**Intervention**

**Nurse-led psychological interventions to improve diabetes control: Assessing competencies**

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**Objective:** To assess whether medical nurses can deliver motivational enhancement therapy (MET) and cognitive behavioural therapy (CBT) to a competent level and whether treatment fidelity is maintained.

**Methods:** Training consisted of classroom teaching, written materials, a training caseload, and audio-visual feedback. We used the Motivational Interviewing Treatment Integrity (MITI), the Revised 12-item Cognitive Therapy Scale (CTS-R), and components of the Motivational Interviewing Skill Code (MISC) to assess competency and treatment fidelity. Two independent clinical psychologists who were blind to the allocation rated a random selection of 40 sessions.

**Results:** Six nurses were trained in both interventions. For MET, the mean (SD) scores for empathy and spirit on the MITI scale were 5.1 (0.7) and 4.6 (1.0) respectively, and for CBT, the mean (SD) score was 52.1 (7.5), which was acceptable competency in both treatments. The two interventions were distinguishable.

**Conclusion:** Results suggest that nurses can be trained to deliver diabetes-specific MET and CBT competently and maintain treatment fidelity.

**Practice implications:** Findings of this study provide preliminary evidence to suggest that nurse-led psychological interventions could be incorporated into the traditional diabetes setting.

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**1. Introduction**

Sub-optimal glycaemic control (SOGC) in type 1 diabetes is common despite the effectiveness of intensive insulin therapies, continuous subcutaneous insulin infusion pumps and structured education programs [1–3]. Factors which contribute to sub-optimal glycaemic control are diverse and include biological factors such as subcutaneous insulin absorption, liver function and autonomic arousal, psychological barriers such as diabetes-related anxieties around hypoglycaemia, complications, self-injecting and glucose self-testing, weight gain and low mood [4–8]. National guidelines increasingly emphasise the need for diabetes teams to offer psychological care to empower and encourage patients towards healthier behaviour change, lifestyle modifications and effective self-care.

Current medical and structured educational models of diabetes management are based on conventional doctor/clinician–patient relationships and learning theories in which the patient is given instructions, information and advice. Psychological interventions differ from the above models of care, in that the relationship between the therapist/clinician and the patient is based on a therapeutic alliance in which they are collaborating as equal partners to identify unhelpful thoughts, feelings and behaviours, conscious and/or unconscious, with the aim of replacing these with more helpful psychological processes.

There is emerging evidence of the effectiveness of psychological treatments in improving glycaemic control in adults with type 1 diabetes [9]. Expert mental health providers such as psychologists are a costly and scarce resource and they may not always be best placed to deliver psychological care to most people with type 1 diabetes as the psychologist often needs a good working knowledge of diabetes. On the other hand, diabetes professionals are more readily accessible to people with diabetes and adding psychological treatments to their skills may be a more effective and convenient intervention to help patients improve self-care.
A recent review in type 2 diabetes suggests that brief psychological treatments delivered by general clinicians was as effective at improving glycaemic control at a clinically significant level as expert mental health providers. These promising findings need to be interpreted cautiously as the studies were mostly underpowered and older studies seemed to be more effective than recent ones. An additional dilemma for the diabetes clinician and patient is that strict or tight glycaemic control may be associated with increased cardiovascular and mortality risks [10]. In a systematic review of 13 RCTs of the effectiveness of psychological treatments in improving glycaemic control in type 1 diabetes, only one study had trained diabetes nurses to deliver the intervention [11]. The results from this study showed that the intervention resulted in better psychological outcomes but as glycaemic control was on average within the recommended range there were no observed improvements in this.

The present study examines whether nurses could be trained to competently deliver two brief psychological treatments in the context of a randomised controlled trial (RCT) [12]. The aim of this 3-arm parallel RCT was to test the effectiveness of motivational enhancement therapy (MET) and MET with cognitive behavioural therapy (CBT) compared to usual diabetes care. MET is a brief focused (usually 1–4 sessions) counseling method for enhancing motivation to change the problematic health behaviour and resolving the ambivalence about change [13]. MET is the treatment of choice for alcohol misuse and smoking and there is emerging evidence of its effectiveness in diabetes [9,14]. A recent survey of psychological needs for people with diabetes suggested that MET was probably one of the first choices for interventions to support people with mild difficulties in trying to improve glycaemic control, especially in those without formal or clinical psychiatric disorders such depressive disorders, eating disorders, addictions or personality disturbance [15]. CBT is a longer therapy (usually a 6–18 sessions) that aims to enable the patient to identify, challenge and substitute unhelpful cognitions and behaviours with more constructive ones [16].

