [0.02,0.32] | 0.28 |
| | ICS | | -.49* | -.21** | .84*** | .73*** | .10 [0.01,0.22] | 0.29 |
| | AS | | -.40* | -.29** | .84*** | .72*** | .12 [0.01,0.24] | 0.30 |

Note: Significance levels are indicated by * = $p$ <.05, ** = $p$ <.01, *** = $p$ <.001. (PPO = Positive problem orientation, NPO = Negative problem orientation, RPS = Rational problem solving, ICS = Impulsivity/carelessness style, AS = Avoidance style.

## Discussion

This research explored WRAP beliefs, social problem solving, cognitive defusion and social identification as predictors of recovery in a group of people who have all undertaken a WRAP workshop. Correlation analysis revealed significant associations in the expected directions between recovery and all the constructs explored. This was also the case for WRAP beliefs, but with one exception. WRAP beliefs were not significantly associated with cognitive defusion. Therefore these findings fit with Copeland's (2002) assertion that WRAP aids recovery, but not the idea that WRAP beliefs are related to cognitive defusion.

In the stepwise linear regression, after WRAP beliefs had been entered at step 1, all the remaining constructs were tested in their ability to contribute to a best fit model in predicting recovery. The constructs were able to highly significantly predict recovery with a large effect size. In this analysis, WRAP beliefs, social problem solving and cognitive defusion all predicted recovery, but social identification did not. These results were in line with literature that has shown WRAP to predict recovery (Cook, Copeland, Floyd et al., 2012) and both social problem solving and cognitive defusion to produce recovery related outcomes, such as, reduced symptoms (Biggam & Power, 2002; Gloster et al., 2012). Whereas, the evidence to indicate that social identification with those attending a WRAP workshop would be a predictor of recovery was only based on qualitative reports (Gordon & Cassidy, 2009; MacGregor et al., 2014; Pratt et al., 2013; Zhang et al., 2007).

Recovery had a statistically significant and strong correlation with social problem solving which supports the evidence that social problem solving is important in helping people cope and recover (Biggam and Power, 2002; Olivares & D'Zurilla, 1996; Nezu et al., 2013). Recovery also had significant correlations with all of the social problem solving subscales (Table 2). This

indicated the potentially good utility of the social problem solving subscales to help explore recovery. In particular, positive problem orientation was strongly correlated with recovery and this fits conceptually with its previously found correlation with hope (Chang et al., 2013). It also made sense that the negative problem orientation subscale had a strong negative correlation with cognitive defusion, as theoretically, those with greater cognitive defusion, would also be expected, not to be as negatively stuck, in how they think about and approach their problems (Gillanders et al. 2014).

The relationship between WRAP beliefs and social problem solving in correlation suggests social problem solving may help develop WRAP beliefs and/or that WRAP beliefs might help people with problem situations. The latter, is a main feature of what the WRAP programme was designed to do (Copeland, 2002; Doughty et al., 2008; Stirling et al., 2010). Additionally, the finding that WRAP beliefs and social problem solving, also both predict recovery, supports the many studies that have made implications that these constructs are WRAP outcomes. (Cook, Copeland, Floyd et al., 2012; Cook, Copeland, Jonikas et al., 2012; Cook et al., 2013; Jonikas et al., 2013; Keogh 2014 Pratt et al., 2010 Zhang et al., 2007).

Cognitive defusion was also significantly correlated to social problem solving. This is in line with ACT theory, where the process of cognitive defusion improves psychological flexibility by helping people to mindfully let go of difficult thoughts in the face of their problems (Hayes et al., 2006). Being cognitively defused also predicted recovery alongside social problem solving. Whilst this was also true for WRAP beliefs, there are differences in how WRAP and ACT approach problems. In fact, the way WRAP encourages taking action in response to thoughts based on the direct alleviation of negative symptoms and experiences, may detract from cognitive defusion. Additionally, whilst cognitive defusion and WRAP beliefs both

appear to predict recovery, as there was no correlation between the two, they might do this in different ways.

Based on an a priori hypothesis driven model and exploratory stepwise regression, mediation analysis was conducted to explore the way different constructs related between WRAP and recovery. Whilst it had been initially planned to examine social identification as mediator this was not warranted due to its lack of a predictive relationship with recovery. Therefore only social problem solving and cognitive defusion were tested as mediators. Cognitive defusion was found not to be a mediator (Figure A), this could be due to the lack of a relationship between the beliefs held about WRAP and cognitive defusion. This suggests the way participants WRAP beliefs relate to their cognitive defusion is not a mechanism by which WRAP beliefs lead to recovery. However it could still be the case that WRAP may be effecting cognitive defusion, but just in a way that is unrelated to the measure we used of what people think, know and believe about WRAP. In contrast, social problem solving was found to be a mediator (Figure B). This shows how WRAP participants solve problems significantly explains a part of how their beliefs about WRAP relates to their level of recovery. This suggests that WRAP may improve an individual's social problem solving skills, which in turn improve their ability to achieve better levels of recovery.

The subscales of social problem solving were also tested as mediators for the main relationships under test to examine it in more detail. The positive problem orientation subscale was a significant mediator between WRAP beliefs and recovery (Figure C). This indicates that positive orientation towards facing problems partially explains the variance in how people can use their knowledge and beliefs about WRAP to achieve personal recovery. Positive problem orientation has also been found to be moderately associated with hope

(Chang et al., 2013). This fits with the evidence base for WRAP, which principally finds strong support in favour of its positive effect on a hope (Cook et al., 2009; Cook, Copeland, Jonikas et al. 2012; Fukui et al., 2011; Jonikas et al., 2013; Starnino et al., 2010). It could be that by improving hopefulness, WRAP improves positive problem orientation, enabling recovery. The other social problem solving subscales explained less of the variance and impacted less significantly between WRAP beliefs and recovery, but were also mediators, except for, negative problem orientation. This suggests that people's level of negative orientation to their problems is less relevant than the other subscales to the relationship between WRAP beliefs and recovery.

## Implications of Findings

There are numerous implications from this study's findings. Social problem solving was found to be robust and useful as a mediator as in previous studies (Kuzucu, 2016; McMurran et al., 2010). This study also highlights social problem solving having an important role in how WRAP beliefs explains variance in recovery. Additionally, how individual social problem solving subscales performed as mediators indicated the way WRAP beliefs relate to recovery to occur more through the positive problem orientation pathway. In this study WRAP beliefs was found to be a predictor of recovery for the first time. This study was also the first to measure both WRAP beliefs and recovery. Understanding the relationship between these two constructs is important within the WRAP evidence base and this study shows it makes sense to measure them both in research.

There are also implications from cognitive defusion being found to be a predictor of recovery in a consistent way with ACT theory. On these grounds, it would make good theoretical sense to formally conceptually integrate cognitive defusion techniques into WRAP (perhaps within

the warning signs section) to support the intervention to better target recovery. Facilitators could also be made more aware of the benefits of cognitive defusion to recovery, for both their own benefit and improved WRAP delivery. In comparison facilitators would be expected to know the problem solving benefits of WRAP. However it is likely that by incorporating more formal problem solving training in the WRAP programme, this would further improve its efficacy by increasing the positive effects of better problem solving skills. This is already a feature of the IMR programme (Gingerich & Mueser, 2005). However, there is a risk that by incorporating new elements into the WRAP programme that this could move it away from its original intention and purpose. If more time was spent on problem solving training and defusion strategies, this may necessitate less focus on peer support and the key recovery concepts. On this basis, care is needed to highlight where problem solving skills and cognitive defusion could fit into WRAP in its current form, rather than attempt to integrate entirely new concepts. For example, facilitators could be trained in cognitive defusion and problem solving skills, as well as, the most fitting ways and areas in which to carefully incorporate them. Alternatively a different kind of self-management programme could be developed to focus on the benefits of better problem solving skills for external problems and using ACT strategies, such as cognitive defusion, for problems internal to the individual.

### Strengths of Study

In this study there were various areas of strength. Its large sample compares well to other WRAP research and provided good statistical power for mediation analysis. The inclusivity of the sample went beyond diagnostic and demographic category limitations and incorporated participants from all sectors and service levels. Additionally, participants who were WRAP facilitators or who went on to become WRAP facilitators after WRAP have also been included within this study (*n*: 33). This improves the study's ability to ascertain findings that apply to

those to whom WRAP is delivered. This study was the first to consider recovery's relationships to the variables tested, and accordingly, it expands the theoretical understanding of recovery. Innovatively, this research was also the first to look within the relationship between what people know about recovery and their actual level of recovery. This is a novel and unique way to find out what counts in recovery.

**Study Limitations**

There are several limitations to consider when interpreting the results of this study. There was much variance in the mental health of participants. This ranged from those who had lived with a diagnosed severe and enduring mental illness for many years to those who had never experienced any mental illness. This mixed sample reduces the study's generalisability to those at a specific level of mental distress or wellbeing, or to those with a specific diagnosis. The mixed sample also made it challenging to find an appropriately fitting measure of recovery, as these measures often contain items specific to mental health problems or symptoms. This was the case with 3 of the items of the RAS - S used in this study. A subsequent limitation was that the participants who had never have experienced any mental health issues (n: 14, 13 %) may have found these items more difficult to answer. However, the items were very relevant to the majority of participants. It was also of note that there was no significant missing data for these items.

A large proportion of the sample (*n*: 33) self-identified as WRAP facilitators who may have felt personally invested in WRAP. This group may have therefore provided more positive answers to questions about WRAP beliefs, social identification or recovery, which are areas they would be expected to have stronger feeling about than less affiliated parties. As much as 50% of the sample had also attended more than one WRAP workshop and 24 participants

had attended 5 or more. This suggests the sample may not be reflective of a typical population of participants undertaking WRAP for the first time. Given the high dose of WRAP a large percentage of participants had received and the positive outcomes associated with WRAP reported here the results should be interpreted with this consideration in mind. This study was also susceptible to the social desirability effect through the use of self-report measures. Participants being familiar and favourable towards WRAP was particularly likely to skew the results in relation to social identification, which is already known to have issues with bias due to its subjectivity (Cruwys et al., 2014). The social identification measure would perhaps have better discriminated between participants who were likely to have been less strongly invested in WRAP.

The social identification measure may also not have been the best to detect the power of peer support or the impact of inspirational facilitators. Those completing the scale could have considered facilitators to be separate from the group. There was also an error in the administration of the measure of social identification whereby responses were gathered on a 5 item Likert sale rather than across 7 items. This could have adversely affected the social identification results and reduces their generalisability in the future. As the social identification results were obtained over a smaller numeric field they were less well equipped to discriminate between participant differences. The numeric difference also means scores produced by the social identification scale in this study are not directly comparable to other social identification study results. Having 2 less response options may also have meant some participants could not adequately report their true feelings. However, it should also be borne in mind that despite this error a reasonable, albeit unstandardized, measure of social identification was still obtained using the correct items and anchor descriptors.

The study was also limited in the analytic method of mediation used that only infers effects by adding together the effects of the paths, rather than actually measuring the effects themselves (Hayes, 2009). This could make the results misleading. As an alternative, a method of structural equation modelling could have been used. Whilst this would have required a larger sample it would have had the benefit of being able to compute multiple predictors and outcomes at once, which this study was unable to do.

Unfortunately this study did not use some measures, which have been used popularly in the evidence base, with the Hope Scale (Snyder et al., 1996), seeming particularly relevant. Whilst the choice had been taken to use novel measures, arguably it could have been beneficial to consider how hope, symptoms or self-advocacy may have been mediators of recovery, as indicated the WRAP evidence base (Cook, Copeland, Floyd et al., 2012; Cook, Copeland, Jonikas et al., 2012; Jonikas et al., 2013). This study's cross sectional nature also meant we were unable to gather outcome data before and after the WRAP intervention. Longitudinal studies would be expected to be better equipped to determine effect sizes from the intervention and the course of effects over time.

**Future Research**

Future research is still required in this area. Particularly In regards to the relationships between WRAP beliefs, social problem solving, cognitive defusion and recovery. These outcomes would benefit from exploration using pre and post designs that could infer causality. Additionally, there is still a need within the evidence base to further clarify if improved levels of recovery are a robust outcome of WRAP. There have been many calls for a future large scale RCT to examine this (Cook, Copeland, Floyd et al., 2012; Fukui et al. 2011;

Mak et al. 2016; O'Keeffe et al. 2016). Future studies could also follow our design to test what matters in recovery. Mediation analysis between how people experience key recovery technologies (as outlined by Slade et al. 2014) and how they relate to levels of recovery is a potentially fruitful way to further improve our understanding of recovery.

## Conclusion

This study found that social problem solving was key to explaining the way participants levels of recovery varied in relation to what they knew and believed about WRAP. The results also indicate that positive problem orientation is particularly important. This study provides support for the WRAP interventions positive relationship with recovery and contributes evidence to Copeland's (2002) claims that WRAP is a model that be applied trans-diagnostically to any emotional or physical problem. In the future social problem solving's importance should be carefully emphasised to WRAP facilitators to support them to emphasise where it is already integrated into the programme. Whilst cognitive defusion was not found to mediate the relationship between WRAP beliefs and recovery, it was a meaningful predictor of recovery. This implies technologies of recovery could look to integrate cognitive defusion strategies, which whilst not related to WRAP beliefs, are indicated to be important in recovery. Future research should continue to explore the effects occurring within WRAP and other key technologies of recovery. This will help to keep developing the way recovery is theoretically understood.

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# Chapter 3. Additional Methodology for Empirical Study

**Social Problem Solving, Cognitive Defusion and Social Identification in Wellness Recovery Action Planning: Additional Methodology**

(Written according to the author guidelines of The Psychiatric Rehabilitation Journal, see Appendix 3)

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## Methodology

As only a limited account of the methodology could be provided in journal article format this chapter provides fuller details.

### Power Calculations

A mediational model has not previously been used to investigate WRAP or the factors that mediate between levels of WRAP beliefs and recovery. Power calculations have been conducted to detect a medium effect size (0.5) at a power level of 0.8 in a mediation model testing 3 mediators. Cohen's (1992) paper suggests a minimum of 76 participants would be needed to provide statistical power. Fritz and Mackinnon (2007) put forward that when using a bootstrapping approach, as per Hayes, (2013), then a sample of 71 participants is needed. Whereas Green's (1991) "new rule of thumb" formula calculates a sample of 107 to be required. This study aimed to recruit a larger sample than the 107 participants indicated to help insure statistical power.

### Participants

In total, 109 participants took part in the study (73 Female, 22 Male, 14 Other/Missing or Non-Binary). They had also all taken part in a WRAP workshop. The mean age was 46.46 (range 19 – 74) with a standard deviation of 11.79 years. Participants' level of education, marital status and self-identified roles at the time of their last workshop are shown in Table 1. Most commonly participants were educated to the level of bachelor's degree (29%) and were married (36%). At the time of their last workshop more participants self-identified with the role of person who has experienced mental health challenges (67%) than any other. There were two methods of recruitment in this study. Firstly, WRAP facilitators in Scotland

distributed 60 paper packs of which 14 were completed and returned (23.3%). Secondly, the Scottish Recovery Network promoted a link they provided to an electronic version of the questionnaire that was hosted by Bristol Online Surveys (BOS). Of the 316 accesses of the online survey, 125 surveys were started and 97 surveys were submitted. Two surveys were excluded due to missing data > 20%.

Table. 1 Participants level of education, marital status and self-identified roles

| Education, Marital Status and Self-identified Categories | | Sample (*n*: 109) | % |
|---|---|---|---|
| Highest educational qualification: | O grade/ GCSE | 15 | 14% |
| | A Level/ higher/ SYS | 16 | 15% |
| | Diploma | 19 | 17% |
| | Bachelor's degree | 32 | 29% |
| | Master's degree | 18 | 17% |
| | Doctoral degree | 4 | 4% |
| | Other | 4 | 4% |
| | Missing | 1 | 1% |
| Marital Status: | Single | 31 | 28% |
| | Separated/Divorced | 17 | 16% |
| | Widowed | 2 | 2% |
| | Married | 39 | 36% |
| | Co-habiting | 19 | 17% |
| | Missing | 1 | 1% |
| Self-identified categories*: | | | |
| Person who has experienced mental health challenges | | 73 | 67% |
| Mental health practitioner | | 61 | 56% |
| Carer of someone who experiences mental health challenges | | 10 | 9% |
| Family of someone who experiences mental health challenges | | 19 | 17% |
| Student | | 6 | 6% |
| WRAP facilitator | | 33 | 30% |
| Other | | 6 | 6% |

*Percentages for self-identified categories are mutually exclusive as participants could select multiple categories

## Inclusion and Exclusion Criteria

Inclusion Criteria

- Have taken part in a WRAP workshop
- Are over 18 (No upper age limit)
- Are able to give informed consent
- Are able to understand and undertake the questionnaires

Exclusion Criteria

- Being distressed
- Being under the influence of alcohol or illicit drugs

## Measures

### Demographic and Other Information

Information such as age, gender, education, marital status, self-identified roles at last WRAP workshop, duration of mental health challenges, amount of WRAP remembered and time since last workshop were gathered as provided by participants.

### WRAP Beliefs Questionnaire

The WRAP Beliefs Questionnaire is a 16 item (3 reversed) measure of a participant's knowledge, attitudes and beliefs about WRAP (Doughty et al., 2008). It has been used to evaluate consumers and mental health professionals' views of WRAP (Doughty et al., 2008; Higgins et al., 2012). Doughty et al. (2008) found the WRAP beliefs questionnaire to have good Cronbach's $\alpha$ score on all the items in both their pre- and post-test questionnaire ($\alpha$ = 0.881). In this study the WRAP beliefs questionnaire had a Cronbach's $\alpha$ score of .81. It uses a Likert scale on which participants rate their level of agreement from 1 (strongly disagree)

to 5 (strongly agree). Higher WRAP belief scores indicate better knowledge, more positive attitudes and beliefs about WRAP. The participants rate their agreement to statements like, "I have a clear understanding of what a Wellness Recovery Action Plan is".

### Recovery Assessment Scale – Short (RAS - S)

The RAS was originally developed from narratives of mental health service users before further review of independent service users resulting in this self-report measure of recovery (Giffort, Schmook, Woody, Vollendorf, & Gervain, 1995). Corrigan, Salver, Ralph, Songster, and Keck (2004) developed the RAS – S that incorporates 5 factors of recovery that all have adequate Cronbach's αs (0.74 – 0.87). The 22 item version of the RAS – S used is likely to have similar properties at to the RAS. The RAS total score has previously been found to have high internal consistency ($\alpha$ = 0.93), proven test-retest reliability (*r*: 0.88) and has moderate and strong associations in theoretically predicted directions with measures of psychosocial functioning and symptoms (Corrigan, Giffort, Rashid, Leary, & Okeke, 1999). In this study the RAS-S had a total score Cronbach's $\alpha$ of .93 and Chrobach's $\alpha$ scores varied within a good range for the five factors ($\alpha$ = .79 - .93). The RAS - S Likert scale uses an agreement scale ranging from 1 (strongly disagree) to 5 (strongly agree). Higher scores on the RAS - S indicate better levels of recovery. Whilst most of the RAS – S items pertained to mental wellbeing generally, 3 of the items directly related to mental health problems or symptoms (Items 13 – 15). These items were therefore not relevant to a minority of participants who may not have experienced mental health challenges themselves (*n*: 14, 13%). Participants are asked to rate their level of agreement to self- descriptions, such as, "I have a purpose in life".

### Cognitive Fusion Questionnaire (CFQ)

Cognitive defusion is the process whereby people become less entangled in and identified

with their thought content and can be measured with the 7 item self-report CFQ (Gillanders et al., 2014). The extent to which people are fused with their cognitions reduces their ability to cope with health challenges. Gillanders et al. (2014) indicated that the CFQ has good construct validity and provides preliminary evidence for divergent validity. The CFQ has been shown to have good consistency (α = .88 – .93) and test re-test reliability ($r$ = .81, $p$ < .001) (Gillanders et al., 2014). ). In this study the CFQ had a total score Cronbach's α score of .95. The questionnaire uses a 7 item Likert scale ranging from 1 (never true) to 7 (always true). The higher the score on the CFQ usually indicates greater cognitive fusion. However in this study the score was revered to provide a measure of cognitive defusion. The CFQ asks participants to rate how true statements are for them e.g. "I tend to get very entangled in my thoughts".

**Social Problem Solving Inventory - Revised - Short (SPSI-R-S)**

The SPSI–R – S helps determine an individual's problem-solving strengths and weaknesses and is a self-report measure available as a 25 item short version. D'zurilla et al. (2002) outlines this measures 5 subscales whereby 2 of these pertain to the individual's orientation towards problems and the other subscales assess problem solving skills by considering rational problem solving, impulsivity/carelessness style and avoidance. Social problem solving ability is considered to be key in improving living with mental health symptoms (Biggam & Power, 2002). D'Zurilla et al. (2002) highlight the SPSI – R – S subscales have been shown to correlate with the long version well with high scores across subscales and age groups ($r$ = .92 – 1). Internal consistency was also reported to be good over a range of age groups ($\alpha$ = .88 – .93) and overall test retest reliability relatively high ($r$ = .84) (D'zurilla et al., 2002). In this study the SPSI-R-S had a total score Cronbach's $\alpha$ of .90 and Cronbach's $\alpha$ scores varied within the following range for the subscales ($\alpha$ = .65 - .88) The measure uses a Likert scale that ranges from 0 (not at all true) to 4 (extremely true). Formulas are used to convert

raw scores to scaled scores, which are then interpreted. Participants are asked to rate how true statements are of them, for example, “I feel threatened and afraid when I have an important problem to solve”.

### Four Item Measure of Social Identification (FISI)

Social identification is the positive emotional valuation between the individual and group (Postmes, Haslam, & Jans, 2013). Postmes et al. (2013) highlighted that the specific combination of 3 items measured by Doosje et al. (1998) in addition to their Single Item Measure of Social Identification (SISI) is a good predictor social identification and self-investment. The FISI has adequate internal consistency ($\alpha$ = .77) and a high correlation with self-investment ($r$ = .96) (Postmes, 2013). ). In this study the CFQ had a total score Cronbach’s $\alpha$ score of .90. The measure typically uses a 7 item Likert scale, however within this study there was an error in the administration of the measure which was with it distributed using a 5 item Likert scale instead. The scale used ranged from 1 (strongly disagree) to 5 (strongly agree), instead of the original scale which ranges from 1 (strongly disagree) to 7 (Strongly agree). Higher scores indicate higher social identification and self-investment with the WRAP group. To complete the FISI participants rate their agreement to statements like, “I identified with the WRAP group”.

### Procedure

There were two methods of recruitment in this study. Firstly, WRAP facilitators were invited to help with the recruitment of participants after project presentations at networking events and via email. The facilitators were provided with easy to understand information about the research, participant information sheets and questionnaires. WRAP facilitators then provided the participants with information sheets and invited participants to consent to

taking part. Facilitators were also there to support participants to consider taking part and do the questionnaires. Participants were also given the option to take the questionnaires away and return them to the facilitator at a later date, to opt out or to access the study through the other method of recruitment.