There have been several trials suggesting that CBT can be an effective intervention for the treatment of depression in diabetes [14] but less evidence that it is effective in improving glycaemic control in type 1 diabetes [9].

2. Methods

2.1. The training programme

In the UK there is no integrated training programme on psychotherapeutic skills for diabetes professionals. We developed a curriculum that would be easy to translate into the clinical setting. The curriculum in this study had two components; the nurses were educated in specific psychotherapy skills and then tested to see whether they had acquired these skills in other words; were they now trained in them. The principles underlying the curriculum were as follows: the training and the intervention had to be brief; it had to be acceptable for primary and secondary care professionals and patients, and to a diverse multicultural population; it had to be standardised and manualised so that it could be replicated and disseminated; and quality assurance (competency and treatment fidelity) had to be integrated. Competency was defined as the adherence to treatment-specific factors over factors shared by many therapeutic interventions [17]. Treatment fidelity was defined as the set of methodological strategies used to monitor and enhance the reliability and validity of behavioural interventions including: (a) the training of the professionals who deliver the treatment, (b) the procedures used to promote treatment fidelity, (c) the aspects of treatment verified and (d) the methods for assessing fidelity [18].

The philosophy underpinning the training programme was to provide a multi-dimensional preparation that incorporated theory, practice and reflection. The training involved face to face didactic teaching for 2 (MET) and 5 (CBT) days; a caseload of 10 patients who were experiencing difficulty in managing their diabetes; written materials; a manual for MET and a manual for CBT; audio-visual feedback on transcripts; weekly individual and group supervision and coaching; development of skills in writing up sessions and on self-reflection in the psychotherapeutic process. Nurses were trained in two full time rotations lasting 6 and 3 months respectively. The second rotation was reduced as we learnt from the first rotation that the same training could be delivered over a shorter and more intense period for instance, case-work was introduced at the beginning.

2.2. Techniques taught in MET

Nurses were taught to (i) use simple and complex reflections to reinforce change; (ii) employ strategies to elicit ideas about behaviour change from the patient and (iii) not to confront and criticise but attend to signs of change. They learned to complete a computerised assessment, called the Accu-Chek Interview, which provides a ‘snapshot’ of the patient’s current experience of living with diabetes and identifies areas which the patient regards as of priority for improvement [19]. Nurses were encouraged to use a patient workbook tailoring it to their individual patients. The workbook included questions on three dimensions of behaviour change: importance, confidence, and readiness. Patients were asked to select a specific topic (e.g. exercise, smoking, diet, blood testing) and use 10-point Likert scales to rate their current levels of motivation to change. In addition, a choice of diabetes-focused creative writing tasks was offered, aiming to help patients explore their ambivalences about change and to strengthen their argumentation in favour of change. These tasks included writing on living with diabetes, imagining life without diabetes, writing about one’s best possible self [20,21], imagining a life where HbA1c levels are perfectly controlled, writing about a diabetes curriculum from the expert patient point of view, and describing in detail (event order, inner thoughts and feelings, meaning of event) their most traumatic and stressful diabetes-related experience [22,23]. In the fourth and final section a change plan [13] was negotiated and tailored to individual need and level of motivation [24].

2.3. Techniques taught in CBT

Nurses were taught to develop an individualised unique case formulation of the patient’s specific issues and to share this formulation with the patient [25–27]. Formulations included diabetes-specific cognitions relating to a part of their self-care which may have been impeding diabetes management. In keeping with a developmental model, early life experiences and events around diagnosis were identified which may have been important in maintaining unhelpful coping behaviours.

Nurses were taught how to help patients to (i) recognise the connection between thoughts, emotions and behaviours, (ii) record their negative automatic thoughts, (iii) assess the evidence for and against their thoughts, (iv) find alternatives to any biased thinking (v) learn to identify and change rules and assumptions that predispose them to seeing their experiences from a negative perspective and (vi) set goals [28]. Additional interventions included: behavioural experiments, activity scheduling, continuums [29], responsibility pie charts, examining advantages and disadvantages of different types of coping, anxiety management, assertiveness training with role play and problem solving. At the start of every session an agenda was agreed.
A bridge was made between sessions where homework was reviewed and key points from the previous session summarised. The nurses also completed risk assessments when appropriate (suicidal ideation) and were trained to assess for depression. End-of-treatment goals were reviewed and a relapse/relapse blueprint (or plan) highlighting high-risk situations was developed collaboratively between the nurse and the patient. The overall aim was to help patients consolidate any gains they had made and potentially generalise aspects of the therapy to future situations. The nurses were aware of the need to revert to their motivational interviewing style when resistance interrupted the process of change.