The second method of recruitment was through an electronic link. The SRN hosted a link to the research on their website. The link included the inclusion and exclusion criteria as well as information about consent as per the participant information sheet (Appendix 4) and questionnaire (Appendix 5). SRN also used social media, its online presence and their electronic newsletter to advertise the online research link to past WRAP workshop attendees. Other people could also promote the research on social media by tagging SRN in personal posts. Anonymous questionnaires were then returned to the researcher via either the facilitators or Bristol Online Surveys. The data was then analysed. Feedback sessions are planned to present results to the SRN and interested WRAP facilitators. Participants were made aware the SRN will also use social media, its website and their electronic newsletter to advertise the findings of the study.

## Ethical Considerations

### Ethical approval

The study proposal was ethically reviewed by the University of Edinburgh Doctorate in Clinical Psychology Training Programme and considered acceptable. Ethical permission was then applied for from the North of Scotland Research Ethics Service (NoSRES) and NHS management approval (R&D) was sought from Tayside Medical Sciences centre (TASC).

The study was registered with TASC on 04/05/2017 with them providing R&D managerial

approval on 14/07/2017 (Appendix 6). A provisional opinion was received from NoSRES using the proportionate review service on 3/4/2017, followed by a favourable opinion on the 28/04/2017, application reference: 17/NS/0033 (Appendix 7).

## Informed Consent

Potential participants were either approached by their WRAP facilitator or online.

WRAP facilitators asked potential participants that had attended a WRAP workshop if they would consider taking part in the study. Those that opted in were given the participant information sheet outlining what the study involved and the contact details for the research team. Participants approached in this way had a minimum of 2 days to read the information sheet fully before being provided with a questionnaire. WRAP facilitators were suitably trained to make sure participants were invited to take part on a voluntary basis. The facilitators were known to the participants and were independent of the research team.

Participants were not coerced to take part and no preferences or treatment changes were made based on their decision. Participants provided informed consent by completing their questionnaire. They were invited to take part with the facilitator available for support. Participants could also take the questionnaire away to return to their facilitator later, should they wish. Online participants were approached by their WRAP facilitator or the SRN. Those that opted in were given an electronic link and password to the study. The online version contained the same information sheet and method of consent collection.

## Participant Distress, Burden and Inconvenience

The questionnaire had multiple choice questions and short forms of measures wherever possible to minimise participant burden and inconvenience. It took the participants' time to complete the questionnaire and some of the questions may have got participants to think about new things. Some people with significant mental health problems were also likely to have taken part in this study. Thinking about recovery and mental health may have been mildly upsetting for some people, though this is unlikely to be harmful. Participants were instructed to contact their GP if feeling unwell. None of the measures used were shown to be burdensome or cause distress. The information sheet prepared participants for what the study involved.

## Data Protection and Confidentiality

The research team adhered to the University of Edinburgh and NHS Tayside's policies and procedures regarding confidentiality and data Protection. No personal data was gathered, all responses were anonymised. Questionnaires were stored securely in a locked filing cabinet in a secured NHS office. Online data was handled by Bristol Online Survey, NHS Tayside and the University of Edinburgh and stored on these institutions password protected computers in private areas. The SRN will host a final write up of findings on their website which participants will be made aware they can access.

## Analytic Plan

Data was analysed using SPSS 23 (IBM Corp. 2015). Missing data was analysed to determine its level and whether it was missing at random or not. The use of Little's MCAR test was planned. Participant data missing to a degree of more than 20% was to be excluded (Schafer & Graham, 2002; Tabachnick & Fidell, 2001). Estimation maximisation (see Peters & Enders,

2002 for a review) was the planned method to use for missing values with the exception of the SPSI-R-S measure, which has specific rules for missing values (D'Zurilla et al., 2002). The plan was to explore data for outliers, central tendency and distribution prior to analysis. The outlier labelling rule as outlined by Hoaglin & Iglewicz, (1987) was then to be applied to identify outliers by multiplying the difference between the upper and lower quartiles by 2.2 to determine true outliers. Outliers found were not to be excluded due to the risk of increased type 2 error and decreased statistical power. Equally, they were not to be retained due to result distortion, which can adversely affect correlational and regression analyses. Therefore it was planned that all outliers would be replaced to match the nearest result that was not an outlier using the winsorizing method (Field, 2016).

To assess data to see if it met the required assumptions for parametric tests, histograms were to be visually inspected and skew and kurtosis *z*-scores were to be calculated to compare against the values expected if skew and kurtosis were 0. Skew and kurtosis *z* scores are calculated by subtracting 0 from the relevant skew or kurtosis SPSS scores and then dividing this figure by the associated standard error for that skew or kurtosis score. The calculated *z* – scores can then be considered to be significant at the $p<.01$ level if they are greater than 2.58 (Field, 2016). The planned large sample size is likely to have a sampling distribution that will be more normal than for smaller samples (Field, 2016). Tabachnick & Fidell, (2001) highlight that skewness and non-normality has little impact on samples over 100. It is also worth noting that whilst Pearson correlation tests are parametric, mediation analysis uses non parametric bootstrapping slightly reducing the importance of normality in our study (Ong, 2014).

The data analysis plan was to compare participant differences using independent sample t –

tests. Pearson's correlational analysis and regression analysis was then to be used to examine the relationships between variables, their predictive power and combined strength. In order to assess the main relationships under test a series of simple mediation analyses were to be applied using the PROCESS macro (Hayes, 2009; 2013). The macro was to run 5000 bootstrap samples for each bootstrap confidence interval.

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# Appendices

## Appendix 1: International Journal for Mental Health Nursing Author Guidelines

### Sections

1. SUBMISSION
2. AIMS AND SCOPE
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4. PREPARING THE SUBMISSION
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6. AUTHOR LICENSING
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• Authors are responsible for the accuracy of the references.

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Meehan, T. (1994). Questionnaire construction and design for surveys in mental health. *Australian and New Zealand Journal of Mental Health Nursing*, 3, 59–62.

*Books*
Taylor, J. & Muller, D. (1994). *Nursing adolescents: Research and psychological perspectives*. Oxford: Blackwell Science.

*Chapter in a book*
Bergen, A. & Labute, L. (1993). Promoting mental health. In: A. Dines & A. Cribb (Eds), *Health promotion: Concepts and practice* (pp. 93–109). Oxford: Blackwell Science.

*Electronic material*
World Health Organisation (3 July 2003). Update 94: Preparing for the Next Influenza Season in a World Altered by SARS. http://www.international/csr/disease/influenza/sars. Accessed: 15 September 2003.

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## Appendix 2: Quality Assessment Checklist

| **Quality Assessment Checklist** | | |
|---|---|---|
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| **Study Question** | | |
| Is the hypothesis/aim/objective of the study clearly described? | | |
| **Study Population** | | |
| Are the characteristics of the patients included in the study clearly described? | | |
| **Comparability of Subjects** | | |
| Are the distributions of principal confounders in each group of subjects to be compared clearly described? | | |
| Have the characteristics of patients lost to follow-up been described? | | |
| **Exposure/Intervention** | | |
| Are the interventions of interest clearly described? | | |
| **Outcome Measure** | | |
| Are the main outcomes to be measured clearly described in the Introduction or Methods section? | | |
| **Statistical Analysis** | | |
| Does the study provide estimates of the random variability in the data for the main outcomes? | | |
| Have actual probability values been reported (e.g.0.035 rather than <0.05) for the main outcomes except where the probability value is less than 0.001? | | |
| Did the study have sufficient power to detect a clinically important effect where the probability value for a difference being due to chance is less than 5%? | | |
| **Results** | | |
| Have all important adverse events that may be a consequence of the intervention been reported? | | |
| **Discussion** | | |
| Are the main findings of the study clearly described? | | |

| | | |
|---|---|---|
| **Study bias external validity** | | |
| Were the subjects asked to participate in the study representative of the entire population from which they were recruited? | | |
| Were those subjects who were prepared to participate representative of the entire population from which they were recruited? | | |
| Were the staff, places, and facilities where the patients were treated, representative of the treatment the majority of patients receive? | | |
| **Study bias internal validity** | | |
| Was an attempt made to blind study subjects to the intervention they have received? | | |
| Was an attempt made to blind those measuring the main outcomes of the intervention? | | |
| If any of the results of the study were based on "data dredging", was this made clear? | | |
| In trials and cohort studies, do the analyses adjust for different lengths of follow-up of patients, or in case-control studies, is the time period between the intervention and outcome the same for cases and controls? | | |
| Were the statistical tests used to assess the main outcomes appropriate? | | |
| Was compliance with the intervention/s reliable? | | |
| Were the main outcome measures used accurate (valid and reliable)? | | |
| **Internal validity selection bias** | | |
| Were the patients in different intervention groups (trials and cohort studies) or were the cases and controls (case-control studies) recruited from the same population? | | |
| Were study subjects in different intervention groups (trials and cohort studies) or were the cases and controls (case-control studies) recruited over the same period of time? | | |
| Were study subjects randomised to intervention groups? | | |
| Was the randomised intervention assignment concealed from both patients and health care staff until recruitment was complete and irrevocable? | | |
| Was there adequate adjustment for confounding in the analyses from which the main findings were drawn? | | |
| Were losses of patients to follow-up taken into account? | | |

## Appendix 3: Psychiatric Rehabilitation Journal Submission Guidelines

Prior to submission, please carefully read and follow the submission guidelines detailed below. Manuscripts that do not conform to the submission guidelines may be returned without review.

Submission

To submit to the Editorial Office of Sandra G. Resnick, please submit manuscripts electronically through the Manuscript Submission Portal in Word Document format (.doc).

SUBMIT MANUSCRIPT

Articles and brief reports published in the journal should include implications for practice and/or policy to promote the translation of research findings into useful applications for the field.

*Psychiatric Rehabilitation Journal* gives priority to submissions that are clearly applicable to the development, administration, and delivery of psychiatric rehabilitation services and those that inform the development of person-centered systems that support and broaden psychiatric rehabilitation approaches.

Data-driven articles that report results of rigorous research such as randomized controlled trials are especially welcome.

We will also consider:

- quasi-experimental studies such as pre-post evaluations of services if they are adequately powered, with preference to those with comparison groups
- relevant measurement development or testing research
- high-quality qualitative studies that follow established procedures for qualitative research including well-justified sample sizes and clearly documented analytic strategies
- impactful comprehensive literature reviews, policy studies, and theoretical manuscripts

Upon receipt, manuscripts will be reviewed for originality, timeliness, importance to the field, and alignment with the mission of the journal. Manuscripts that do not significantly contribute to the literature in psychiatric rehabilitation may be returned without review.

Manuscripts are evaluated by the *Psychiatric Rehabilitation Journal* editorial team according to the following criteria:

- material is original and timely
- writing is clear, concise
- appropriate study methods are used
- data are valid
- conclusions are reasonable and supported by study results
- findings are relevant and make a contribution to the field of psychiatric rehabilitation

From these criteria, the editors select papers for peer review. Papers of insufficient priority or quality are promptly rejected.

Masked Review

This journal has a policy of masked review for all submissions.
A title page should include all authors' names and institutional affiliations as well as contact information for the corresponding author, including mailing address, email, and telephone.

The manuscript should include a blinded title page, omitting author information, but maintaining the title of the manuscript and an abbreviated title to serve as the running head on each page of the manuscript. Authors must make every effort to see that the manuscript itself contains no clues to the authors' identities. This includes removing the names of academic or other institutions from human subjects assurance statements, and references to authors' prior publications that include citations revealing their identities.