2.4. Clinical supervision

Nurses prepared for supervision choosing a specific difficulty or question (‘supervisory road map’ in [30]). The supervisors modelled reflective practice and nurses were asked to listen to their own audio-taped therapy sessions and to reflect on their strengths and weaknesses. Informal peer supervision and support contributed towards the development of their skills. The aim was to help them develop the ability to think more about the process of change. Nurse beliefs about their patients and the therapy were explored to highlight their own contribution to the session and enhance a ‘deeper sense of knowing’ of the CBT techniques [31]. Supervision in MET was structured around feedback upon a Motivational Interviewing Integrity (MITI) analysis of audio-taped sessions. We supported them to resist the ‘righting reflex’ [32] which might tempt them to provide advice and education focused on improving glycaemic control.

2.5. Assessment of treatment fidelity and competency

Treatment fidelity and competency were continuously assessed throughout the training phase and the duration of the RCT by the expert supervisors. The different training modalities/components ensured that all key therapy issues were explored and discussed and when they arose with each individual nurse. Such issues were, for instance, common elements to psychotherapeutic interventions, such as boundaries, showing empathy appropriately and adopting a non-judgemental and non-confrontational approach. Therapy-specific skills were also enhanced to ensure the two interventions were distinguishable. Supervision enhanced reflective practice using audio-taped therapy sessions and contributed towards the development of the nurses’ skills. Skills that needed particular attention were highlighted and practice was monitored. The aim was to help nurses to develop the ability to think more about the process of change. We made an arbitrary rule of thumb that a caseload of 10 patients as training cases would be a sufficient number from which the nurses could acquire competency which was incidentally a prerequisite for administering MET and CBT during the RCT.

2.6. Treatment fidelity

2.6.1. Therapy session selection

The third session of MET (from both MET with CBT and MET without CBT) and the seventh session from the MET with CBT group (the third CBT session) were chosen as the most representative sessions for assessing treatment fidelity. This choice was more likely to include non-completers before they dropped out and assess therapy delivery after assessment and some settling in period. A random sub-sample of the available tapes was picked using a custom written STATA program.

We sampled an equal number of MET and CBT tapes, with 50% of the MET tapes from the MET without CBT group and 50% from the MET with CBT group. We sampled tapes from the six nurses in proportion to the size of their caseload. Each rater rated 50% of the tapes. Allocation of rater to tapes was done using minimization to ensure balance with respect to nurse and therapy type.

2.6.2. Measures

We used the second version of the Motivational Interviewing Treatment Integrity (MITI) rating scale [33], the Revised 12-item Cognitive Therapy Scale (CTS-R) [34] and components of the second version of the Motivational Interviewing Skill Code (MISC) [35]. We included the MISC to capture dimensions of therapeutic alliance found in both interventions. All three measures are established as those most appropriate for reliability and treatment fidelity assessments.

Every audio-taped session lasted between 40 and 60 min. For the MITI rating, raters listened to a selected 20-min segment from the middle of the tape. The first 10 min were not included to increase the potency of the rated section [36]. For the CTS-R and the MISC components raters listened to the entire session.

2.7. Rating of tapes

Two independent experienced clinical psychologists were employed and trained to use the three selected measures as recommended by the authors of the rating manuals. They attended training sessions in both MET and CBT although the training focused mainly on MET principles and techniques as the both raters were already competent in CBT. They were given the two gold standard transcriptions of ‘Ponytail’ and ‘Rounder’ patients and standard MI training audio-tapes [37]. They scored the transcripts and compared their responses to the scored versions. In addition they scored sections of other standardised transcripts and rated two randomly selected MET and CBT sessions to practice recognising and rating behaviours within the diabetes context. They were blind to the type of therapy being delivered. In the first stage of the study both raters initially rated the same 10 tapes and these ratings were also used to assess inter-rater reliability. A further 5 tapes were rated using only the MITI to improve the inter-rater reliability on this measure. In the second stage of the study, the raters each rated a further 20 tapes, resulting in ratings for an additional 40 tapes.