Manuscripts are sent for peer review to at least two independent reviewers. A separate statistical review is obtained when a reviewer or the editors request it. Authors are informed about the review decision after the review process is completed. Manuscripts that are not rejected after the first round of peer review usually require revision and re-review by one or more of the original reviewers. Revised manuscripts must conform to the general requirements listed below, including specified word counts, and word counts must be adhered to in revised submissions.

Manuscript Preparation

Prepare manuscripts according to the *Publication Manual of the American Psychological Association* (6thedition). Manuscripts should be copyedited for bias-free language (see Chapter 3 of the *Publication Manual*) Follow US Psychiatric Rehabilitation Association (USPRA) Language Guidelines. These guidelines are based on the fundamental values of the psychiatric rehabilitation field: respecting the worth and dignity of all persons and groups, as well as honoring and advocating for individual rights and interests, and opposing discrimination in services and in society.

Review APA's Checklist for Manuscript Submission before submitting your article. Use 12-point Times New Roman font with consistent headings and subheadings and omit underlining. All references should be included in the reference list in APA format. Use of Endnotes is not permitted.

Abstract and Keywords

All research manuscripts should include a structured abstract containing a maximum of 250 words. Abstracts that are incomplete or do not conform to the following structure will be returned to the authors for revision.

- **Objective:** the primary purpose of the article should be clearly stated.
- **Methods:** this section must state the sample size and nature of subjects, data sources, study design, how dependent variables were measured and the specific analytic techniques (statistical tests, qualitative analysis

strategy) that were used.

- **Results:** primary findings should be stated clearly and concisely, describing statistical results as appropriate.
- **Conclusions and Implications for Practice:** implications of the findings for the field of psychiatric rehabilitation, mental health, or recovery should be clearly stated and future directions may be described.

All theoretical manuscripts should include a structured abstract with the following required sections:

- **Objective:** the primary purpose of the article should be clearly stated.
- **Method:** this section should describe the methodology used and type of analysis conducted.
- **Findings:** primary findings should be stated clearly and concisely.
- **Conclusions and Implications for Practice:** implications of the findings for the field of psychiatric rehabilitation, mental health, or recovery should be clearly stated and future directions may be described.

Abstracts for brief reports should not exceed 150 words.

Please supply up to five keywords or brief phrases after the abstract.

Impact and Implications Statement

*Psychiatric Rehabilitation Journal* will now publish Impact and Implications Statements in addition to
regular abstracts. This feature allows authors to provide an outline of the practice or policy implications of the research discussed in the paper, thereby offering a clear understanding of how the presented research can be applied.

At the start of each paper the authors should provide 2–3 sentences, with the header "Impact", that states what the current paper adds to the literature and one to two practice or policy implications the findings.
This is not a statement of the conclusions, rather a thoughtful series of statements highlighting the novel contribution of the work and translation of the findings for practice or policy. This section should be no more than 200 words.

Please refer to Guidance for Translational Abstracts, Public Significance Statements, and Social Media Messages to help you write your statement. Your Impact and Implications Statement should be placed below the abstract in the manuscript file you upload during the submission process. Authors of accepted manuscripts will be encouraged to promote their published research on social media, such as Twitter and Facebook.

Manuscript Length

Manuscript Length Articles should not exceed 5,000 words; Brief Reports should not exceed 1,500 words, and Letters to the Editor should not exceed 300 words. Word counts are exclusive of tables, figures, and references. All revisions must adhere to these word limits. Authors must include the word count (exclusive of tables, figures, and references) on the title page of their manuscripts.

Authors must review and use the Guidelines for Nonhandicapping Language in APA Journals.

Formatting

Double-space all copy. Other formatting instructions, as well as instructions on preparing tables, figures, references, metrics, and abstracts, appear in the *Manual*. Additional guidance on APA Style is available on the APA Style website.

Below are additional instructions regarding the preparation of display equations, computer code, and tables.

Display Equations

We strongly encourage you to use MathType (third-party software) or Equation Editor 3.0 (built into pre- 2007 versions of Word) to construct your equations, rather than the equation support that is built into Word 2007 and Word 2010. Equations composed with the built-in Word 2007/Word 2010 equation support are converted to low-resolution graphics when they enter the production process and must be rekeyed by the typesetter, which may introduce errors.
To construct your equations with MathType or Equation Editor 3.0:

- Go to the Text section of the Insert tab and select Object.
- Select MathType or Equation Editor 3.0 in the drop-down menu.

If you have an equation that has already been produced using Microsoft Word 2007 or 2010 and you have access to the full version of MathType 6.5 or later, you can convert this equation to MathType by clicking on MathType Insert Equation. Copy the equation from Microsoft Word and paste it into the MathType box. Verify that your equation is correct, click File, and then click Update. Your equation has now been inserted into your Word file as a MathType Equation. Use Equation Editor 3.0 or MathType only for equations or for formulas that cannot be produced as Word text using the Times or Symbol font.

Computer Code

Because altering computer code in any way (e.g., indents, line spacing, line breaks, page breaks) during the typesetting process could alter its meaning, we treat computer code differently from the rest of your article in our production process. To that end, we request separate files for computer code.

In Online Supplemental Material

We request that runnable source code be included as supplemental material to the article. For more information, visit Supplementing Your Article With Online Material.

In the Text of the Article

If you would like to include code in the text of your published manuscript, please submit a separate file with your code exactly as you want it to appear, using Courier New font with a type size of 8 points. We will make an image of each segment of code in your article that exceeds 40 characters in length. (Shorter snippets of code that appear in text will be typeset in Courier New and run in with the rest of the text.) If an appendix contains a mix of code and explanatory text, please submit a file that contains the entire appendix, with the code keyed in 8-point Courier New.

Tables

Use Word's Insert Table function when you create tables. Using spaces or tabs in your table will create problems when the table is typeset and may result in errors.

Academic Writing and English Language Editing Services

Authors who feel that their manuscript may benefit from additional academic writing or language editing support prior to submission are encouraged to seek out such services at their host institutions, engage with colleagues and subject matter experts, and/or consider several vendors that offer discounts to APA authors. Please note that APA does not endorse or take responsibility for the service providers listed. It is strictly a referral service. Use of such service is not mandatory for publication in an APA journal. Use of one or more of these services does not guarantee selection for peer review, manuscript acceptance, or preference for publication in any APA journal.

Submitting Supplemental Materials

APA can place supplemental materials online, available via the published article in the PsycARTICLES® database. Please see Supplementing Your Article With Online Material for more details.

References

List references in alphabetical order. Each listed reference should be cited in text, and each text citation should be listed in the References section. **Please do not use Endnotes in submissions. All references should be included in the reference list in APA format.**
Examples of basic reference formats:

Journal Article:

Hughes, G., Desantis, A., & Waszak, F. (2013). Mechanisms of intentional binding and sensory attenuation: The role of temporal prediction, temporal control, identity prediction, and motor prediction. *Psychological Bulletin, 139,* 133–151. http://dx.doi.org/10.1037/a0028566

Authored Book:

Rogers, T. T., & McClelland, J. L. (2004). *Semantic cognition: A parallel distributed processing approach.*Cambridge, MA: MIT Press.

Chapter in an Edited Book:

Gill, M. J., & Sypher, B. D. (2009). Workplace incivility and organizational trust. In P. Lutgen-Sandvik & B. D. Sypher (Eds.), *Destructive organizational communication: Processes, consequences, and constructive ways of organizing* (pp. 53–73). New York, NY: Taylor & Francis.

Figures

Graphics files are welcome if supplied as Tiff or EPS files. Multipanel figures (i.e., figures with parts labeled a, b, c, d, etc.) should be assembled into one file. The minimum line weight for line art is 0.5 point for optimal printing. For more information about acceptable resolutions, fonts, sizing, and other figure issues, please see the general guidelines. When possible, please place symbol legends below the figure instead of to the side. APA offers authors the option to publish their figures online in color without the costs associated with print publication of color figures. The same caption will appear on both the online (color) and print (black and white) versions. To ensure that the figure can be understood in both formats, authors should add alternative wording (e.g., "the red (dark gray) bars represent") as needed.

For authors who prefer their figures to be published in color both in print and online, original color figures can be printed in color at the editor's and publisher's discretion provided the author agrees to pay:

- $900 for one figure
- An additional $600 for the second figure
- An additional $450 for each subsequent figure

Permissions Authors of accepted papers must obtain and provide to the editor on final acceptance all necessary permissions to reproduce in print and electronic form any copyrighted work, including test materials (or portions thereof), photographs, and other graphic images (including those used as stimuli in experiments). On advice of counsel, APA may decline to publish any image whose copyright status is unknown.
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Publication Policies

APA policy prohibits an author from submitting the same manuscript for concurrent consideration by two or more publications. See also APA Journals® Internet Posting Guidelines.

APA requires authors to reveal any possible conflict of interest in the conduct and reporting of research (e.g., financial interests in a test or procedure, funding by pharmaceutical companies for drug research).

- Download Disclosure of Interests Form (PDF, 38KB)

Authors of accepted manuscripts are required to transfer the copyright to APA.

- For manuscripts **not** funded by the Wellcome Trust or the Research Councils UK Publication Rights (Copyright Transfer) Form (PDF, 83KB)
- For manuscripts funded by the Wellcome Trust or the Research Councils UK Wellcome Trust or Research Councils UK Publication Rights Form (PDF, 34KB)

Ethical Principles

It is a violation of APA Ethical Principles to publish "as original data, data that have been previously published" (Standard 8.13). In addition, APA Ethical Principles specify that "after research results are published, psychologists do not withhold the data on which their conclusions are based from other competent professionals who seek to verify the substantive claims through reanalysis and who intend to use such data only for that purpose,

provided that the confidentiality of the participants can be protected and unless legal rights concerning proprietary data preclude their release" (Standard 8.14).

APA expects authors to adhere to these standards. Specifically, APA expects authors to have their data available throughout the editorial review process and for at least 5 years after the date of publication. Authors are required to state in writing that they have complied with APA ethical standards in the treatment of their sample, human or animal, or to describe the details of treatment.

- Download Certification of Compliance With APA Ethical Principles Form (PDF, 26KB)

The APA Ethics Office provides the full Ethical Principles of Psychologists and Code of Conduct electronically on its website in HTML, PDF, and Word format. You may also request a copy by emailing or calling the APA Ethics Office (202-336-5930). You may also read "Ethical Principles," December 1992, *American Psychologist*, Vol. 47, pp. 1597–1611.

**APA checklist for manuscript submission**

Format

- Have you checked the journal's website for instructions to authors regarding specific formatting requirements for submission (8.03)?
- Is the entire manuscript—including quotations, references, author note, content footnotes, and figure captions—double-spaced (8.03)? Is the manuscript neatly prepared (8.03)?
- Are the margins at least 1 in. (2.54 cm; 8.03)? Are the title page, abstract, references, appendices, content footnotes, tables, and figures on separate pages (with only one table or figure per page)? Are the figure captions on the same page as the figures? Are manuscript elements ordered in sequence, with the text pages between the abstract and the references (8.03)?
- Are all pages numbered in sequence, starting with the title page (8.03)?
- Title Page and Abstract
- Is the title no more than 12 words (2.01)?
- Does the byline reflect the institution or institutions where the work was conducted (2.02)?
- Does the title page include the running head, article title, byline, and author note (8.03)? (Note, however, that some publishers prefer that you include author identification information only in the cover letter. Check with your publisher and follow the recommended format.)
- Does the abstract range between 150 and 250 words (2.04)? (Note, however, that the abstract word limit changes periodically. Check APA Journals Manuscript Submission Instructions for All Authors for updates to the APA abstract word limit.)
- Paragraphs and Headings
- Is each paragraph longer than a single sentence but not longer than one manuscript page (3.08)?
- Do the levels of headings accurately reflect the organization of the paper (3.02–3.03)?
- Do all headings of the same level appear in the same format (3.02–3.03)?
- Abbreviations
- Are unnecessary abbreviations eliminated and necessary ones explained (4.22–

4.23)?

- Are abbreviations in tables and figures explained in the table notes and figure captions or legends (4.23)?
- Mathematics and Statistics
- Are Greek letters and all but the most common mathematical symbols identified onthe manuscript (4.45, 4.49)?
- Are all non-Greek letters that are used as statistical symbols for algebraic variables in italics(4.45)?
- Units of Measurement
- Are metric equivalents for all nonmetric units provided (except measurements of time, whichhave no metric equivalents; see 4.39)?
- Are all metric and nonmetric units with numeric values (except some measurements of time) abbreviated (4.27, 4.40)?
- References
- Are references cited both in text and in the reference list (6.11–6.21)?
- Do the text citations and reference list entries agree both in spelling and in date (6.11–6.21)?
- Are journal titles in the reference list spelled out fully (6.29)?
- Are the references (both in the parenthetical text citations and in the reference list) ordered alphabetically by the authors' surnames (6.16, 6.25)?
- Are inclusive page numbers for all articles or chapters in books provided in the reference list (7.01, 7.02)?
- Are references to studies included in your meta-analysis preceded by an asterisk (6.26)?
- Notes and Footnotes
- Is the departmental affiliation given for each author in the author note (2.03)?
- Does the author note include both the author's current affiliation if it is different from the byline affiliation and a current address for correspondence (2.03)?
- Does the author note disclose special circumstances about the article (student paper as basis for the article, report of a longitudinal study, relationship that may be perceived as a conflict of interest; 2.03)?
- Does the author note provide information about prior dissemination of the data and narrative interpretations of the data/research appearing in the article (e.g., presented at a conference or meeting, presented as part of a colloquia at a university, posted on a listserv, or shared on a website, including academic social networks like ResearchGate, etc.)?
- In the text, are all footnotes indicated, and are footnote numbers correctly located (2.12)?
- Tables and Figures
- Does every table column, including the stub column, have a heading (5.13, 5.19)?
- Have all vertical table rules been omitted (5.19)?
- Are all tables referred to in text (5.19)?
- Are the elements in the figures large enough to remain legible after the figure has been reducedto the width of a journal column or page (5.22, 5.25)?
- Is lettering in a figure no smaller than 8 points and no larger than 14 points(5.25)?
- Are the figures being submitted in a file format acceptable to the publisher(5.30)?
- Has the figure been prepared at a resolution sufficient to produce a high-quality image(5.25)?
- Are all figures numbered consecutively with Arabic numerals (5.30)?

- Are all figures and tables mentioned in the text and numbered in the order in which theyare mentioned (5.05)?
- Copyright and Quotations
- Is written permission to use previously published text; test; or portions of tests, tables, or figures enclosed with the manuscript (6.10)? See Permissions Alert (PDF, 13KB) for more information.
- Are page or paragraph numbers provided in text for all quotations (6.03, 6.05)?
- Submitting the Manuscript
- Is the journal editor's contact information current (8.03)?
- Is a cover letter included with the manuscript? Does the letter:

a. Include the author's postal address, e-mail address, telephone number, and fax number for future correspondence?

b. State that the manuscript is original, not previously published, and not under concurrent consideration elsewhere?

c. Inform the journal editor of the existence of any similar published manuscripts written by the author (8.03, Figure 8.1)?

d. Mention any supplemental material you are submitting for the online version of your article?

**Appendix 4: Participant Information Sheet**

THE UNIVERSITY of EDINBURGH

# Testing Mediators between WRAP and Recovery.

You are being invited to take part in a research study. Before you decide whether or not to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully. Talk to others about the study if you wish. Contact us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

**What is Wellness Recovery Action Planning (WRAP)?**

WRAP is a self-management approach that emphasises the individual's expertise about their own experience as being key to their mental health recovery. WRAP uses peer support principles to explore concepts of recovery and provides a structure to deal with mental health challenges through promoting pre-emptive action planning, a focus on wellbeing and self-awareness.

**What is the purpose of the study?**

This study looks at how participants solve problems, how they relate to their thoughts and how they feel about the others they did their WRAP workshop with. This will tell us more about WRAP and recovery.

**Why have I been invited?**

You are being asked to consider taking part as you have been identified as someone who has participated in a WRAP workshop in the past.

**Do I have to take part?**

No, participation is entirely voluntary, it is up to you if you want to take part. If you choose not to take part, this will not impact on the level of care you receive. If you do take part, you are still free to withdraw at any time, with no reason needed for doing so. By completing and submitting the questionnaire you will provide your informed consent to take part in the study.

**What will happen to me if I do take part?**

If you decide to take part, you complete the enclosed questionnaire which should take about 12 - 15 minutes and then return it to the researcher using a stamped address envelope. The questionnaire will not be shown to anyone else.

**What are the possible disadvantages and risks in taking part?**

The questionnaire will take some of your time to complete and some of the questions may get you to thinking about new things. Thinking about recovery and mental health might be mildly upsetting for some people, though this is unlikely to be harmful. Should you become upset and require support please contact your care team, GP or NHS 24 on Tel: 111.

**What are the possible benefits of taking part?**

The study will increase what we know about WRAP and recovery. This could help us improve WRAP and knowledge about what is important for past WRAP attendee's recovery. Hopefully future WRAP workshop attendees will then benefit from what we learn.

**Will my taking part in this study be kept confidential?**

All information you provide will be treated confidentially. No identifiable information will be collected and all data will be anonymous and stored in a locked cabinet in a secure NHS office.

**What will happen to the results of the study?**

The results will be used for a research thesis which will be submitted to the University of Edinburgh. The study will also be written up in article form, made available through the Scottish Recovery Network (SRN) website and is likely to be submitted for publication in a research journal. Findings from this study will also be shared through presentations to local and national organisations and at networking events.

**Who has reviewed this study?**

The study proposal has been reviewed by the University of Edinburgh. All research in the NHS is looked at by an independent group of people, called a Research Ethics Committee. A favourable ethical opinion has been obtained from the North of Scotland Research Ethics Service. NHS management approval has also been obtained.

**If you have any further questions about this study please contact:** Duncan Davidson, Trainee Clinical Psychologist on Tel: 01382 346556 or email: duncandavidson@nhs.net

**If you would like to discuss this study with someone independent of the study please contact:** Ethel Quayle, University of Edinburgh Clinical Psychology Research Director on Tel: 0131 651 3943

**If you wish to make a complaint about the study or speak to somebody outside of the research team please contact:** Complaints and Feedback Team, Ninewells Hospital, Dundee DD1 9SY
Telephone: 0800 027 5507 or Email: feedback.tayside@nhs.net

Thanks for taking the time to read this information and considering taking part in this study.

**Appendix 5: Participant Questionnaire**

# Testing Mediators between WRAP and Recovery QUESTIONNAIRE

You are being invited to take part in the study as you have been identified as someone who has participated in a WRAP workshop.

This study's purpose is to test how different factors affect recovery for people who have completed WRAP. This can tell us more about recovery, how to help past WRAP workshop attendees and what to focus on in future WRAP workshops.

This questionnaire is designed to protect your anonymity. It asks about your general demographic information, WRAP and recovery, problem solving and thinking styles as well as how you felt about the others you did your workshop with.

All the information you provide will be treated confidentially and stored in a locked cabinet in a secure NHS office. The findings from the study will be written up and made available through Scottish Recovery Network (SRN) website: www.scottishrecovery.net

Please only complete this questionnaire if you are feeling sober and well enough to do so. If you are feeling unwell or distressed at any time please stop taking part and contact your care provider, GP or NHS 24 (Tel No: 111).

Please answer all the questions to the best of your ability. If you are not comfortable answering a question, you don't have to.

**Demographics**

What is your age in years? ……

What is your gender?

| | |
|---|---|
| Male | |
| Female | |
| Other, please write your preferred term:…….. | |

What is the highest degree or level of school you have completed?

| | |
|---|---|
| Standard Grade/GCSE/O Level | |
| Higher / A Level | |
| Diploma | |
| Bachelor's degree | |
| Master's degree | |
| Doctor's degree | |
| Other | |

What is your marital status?

| | |
|---|---|
| Single | |
| Separated/Divorced | |
| Widowed | |
| Married | |
| Co-habiting | |

Please tick all the below categories that would have best described you when you last attended a WRAP Workshop?

| | | | |
|---|---|---|---|
| Person who has experienced mental health challenges | | Mental health practitioner | |
| Carer of someone who experiences mental health challenges | | Family member of someone who experiences mental health challenges | |
| Student | | WRAP Facilitator | |
| Other, please state: ……. | | | |

**Mental Health**

Have you ever experienced mental health challenges? Yes / No

If yes, how long ago did you first experience mental health challenges?

| | |
|---|---|
| Less than 6 months | |
| 6 months - 1 year | |
| 1 - 3 years | |
| 3- 5 years | |
| 5 - 10 years | |
| 10 - 20 years | |
| 20 - 40 years | |
| 40 + years | |

Do you currently experience mental health challenges? Yes / No

If yes, how long have you currently been experiencing mental health challenges for?

| | |
|---|---|
| In the last 6 months | |
| 6 months - 1 year | |
| 1 - 3 years | |
| 3- 5 years | |
| 5 - 10 years | |
| 10 - 20 years | |
| 20 - 40 years | |
| 40 + years | |

**WRAP Workshop Information**

How many WRAP workshops have you attended?

| 1 | 2 | 3 | 4 | 5+ |
|---|---|---|---|---|
| | | | | |

When did you last attend a WRAP Workshop?

| In the last 6 months | 6 months - 2 years ago | 2 years + |
|---|---|---|
| | | |

What parts of the WRAP workshop do you remember?

| | |
|---|---|
| Recovery Concept: Hope | |
| Recovery Concept: Personal Responsibility | |
| Recovery Concept:Education | |
| Recovery Concept: Self Advocacy | |
| Recovery Concept: Support | |
| Wellness Toolbox | |
| Daily Maintenance Plan | |
| Identifying Triggers and Action Plan | |
| Identifying Warning Signs and Action Plan | |
| Identifying Signs Things Are Breaking Down and Action Plan | |
| Crises Planning | |
| Post Crises plan | |