2.8. Statistical analysis

Data was analysed using SPSS and STATA. To assess inter-rater reliability for each of the measures’ components, intra-class correlation coefficients (ICCs) were estimated using a two-way random-effects model, with random tape/subject effects and random rater effects, using the Stata command xtmixed [38]. The ICC estimates the ratio of between-tape variance to the total variance (between tape, between rater, and within rater). Confidence intervals for the logit of the ICC were found using Stata’s nlcom command, and then back-transformed. All tapes (i.e. those from both the first and second stages) were used to estimate the ICCs, in order to make full use of the available information.

Using the 40 tapes from the second stage we estimated the scales’ internal reliability by Cronbach’s alpha, using Stata’s alpha command. Bias-corrected and accelerated bootstrap confidence intervals (10,000 bootstrap samples) were found using Stata’s bootstrap command. Bootstrapping is a computer intensive resampling method for finding confidence intervals which does not require analytical calculations of standard errors [39].

We used the 40 tapes from the second stage to investigate differences due to therapy type, rater, and therapist. To compare whether scores differed between MET and CBT tapes we used a two-sample t-test with allowance made for unequal variances in
the two groups. Similarly, t-tests were used to test whether mean scores differed between the two raters. A one-way ANOVA model was used to test whether scores differed depending on the therapist delivering the therapy.

The measures used were ordinal and their distributions sometimes skewed. Although the t-test and ANOVA assume normality, the t-test has been shown to be robust in small-samples for ordinal data with a small number of levels [40]. To assess whether our results were robust, we re-ran our analyses using the Mann-Whitney U-test and Kruskal-Wallis ANOVA, the results of which were very similar to those from the t-tests and conventional ANOVA.

3. Results

3.1. Nurse recruitment and training

Six nurses were recruited between May 2003 and February 2006 in two rotations of 3. They were all female and had at least 3 years post-qualification experience in the field of diabetes to varying degrees; there were 3 diabetes specialist nurses, two general nurses and one mental health nurse with experience of delivering CBT in diabetes.

3.2. Therapy session attendance and selection for rating

From the participants allocated to the MET group (n = 117), 88.9% (n = 104) attended the third session. From the participants allocated to the MET with CBT group (n = 106), 66% (n = 70) attended the seventh session. The overall attendance rate was higher for the MET without CBT group (82.9%, n = 97/117) than the MET with CBT group (55.7%, n = 59/106). There were 257 seventh CBT or third MET sessions that had been recorded; 70 of these were the seventh CBT session and the remaining were the third MET session either from the MET without CBT or the MET with CBT group. We randomly selected 72 tapes, of which 55 were usable (17 (23.6%) were either unusable due to poor sound quality or no sound at all due to technical problems). Fifteen of the 55 tapes were also used for the inter-rater agreement analysis.

3.3. Scale reliability

The internal reliability of all three scales was tested using Cronbach’s Alpha coefficient. All three scales had good internal reliability. The CTS-R alpha value was estimated at 0.84 (95% CI 0.72–0.91) (n = 37). The alpha for the MISC Global Therapist Rating Scales was 0.87 (95% CI 0.77–0.92) (n = 40) and for the Global Client Rating Scales it was 0.87 (95% CI 0.65–0.95) (n = 40).

3.4. Inter-rater reliability

The estimated inter-rater reliability for the measures varied widely. For the CTS-R, while some components had good reliability (e.g. agenda setting ICC = 0.84 (95% CI 0.75–0.90); conceptual integration ICC = 0.83 (95% CI 0.68–0.92); total CTS-R ICC = 0.64 (95% CI 0.40–0.82)), others had poor reliability, such as eliciting and planning behaviours (ICC = 0.29 (95% CI 0.03–0.84)) and eliciting key cognitions (ICC = 0.33 (95% CI 0.02–0.90)).

The estimated ICC for the empathy and understanding component of the MITI was 0.63 (95% CI 0.49–0.75), while for the spirit component it was 0.78 (95% CI 0.63–0.88), indicating relatively good reliability. The reliability of some of the behaviour counts was poor (e.g. number of MI-adherent behaviours ICC = 0.34 (95% CI 0.16–0.59)), while for some it was good (e.g. giving information ICC = 0.93 (95% CI 0.90–0.95)). For the MISC the estimated reliability was generally good, with an estimated ICC for collaboration of 0.71 (95% CI 0.46–0.87).