**Recovery Assessment Scale - Short**

**Instructions: Below is a list of statements that describe how people sometimes feel about themselves and their lives. Please read each one carefully and circle the number to the right that best describes the extent to which you agree or disagree with the statement. Circle only one number for each statement and do not skip any items.**

| | Strongly disagree | Disagree | Not sure | Agree | Strongly agree |
|---|---|---|---|---|---|
| 1. I have a desire to succeed. | 1 | 2 | 3 | 4 | 5 |
| 2. I have my own plan for how to stay or become well. | 1 | 2 | 3 | 4 | 5 |
| 3. I have goals in life that I want to reach. | 1 | 2 | 3 | 4 | 5 |
| 4. I believe I can meet my current personal goals. | 1 | 2 | 3 | 4 | 5 |
| 5. I have a purpose in life. | 1 | 2 | 3 | 4 | 5 |
| 6. Even when I don't care about myself, other people do. | 1 | 2 | 3 | 4 | 5 |
| 7. Fear doesn't stop me from living the way I want to. | 1 | 2 | 3 | 4 | 5 |
| 8. I can handle what happens in my life. | 1 | 2 | 3 | 4 | 5 |
| 9. I like myself. | 1 | 2 | 3 | 4 | 5 |
| 10. I have an idea of who I want to become. | 1 | 2 | 3 | 4 | 5 |
| 11. Something good will eventually happen. | 1 | 2 | 3 | 4 | 5 |

| | Strongly disagree | Disagree | Not sure | Agree | Strongly agree |
|---|---|---|---|---|---|
| 12. I'm hopeful about my future. | 1 | 2 | 3 | 4 | 5 |
| 13. Coping with my mental illness is no longer the main focus of my life. | 1 | 2 | 3 | 4 | 5 |
| 14. My symptoms interfere less and less with my life. | 1 | 2 | 3 | 4 | 5 |
| 15. My symptoms seem to be a problem for shorter periods of time each time they occur. | 1 | 2 | 3 | 4 | 5 |
| 16. I know when to ask for help. | 1 | 2 | 3 | 4 | 5 |
| 17. I am willing to ask for help. | 1 | 2 | 3 | 4 | 5 |
| 18. I ask for help, when I need it. | 1 | 2 | 3 | 4 | 5 |
| 19. I can handle stress. | 1 | 2 | 3 | 4 | 5 |
| 20. I have people I can count on. | 1 | 2 | 3 | 4 | 5 |
| 21. Even when I don't believe in myself, other people do | 1 | 2 | 3 | 4 | 5 |
| 22. It is important to have a variety of friends | 1 | 2 | 3 | 4 | 5 |

**WRAP Beliefs Questionnaire**

**Read each of the following statements and circle how much you agree on the 5 – point scale, ranging from "Strongly disagree" to "Strongly agree".**

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|---|---|---|---|---|
| 1) I have a clear understanding of what a Wellness Recovery Action Plan is. | 1 | 2 | 3 | 4 | 5 |
| 2) I feel confident in my ability to empower and motivate people to work toward recovery. | 1 | 2 | 3 | 4 | 5 |
| 3) I take personal responsibility for my own wellness. | 1 | 2 | 3 | 4 | 5 |
| 4) I believe that for some recovery is not possible. | 1 | 2 | 3 | 4 | 5 |
| 5) People who experience mental illness should have the opportunity to choose what treatment they will receive. | 1 | 2 | 3 | 4 | 5 |
| 6) Having suitable employment is an important part of maintaining wellbeing. | 1 | 2 | 3 | 4 | 5 |
| 7) All people who experience mental illness have similar treatment needs. | 1 | 2 | 3 | 4 | 5 |
| 8) I know what an advance statement is. | 1 | 2 | 3 | 4 | 5 |
| 9) The opinions of health professionals should be given more weight than a person receiving treatment. | 1 | 2 | 3 | 4 | 5 |
| 10) The opinions of those receiving treatment should be given more weight than those of psychiatrists and other health professionals. | 1 | 2 | 3 | 4 | 5 |

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|---|---|---|---|---|
| 11) People who experience mental illness should decide whether or not family members and significant others are to be consulted regarding their treatment and recovery process. | 1 | 2 | 3 | 4 | 5 |
| 12) Being able to contribute to the community in a meaningful way is an important part of keeping my self well. | 1 | 2 | 3 | 4 | 5 |
| 13) I understand what is meant by peer support. | 1 | 2 | 3 | 4 | 5 |
| 14) It is important that all service users know about mental health recovery concepts. | 1 | 2 | 3 | 4 | 5 |
| 15) It is important that non-service users know about mental health recovery concepts. | 1 | 2 | 3 | 4 | 5 |
| 16) I know how to change negative thoughts into positive ones. | 1 | 2 | 3 | 4 | 5 |

## Four Item Social Identification Scale

**Read each of the following statements and circle how much you agree on the 7 – point scale, ranging from "Strongly disagree" to "Strongly agree".**

| | Strongly disagree | disagree | Not Sure | Agree | Strongly agree |
|---|---|---|---|---|---|
| 1. I identified with the WRAP group | 1 | 2 | 3 | 4 | 5 |
| 2. I felt committed to the WRAP group | 1 | 2 | 3 | 4 | 5 |
| 3. I was glad to be in the WRAP group | 1 | 2 | 3 | 4 | 5 |
| 4. Being In the WRAP group was an important part to how I saw myself | 1 | 2 | 3 | 4 | 5 |

## Social Problem Solving Inventory – Revised – Short Form

This measure was removed from the appendix due to copyright.

**Cognitive Fusion Questionnaire**

**Below you will find a list of statements. Please rate how true each statement is for you by circling a number next to it. Use the scale below to make your choice.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| never True | very seldom true | seldom true | sometimes true | frequently true | almost always true | always true |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1. My thoughts cause me distress or emotional pain | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. I get so caught up in my thoughts that I am unable to do the things that I most want to do | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. I over-analyse situations to the point where it's unhelpful to me | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. I struggle with my thoughts | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. I get upset with myself for having certain thoughts | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. I tend to get very entangled in my thoughts | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. It's such a struggle to let go of upsetting thoughts even when I know that letting go would be helpful. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Thank you for taking part. If you are feeling unwell or distressed please contact your care provider, GP or NHS 24 (Tel No: 111).

## Appendix 6: R & D Management Approval

14 July 2017

**Duncan Davidson**

Trainee Clinical Psychologist

Older People Psychological
Therapies Service Dundee
Health and Social Care
Partnership First Floor,
Kingsway Care Centre
Kings Cross Road
Dundee

DD23PT

**Dear Mr Davidson,**

**R&D MANAGEMENT APPROVAL-TAYSIDE**

Title: Social problem solving, psychological flexibility and social identification in Wellness Recovery Action Planning **(WRAP).**

ChiefInvestigator: Mr Duncan Davidson

Principal Investigator/Local Collaborator: Mr Duncan Davidson

Academic Supervisor: Dr David Gillanders (University of Edinburgh)

Tayside Ref: 2017PZ03

REC Ref: 17/NS/0033

**IRAS;** RPf, 7171:tR

**Many thanks for your application to carry out the above project here in NHS Tayside. I am pleased to confirm that the project documentation (as outlined below) has been reviewed, registered and Management Approval has been granted for the study to proceed locally in Tayside.**

Approval is granted on the following conditions:- ·

- ALL Research must be carried out in compliance with the Research Governance Framework for Health & Community Care, Health & Safety Regulations, data protection principles, statutory legislation and in accordance with Good Clinical Practice (GCP).

- All amendments to be notified to TASC R&D Office via the correct amendment pathway. Either direct to the R&D Office or via the Lead Co-ordinating Centre depending on how the study is set up

- All local researchers must hold either a Substantive Contract, Honorary Research Contract, Honormy Clinical Contract or Letter of Access with NHS Tayside where required (http://www.nihr.ac.uk/about-us/CCF/policy-and-standards/research-passports.htrn).

- TASC R&D Office to be infonned ofchange in Principal Investigator, ChiefInvestigator or any additional research personnel locally.

- Notification to TASC R&D Office ofany change in funding.

- As custodian of the information collated during this research project you are responsible for ensuring the security of all personal information collected in line with NHS Scotland IT Security Policies, until destruction of this data.

- All eligible and adopted studies will be added to the Central Portfolio Management System (CPMS). Recruitment figures for eligible and adopted studies must be recorded onto the Portfolio every month. This is the responsibility of the lead UK site. If you are the lead, or only UK site, we can provide help or advice with this. For information contact Laura Stephen (01382 383985 or laura.stephen2@nhs.net).

- Annual reports are required to be submitted to TASC R&D Office with the first rep01t due 12 months from date of issue of this management approval letter and at yearly intervals until completion of the study.

- Notification of early termination within 15 days or End of Trial within 90 days followed by End of Trial Report within 1 year to TASC R&D Office.

- You may be required to assist with and provide information· in regard to audit and monitoring of study.

**Please note you are required to adhere to the conditions, if not, NHS management approval may be withdrawn for the study.**

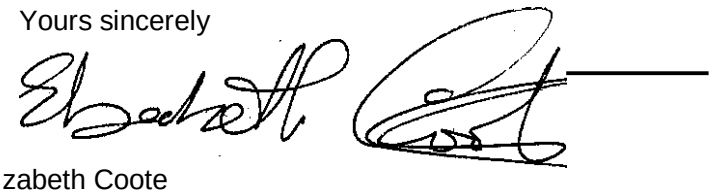
**Approved Documents**

| **Document** | **Version** | Date |
|---|---|---|
| Protocol | 1.0 | 20/03/2017 |
| **PIS** | 2.0 | 19/04/2017 |
| Conv of Advertisement | 1.0 | 20/03/2017 |
| **Validated Questionnaire: Testing mediators** between **WRAP and Recoverv Questionnaire** | **2.0** | **18/04/2017** |
| **Summary CV of CI - Mr Duncan Davidson** | **1.0** | **09/03/2017** |
| **Summarv CV of Supervisor: Dr David Gillanders** | **1.0** | **17/11/2016** |
| **IRAS R&D form** | **5.4.2** | **15/03/2017** |
| **IRAS SSI form** | **5.4.2** | **01/03/2017** |
| **Evidence of Sponsor Insurance** | | **21/07/2016** |
| **Emnlover's Liabilitv Certificate** | | **01/08/2016** |

May I take this opportunity to wish you every success with your project.

Please do not hesitate to contact TASC R&D Office should you require further assistance,

Yours sincerely



Elizabeth Coote
Head of Non-Commercial Research Services

TAyside medical Science Centre (TASC) Ninewells Hospital & Medical School TASC Research & Development Office Residency Block, Level 3
George Pirie Way Dundee DD! 9SY Email: liz.coote@nhs.net Tel: 01382 383876 Fax: 01382 740122

C.c. Dr David Gillanders (Academic Supervisor) Charlotte Smith (Sponsor rep)

**Appendix 7: NHS Ethical Approval**

**North of Scotland Research Ethics Committee**
Summerfield House 2 Eday Road Aberdeen

AB15 6RE

Telephone: 01224 558458

Facsimile: 01224 558609 Email: nosres@nhs.net

28 April 2017

Mr Duncan Davidson
Trainee Clinical Psychologist
Dundee Health and Social Care Partnership
Tayside Area Psychological Therapies Service
15 Dudhope Terrace
DUNDEE
DD3 6HH

Dear Mr Davidson

**itle:** **Social Problem Solving, Psychological Flexibility and Social Identification in Wellness Recovery Action Planning (WRAP)**

**REC reference:** **17/NS/0033**

**IRAS project ID:** **217238**

Thank you for your letter of 28 April 2017, responding to the Proportionate Review Sub-Committee's request for changes to the documentation for the above study.

The revised documentation has been reviewed and approved by the Chair.

We plan to publish your research summary wording for the above study on the HRA website, together with your contact details. Publication will be no earlier than three months from the date of this favourable opinion letter. The expectation is that this information will be published for all studies that receive an ethical opinion but should you wish to provide a substitute contact point, wish to make a request to defer, or require further information, please contact please contact hra.studyregistration@nhs.net outlining the reasons for your request.

Under very limited circumstances (e.g. for student research which has received an unfavourable opinion), it may be possible to grant an exemption to the publication of the study.

**Confirmation of ethical opinion**

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised.

**Conditions of the favourable opinion**

The REC favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements. Each NHS organisation must confirm through the signing of agreements and/or other documents that it has given permission for the research to proceed (except where explicitly specified otherwise).

Guidance on applying for HRA Approval (England)/ NHS permission for research is available in the Integrated Research Application System, www.hra.nhs.uk or at http://www.rdforum.nhs.uk.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of management permissions from host organisations.

Registration of Clinical Trials

All clinical trials (defined as the first four categories on the IRAS filter page) must be registered on a publically accessible database. This should be before the first participant is recruited but no later than 6 weeks after recruitment of the first participant.

There is no requirement to separately notify the REC but you should do so at the earliest opportunity e.g. when submitting an amendment. We will audit the registration details as part of the annual progress reporting process.

To ensure transparency in research, we strongly recommend that all research is registered but for non-clinical trials this is not currently mandatory.

If a sponsor wishes to request a deferral for study registration within the required timeframe, they should contact hra.studyregistration@nhs.net. The expectation is that all clinical trials will be registered, however, in exceptional circumstances non registration may be permissible with prior agreement from the HRA. Guidance on where to register is provided on the HRA website.

**It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).**

#### Ethical review of research sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" above).

### Approved documents

The documents reviewed and approved by the Committee are:

| Document | Version | Date |
|---|---|---|
| Copies of advertisement materials for research participants: Copy of Proposed Advertising Material | 1 | 20 March 2017 |
| Covering letter on headed paper: Provisional Opinion Response | 1 | 28 April 2017 |
| Evidence of Sponsor insurance or indemnity (non NHS Sponsors only) | | 21 July 2016 |

| | | |
|---|---|---|
| IRAS Checklist XML: Checklist 28.04.2017 | | 28 April 2017 |
| Employer's Liability Certificate | | 01 August 2016 |
| Participant information sheet (PIS) | 2 | 19 April 2017 |
| REC Application Form: REC Form 21.03.2017 | 217238/106 8707/1/130 | 21 March 2017 |
| Referee's report or other scientific critique report | 1 | 20 March 2017 |
| Research protocol or project proposal: WRAP Protocol | 1 | 20 March 2017 |
| Summary CV for Chief Investigator (CI): Duncan Davidson | 1 | 09 March 2017 |
| Summary CV for supervisor (student research): David Gillanders | 1 | 17 November 2016 |
| Validated questionnaire: Testing Mediators between WRAP and Recovery Questionnaire | 2 | 18 April 2017 |

**Statement of compliance**

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

**After ethical review**

Reporting requirements

The attached document “After ethical review – guidance for researchers” gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The HRA website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

Feedback

You are invited to give your view of the service that you have received from the Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website:

http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance

We are pleased to welcome researchers and R & D staff at our RES Committee members' training days – see details at http://www.hra.nhs.uk/hra-training/

| 17/NS/0033 | Please quote this number on all correspondence |
|---|---|

With the Committee's best wishes for the success of this project.

Yours sincerely

**Professor Helen Galley**
**Chair**

Enclosures: "After ethical review – guidance for researchers" SL- AR2

Copy to: Ms Charlotte Smith
Mrs Liz Coote, NHS Tayside

## Appendix 8: Descriptive Statistics

A summary of descriptive statistics for main variables before and after winsorizing is provided in table 1.

Table 1: Pre and post winsorizing descriptive statistics for all main variables

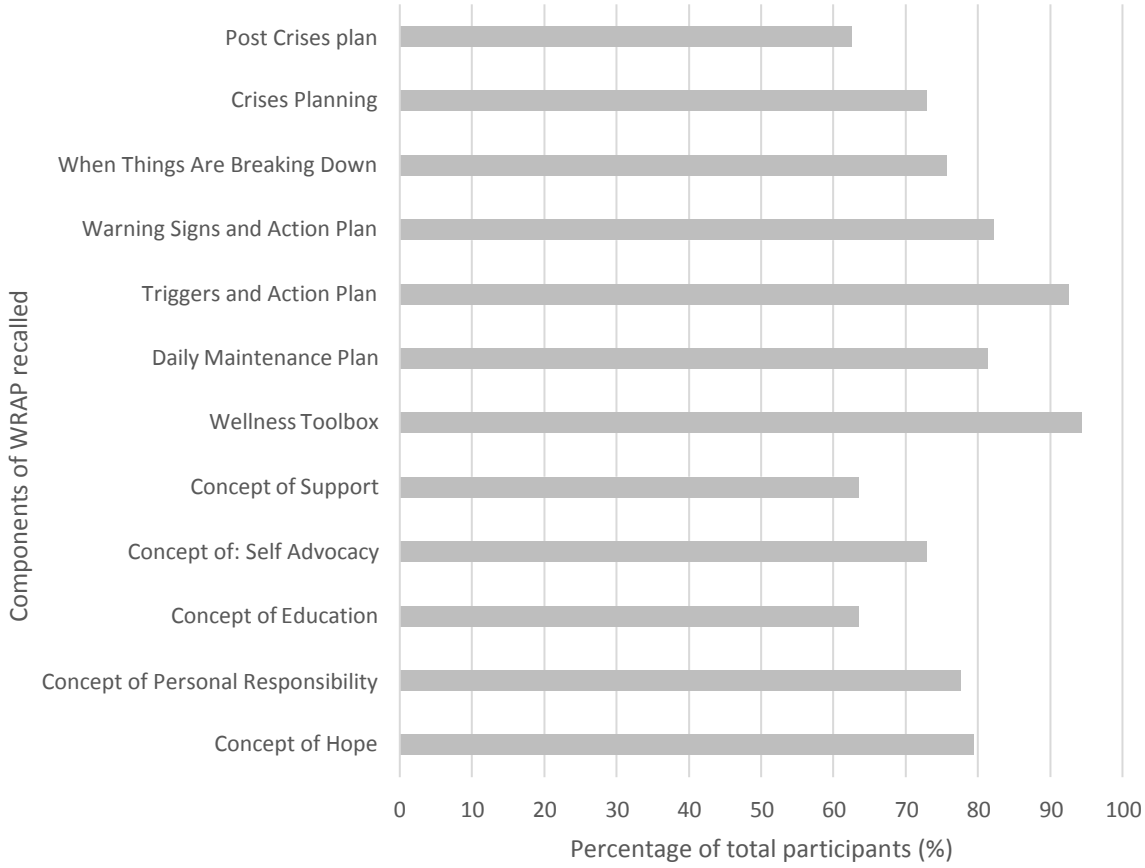
| | Pre Winsorizing | | | | Post Winsorizing | | | |
|---|---|---|---|---|---|---|---|---|
| **Variable** | **Min** | **Max** | **Mean** | **SD** | **Min** | **Max** | **Mean** | **SD** |
| **WRAP beliefs** | 48 | 79 | 67.50 | 6.64 | 48 | 79 | 67.50 | 6.64 |
| **Social problem solving** | 45 | 135 | 97.65 | 15.49 | 45 | 135 | 97.65 | 15.49 |
| Subscales: | | | | | | | | |
| Positive problem orientation | 58 | 135 | 95.02 | 16.74 | 58 | 135 | 95.02 | 16.74 |
| Negative problem orientation | 78 | 162 | 103.84 | 19.13 | 78 | 150 | 103.73 | 18.82 |
| Rational problem solving | 62 | 137 | 96.81 | 15.74 | 62 | 137 | 96.81 | 15.74 |
| Impulsivity/carelessness style | 73 | 145 | 100.95 | 15.51 | 73 | 145 | 100.95 | 15.51 |
| Avoidance style | 76 | 152 | 97.50 | 13.64 | 76 | 129 | 97.10 | 12.36 |
| **Cognitive defusion** | 0 | 42 | 24.61 | 10.19 | 0 | 42 | 24.61 | 10.19 |
| **Social identification** | 0 | 1.23 | .53 | 0.37 | 0 | 1.23 | .53 | 0.37 |
| **Recovery** | 51 | 105 | 82.78 | 11.84 | 51 | 105 | 82.78 | 11.84 |
| Factors: | | | | | | | | |
| Personal Confidence and Hope | 13 | 35 | 26.28 | 4.97 | 13 | 35 | 26.28 | 4.97 |
| Willingness to ask for Help | 6 | 15 | 11.75 | 2.29 | 7 | 15 | 11.78 | 2.23 |
| Goal and Success Orientation | 11 | 25 | 20.94 | 2.89 | 13 | 25 | 20.96 | 2.81 |
| Reliance on Others | 3 | 15 | 12.32 | 2.34 | 6 | 15 | 12.35 | 2.25 |
| Not Dominated by Symptoms | 3 | 15 | 11.41 | 2.77 | 3 | 15 | 11.41 | 2.77 |

Note: Further categorical descriptive statistics were also examined on the basis of gender and mental health as well as social categories people identified with such as being a carer, family member of someone who experiences mental health challenges, a mental health practitioner, a student or WRAP workshop facilitator. Further information regarding the participants and these categories is available in the methodology section under the participant's information subheading.

**Appendix 9: Components of WRAP Recalled**

Participants were asked to select the main components of WRAP that they could recall from a list of the 12 main components. As discussed in the empirical paper component recall varied from 93% to 61% and Fig.1 further details the degree to which the varying components could be recalled by participants.

Figure 1: Bar chart showing WRAP components recalled by participants (%)



## Appendix 10: Inspection of Data Normality

The skew and kurtosis z – scores are shown in the table below along with the results of visual inspection and decision regarding normality.

Table 2. Main variable normality tests.

| Variable | Skewness Z – Score | Kurtosis Z- Score | Visual inspection | Normality conclusion |
|---|---|---|---|---|
| **WRAP beliefs** | -1.81 | -0.93 | Normal | Normal |
| **Social problem solving** | -2.24 | 1.74 | Normal | Normal |
| Subscales: | | | | |
| Positive problem orientation | -0.15 | -0.99 | Normal | Normal |
| Negative problem orientation | 3.32 | -0.46 | Normal | Normal |
| Rational problem solving | 0.35 | -0.99 | Normal | Normal |
| Impulsivity/carelessness Style | 2.78 | 0.75 | Normal | Normal |
| Avoidance style | 2.26 | -0.10 | Normal | Normal |
| **Cognitive defusion** | -1.22 | -1.55 | Normal | Normal |
| **Social identification** | -4.35 | 2.78 | Abnormal | Abnormal |
| **Recovery** | -1.82 | -0.07 | Normal | Normal |
| Factors: | | | | |
| Personal Confidence and Hope | -1.87 | -0.55 | Normal | Normal |
| Willingness to ask for Help | -1.74 | -0.68 | Normal | Normal |
| Goal and Success Orientation | -3.19 | 1.86 | Abnormal | Abnormal |
| Reliance on Others | -3.56 | 0.83 | Abnormal | Abnormal |
| Not Dominated by Symptoms | -2.61 | -0.28 | Abnormal | Abnormal |

**<u>Data transformation</u>**

When data is abnormally distributed it is recommended to attempt to transform it back into a normal distribution (Field, 2016). The measure of social identification and the three abnormally distributed factors of recovery were reversed due to being negatively skewed

and then transformed using a log transformation. The abnormal variables were then scored and inspected again as can be seen in table 3.

Table 3. Normality of reverse and log transformed variables.

| Variable | Skewness Z - Score | Kurtosis Z- Score | Visual inspection | Normality conclusion |
|---|---|---|---|---|
| **Social Identification** | 1.56 | -2.62 | Normal | Normal |
| **Recovery factors:** | | | | |
| Goal and success orientation | 3.71 | 0.03 | Abnormal | Abnormal |
| Reliance on others | 1.74 | -2.06 | Normal | Normal |
| Not dominated by symptoms | 2.65 | -1.44 | Abnormal | Abnormal |

As social identification had become normal following transformation it was decided that this variable should be transformed for analysis. However, as there was not an overall marked improvement across all three factors of recovery it was decided to transform social identification independent of any other variables as it is a distinct measure anyway. Therefore the social identification variable was solely transformed for use in analysis.

## Appendix 11: Additional Results for RAS - S Factors

**Hypothesis 1: There will be significant relationships between WRAP beliefs, social identification, cognitive defusion, social problem solving and recovery.**

Correlational analysis of the factors of recovery were omitted from the article due to their lack of relevance in comparison to the overall measure of recovery. Additionally, they are presented separately here in table 4.