3.5. Rater effect

Using the 40 tapes in the second stage of the study there was evidence of systematic rater effects on a number of measures, meaning that one rater consistently rated higher than the other. The effects were significant (p < 0.05) for two of the MISC components (affect, genuineness/congruence), some of the CTS-R items (items 4, 6, 7, 8, and 11) and some of the MITI behaviour counts (giving information, simple and complex reflections). Such an effect partly explains some of the low reliability estimates.

3.6. Treatment fidelity

The mean (SD) CTS-R scores for the CBT and the MET tapes were 52.1 and 47.8 respectively (range 0–72) and the difference was significant (t(38) = –2.06, p = 0.048). As expected CBT had significantly higher eliciting of key cognitions (t(38) = –3.67, p = 0.001), higher conceptual integration (t(38) = –3.21, p = 0.003) and application of change methods (t(38) = –2.63, p = 0.012) (the CTS-R components most specific to CBT) than MET although MET had significantly higher collaboration (t(38) = 2.17, p = 0.038).

The mean (SD) MITI scores for the MET and CBT tapes are shown in Table 1. There were significantly more empathy/understanding (t(38) = 2.45, p = 0.019) and MI spirit (t(38) = 3.37, p = 0.002) in the MET tapes than the CBT tapes. We found that simple and complex reflections as well as open and closed questions occurred equally frequently in MET as well as CBT. As expected there were significantly more MI-adherent behaviours in MET compared to CBT (t(38) = 2.08, p = 0.047).

The mean (SD) therapeutic alliance scores as assessed with components of the MISC scale for the CBT and MET tapes are shown in Table 3. The MET tapes did not differ from the CBT tapes on any but three of the components. There was higher mean empathy (t(38) = 2.45, p = 0.019) and acceptance (t(38) = 3.97, p = 0.001) demonstrated by the therapist and patient–therapist collaboration (t(38) = 2.09, p = 0.044) in the MET tapes than the CBT tapes.

The raters were able to correctly identify CBT sessions 96.7% of the times (29/30) and MET sessions 70% of the times (21/30). This meant that a small yet significant number of MET sessions (30%) were thought to be CBT whereas only one CBT session was incorrectly identified as MET.

3.7. Nurse effects

The nurse therapists varied in terms of specific components on the three measures. In the CTS-R there was evidence of a nurse effect for only the item on giving feedback (item 2; p = 0.005). For the two key components of the MITI we found evidence of a nurse effect for ‘spirit’ (p = 0.025). In addition we found nurse effects for the MISC components on disclosure (p = 0.013) and genuineness (p = 0.045).

4. Discussion and conclusion

4.1. Discussion

This paper describes a training programme for the delivery of a nurse-led therapy as part of a multi-centre RCT for adults with type 1 diabetes and persistent sub-optimal glycaemic control. We recruited nurses from a variety of backgrounds and expertise and adapted their training and supervision to their needs and competency levels. We found that the nurses developed satisfactory to high levels of competency in the behaviour change techniques and psychological skills used in these treatments.

As hypothesised, MET and CBT shared general commonalities related to the quality of their delivery, including use of open questions, eliciting of emotional expression, and interpersonal effectiveness. The nurses used open and closed questions as well as simple and complex reflections in both forms of therapy and yet the two forms of intervention were broadly distinguishable. All CBT sessions were accurately recognised as such apart from one and 70% of the MET tapes were accurately identified as such. MET as expected included more MI-adherent behaviours and CBT included more CBT-relevant techniques such as eliciting key cognitions and application of change methods.

During MET there was higher therapist-patient collaboration (as measured by both the CTS-R and MISC components) more empathy/understanding and acceptance when compared with CBT. MET was delivered before CBT. Therefore we do not know whether such differences between MET and CBT were because the sessions occurred early or because the nurses found that the use of MET techniques were allowing them to show greater levels of empathy and collaboration.

Previous research on motivational interviewing skills [41,42] assessed with the MITI and the MISC show that MI experts exceed the 5-point level on the 7-point Likert rating scale for the MISC global dimensions such as acceptance and egalitarianism and a Reflection to Question ratio greater than 2 and a percentage of complex reflections greater than 50%. In our study the mean MISC global dimensions particularly for the MET tapes ranged from 4.8 to 5.3. The mean (SD) Reflection to Question ratio was 1.8 (0.9) and the mean % (SD) of complex reflections was 63.6% (11.5). Our results indicate that the nurses scored above the mean average (4) in almost all MITI and MISC components. These findings are similar to the skills scores obtained in a trial of MET delivered by trained clinicians in the field of substance abuse [43].