Table 4: Pearson correlation analysis of factors of recovery

| **Factors of recovery** | **WRAP beliefs** | **Social problem solving** | Positive problem orientation | Negative problem orientation | Rational problem solving | Impusivity/ Careless style | Avoidance style | **Social identificat-ion** | **Cognitive Defusion** |
|---|---|---|---|---|---|---|---|---|---|
| Personal confidence and hope | .429** | .617** | .621** | -.578** | .397** | -.301** | -.321** | .236* | .521** |
| Willingness to ask for help | .266** | .308** | .236* | -.195* | .218* | -.247* | -.226* | .292** | .391** |
| Goal and success orientation | .432** | .589** | .547** | -.552** | .368** | -.348** | -.315** | .205* | .483** |
| Reliance on others | .312** | .340** | .338** | -.279** | .181 | -.264** | -.229* | .177 | .146 |
| Not dominated by symptoms | .291** | .476** | .421** | -.437** | .211* | -.248** | -.397** | .121 | .498** |

**. Correlation is significant at the 0.01 level

*. Correlation is significant at the 0.05 level

The factors were explored through correlational analysis to test for association with WRAP beliefs, social problem solving, social problem solving subscales, cognitive defusion and social identification (Table 4). Correlations at a significance level of $p<.05$ could be susceptible to type 1 error given the familywise increase in error rate of conducting multiple correlations. However, the majority of significant correlations at the $p<.01$ level.

The personal confidence and hope and the goal success and orientation factors of recovery were significantly correlated at the $p<.01$ level with all measures with the exception of social identification. Furthermore the strength of correlations these two measures had with other measures was often similar. For example personal confidence and hope correlated with WRAP beliefs $r = 0.425$, $n = 107$, $p < 0.01$., and goal success and orientation correlated similarly $r = 0.421$, $n= 107$, $p < 0.01$.

The reliance on others factor only correlated with WRAP beliefs, social problem solving and some of the social problem solving subscales. While the not dominated by symptoms factor had the second weakest association with WRAP beliefs of all the factors and had a medium strength correlation with social problem solving and cognitive defusion. It did not relate to social identification. The willingness to ask for help factor had mostly weak correlations with the main measures in the study and these were significant at the $p<.01$ level. This factors associations with the social problem solving subscales were also weak and at the $p<.05$ level. However, it is of note, that willingness to ask for helps association with social identification was stronger than that of any other factor $r = 0.286$, $n = 107$, $p < 0.01$.

**Hypothesis 3: The relationship between WRAP Beliefs and recovery will be mediated by social problem solving, social identification and cognitive defusion.**

Mediation of the relationship between WRAP beliefs and recovery is extensively covered in the empirical paper. However full results including the factors of recovery are presented here. The factors include personal confidence and hope (Fa), willingness to ask for help (Fb), goal and success orientation (Fc), reliance on others (Fd) and not dominated by symptoms (Fe) and are presented in table 5 along with a mediation model path template Fig. 2 for ease of interpretation.

**Fig. 2 Mediation model path template**

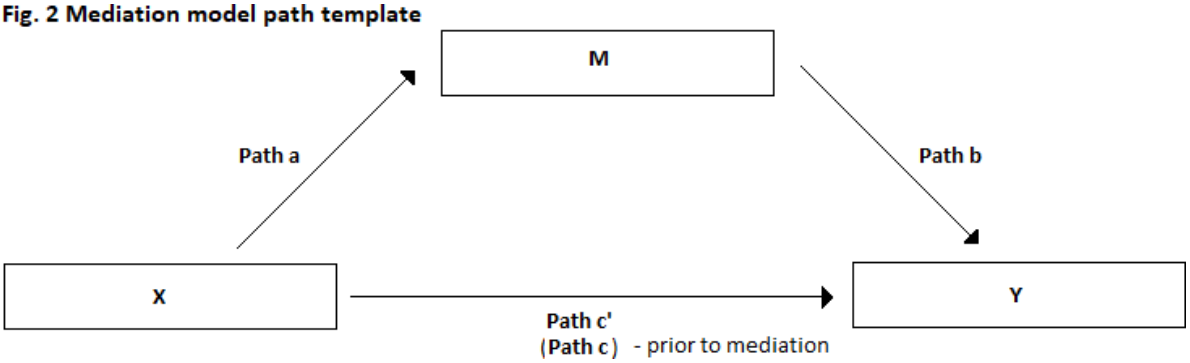


Table 5. Mediation analysis results for single mediator models

| X | M | Y | Path a (*b* ) | Path b (*b* ) | Path c (*b* ) | Path c' (*b* ) | Indirect Effect (*b* ) (BCa CI) | R2 |
|---|---|---|---|---|---|---|---|---|
| WRAP B | Social problem solving | Recovery | .86*** | .41*** | .84*** | .47** | **.35 [0.16,0.57]** | 0.46 |
| | | Recovery Fa | .86*** | .17*** | .33*** | .18** | **.15 [0.07,0.23]** | 0.43 |
| | | Recovery Fb | .86*** | .04* | .09** | .06 (ns) | **.03 [0.01,0.06]** | 0.13 |
| | | Recovery Fc | .86*** | .09*** | .18*** | .10** | **.08 [0.03,0.13]** | 0.4 |
| | | Recovery Fd | .86*** | .04** | .11** | .08* | **.03 [0.01,0.07]** | 0.16 |
| | | Recovery Fe | .86*** | .08*** | .13** | .06 (ns) | **.07 [0.03,0.11]** | 0.09 |
| WRAP B | Positive problem orientation | Recovery | 1.12*** | .35*** | .84*** | .45** | **.39 [0.20,0.60]** | 0.41 |
| | | Recovery Fa | 1.12*** | .16*** | .33*** | .15* | **.18 [0.10,0.27]** | 0.42 |
| | | Recovery Fb | 1.12*** | .02 (ns) | .09** | .07* | .02 [-0.01,0.06] | 0.09 |
| | | Recovery Fc | 1.12*** | .08*** | .18*** | .10* | **.08 [0.04,0.13]** | 0.34 |
| | | Recovery Fd | 1.12*** | .03* | .11** | .07* | **.04 [0.01,0.08]** | 0.15 |
| | | Recovery Fe | 1.12*** | .06*** | .13** | .06 (ns) | **.07 [0.03,0.11]** | 0.19 |
| WRAP B | Negative problem orientation | Recovery | -.53 | -.31*** | .84*** | .67*** | .17 [-0.02,0.36] | 0.45 |
| WRAP B | Rational Problem Solving | Recovery | .73** | .20** | .84*** | .69*** | **.14 [0.02,0.32]** | 0.28 |
| | | Recovery Fa | .73** | .09** | .33*** | .26*** | **.07 [0.02,0.14]** | 0.26 |
| | | Recovery Fb | .73** | .02 (ns) | .09** | .08* | .02 [-0.01,0.04] | 0.1 |
| | | Recovery Fc | .73** | .05** | .18*** | .15*** | **.03 [0.01, 0.07]** | 0.25 |
| | | Recovery Fd | .73** | .01 (ns) | .11** | .10** | .01 [-0.01,0.04] | 0.12 |
| | | Recovery Fe | 73** | .02 (ns) | .13** | .11** | .02 [-0.01,0.05] | 0.11 |
| WRAP B | Impulsivity/ Carelessness Style | Recovery | -.49* | -.21** | .84*** | .73*** | **.10 [0.01,0.22]** | 0.29 |
| | | Recovery Fa | -.49* | -.07* | .33*** | .29*** | **.03 [0.01,0.08]** | 0.23 |
| | | Recovery Fb | -.49* | -.03* | .09** | .08* | **.01 [0.01,0.03]** | 0.11 |
| | | Recovery Fc | -.49* | -.05** | .18*** | .16*** | **.02 [0.01,0.06]** | 0.26 |
| | | Recovery Fd | -.49* | -.03* | .11** | .10** | .01 [-.01,0.04] | 0.15 |
| | | Recovery Fe | -.49* | -.04* | .13** | .11** | **.02 [0.01,0.04]** | 0.13 |
| WRAP B | Avoidance Style | Recovery | -.40* | -.29** | .84*** | .72*** | **.12 [0.01,0.24]** | 0.30 |
| | | Recovery Fa | -.40* | -.10** | .33*** | .29*** | .04 [-0.01,0.08] | 0.24 |
| | | Recovery Fb | -.40* | -.03 (ns) | .09** | .08* | .01 [-0.01,0.03] | 0.11 |
| | | Recovery Fc | -.40* | -.05** | .18*** | .16*** | .02 [0.00,0.05] | 0.24 |
| | | Recovery Fd | -.40* | -.03 (ns) | .11** | .10** | .01 [-0.01,0.04] | 0.13 |
| | | Recovery Fe | -.40* | -.08*** | .13** | .10* | **.03 [0.01,0.02]** | 0.21 |
| WRAP B | Social Identification | Recovery | .01** | 5.0 (ns) | .82*** | .75*** | .07 [-0.01, 0.19] | 0.23 |
| | | Recovery Fa | .01** | .1.8 (ns) | .32*** | .30*** | .03 [-0.01. 0.08] | 0.20 |
| | | Recovery Fb | .01** | 1.44* | .09** | .07* | **.02 [0.01, 0.05]** | 0.12 |
| | | Recovery Fc | .01** | .76 (ns) | .18*** | .17*** | .01 [-0.01,0.04] | 0.2 |
| | | Recovery Fd | .01** | .63 (ns) | .11** | .10** | .01 [-0.01,0.03] | 0.11 |
| | | Recovery Fe | .01** | .37 (ns) | .12** | .12** | .01 [-0.01,0.03] | 0.09 |
| WRAP B | Cognitive Defusion | Recovery | .09 (ns) | .61*** | .83*** | .77*** | .06 [-0.14, 0.24] | 0.49 |

p <.05 * p <.01 ** p<.001 ***

As can be seen in table 5 social problem solving proved to be a robust mediator between WRAP beliefs and recovery. In addition to its mediation of the recovery total score it also

mediated all the factors of recovery. Mediation analysis conducted at the level of the social problem solving subscales also proved the subscales to consistently mediate between WRAP beliefs and recovery with the exception of negative problem orientation which marginally did not (b = .17, BCa CI [-0.02, 0.36]).

The subscales of social problem solving mediated less consistently when the mediator was alternated to test the factors of recovery. Under these conditions the main relationship under test also changes as the factors of recovery all held weaker associations with WRAP beliefs (table 4) than the recovery total score (r= .46; p<.001) tested in other models. Under these conditions positive problem orientation still performed relatively well mediating 4 of the 5 factors of recovery. However rational problem solving, impulsivity/carelessness style and avoidance style subscales only mediated 6 of the 15 models tested with factors of recovery being tested as the DV's. Negative problem orientation was not tested individually against all the factors of recovery due to its non-significant Path a (b = -.53 (ns)) and its inability to individually mediate between WRAP beliefs and the recovery total score. This was also the case for cognitive defusion (Path a = (b = .09 (ns)).

It was of note that whilst social identification had been found not to mediate between WRAP beliefs and recovery, it did have a small mediating effect when the recovery factor (Fb), willingness to ask for help was tested as the DV (b = .02, BCa CI [0.01, 0.05]). Social identification accounted for 12% of the variance between WRAP beliefs and willingness to ask for help (F = (2,106) = 7.19 p = <.05, R2 = .12). However, as was reported earlier in table 4, willingness to ask for help only had a weak relationship with WRAP beliefs r = 0.262, n = 107, p < 0.01 which became was one of the main relationships under test in this model.