While the curriculum delivered in the current study could be interpreted as “nurse education” or “nurse preparation” we have used the term “training”, to denote the development of specific skills by means of instruction, practice and supervision, which were continuously monitored and assessed. We used written manuals and close weekly supervision to ensure the nurses delivered MET and CBT in a consistent and standardised fashion throughout the trial. Nevertheless there was some variability between nurses in terms of the quality of the therapy that was delivered. It is possible that there is residual confounding in nurse characteristics as we did not measure characteristics of nurses that could potentially have influenced competency, such as previous training in psychological treatments and years of diabetes specialist nursing. One of the positive interpretations of our findings, is that they suggests that regardless of speciality nurses with differing levels of experience and expertise can be trained to deliver psychological treatments to a reasonable level of competency.

A small number of studies have assessed the delivery of motivational interviewing (MI) based interventions by health professionals such as dieticians [43] specialist cardiac liaison nurses and general nurses [44]. Although interventions have been reported to lead to significant reductions in a number of behavioural and psychological outcomes the use of study specific tools to rate the frequency of MI techniques, as well as a lack of rigorous reporting regarding MI training make it difficult to draw comparisons across studies in this area. Kennedy et al. [45] trained general practice nurses in CBT as part of an RCT of adults with irritable bowel syndrome. Although the intervention was described in detail, the training program was not and treatment

Fidelity was not assessed. At 6 months follow-up patients who had CBT in addition to drug treatment did better on symptom severity and work and social adjustment scales than patients who received drug treatment alone.

There are some limitations that need to be considered. The statistical program we used to select the subset of trial audio-taped sessions for the inter-rater and treatment fidelity assessment ensured that the results are very likely to be representative of the therapy delivered throughout the trial. However, we rated a total of 40 tapes (around 20% of all the approximately usable 80% of third MET and fifth CBT sessions). Had it been possible to rate more tapes (and perhaps different sessions) our estimates of differences between therapy types would have been more precise, as well as allowing further insight into variability between nurses in therapy delivery. In other words, it is possible that the nurses’ ability to deliver therapy differs according to whether MET or CBT is being delivered. However, we did not have sufficient power to detect such interactions. Also, we would have been able to compare the MET in the MET with CBT group and the MET only group.

Another limitation concerns the fact that the raters did not use transcripts of the sessions as well as the audio-tapes. This would have increased the accuracy of rating particularly the MITI tapes were used for each item. One of the positive interpretation of this is that the raters may have become aware of the type of therapy being delivered while listening the tapes. To some extent this cannot be avoided and is intrinsic to the rating process. We tried to keep this to a minimum by giving the raters training and supervision to avoid guessing the therapy type.

We used a heterogeneous group of nurses for pragmatic reasons. It is possible that there is residual confounding in nurse characteristics as we did not measure characteristics of nurses that could potentially have influenced competency, such as previous training in psychological treatments and years of diabetes specialist nursing. We do not believe that this residual confounding can explain variations between the estimates of inter-rater reliability for different items, since the same group of nurses and tapes were used for each item. One of the positive interpretation of our findings, is that they suggest that regardless of the speciality of the nurses with differing levels of experience and expertise can be trained to deliver psychological treatments to a reasonable level of competency. An alternative interpretation is that it is that it is nurse ability, confidence and motivation to acquire skills that is the key ingredient in achieving competency. In translating this study into the diabetes setting, it is likely that there will still be a broad skill and experience mix. Although the number of nurses who participated in the current study was small, it is the one of the largest evaluation of nurse skills in psychological treatments in diabetes to date and results provide a promising indication that such a programme could be translated into clinical practice.

4.2. Conclusion

The current study presents a model of training for the delivery of psychological interventions by health professionals. It is proposed that nurses with different backgrounds and training can learn to deliver MET and CBT competently in the context of a clinic-based trial which provides weekly supervision.

4.3. Practice implications

These encouraging findings demonstrate the possibility of making theory-based psychotherapies more available in clinic settings, for adults with type 2 diabetes. Further testing ought to assess whether such an approach is suitable or adaptable for use in patients with type 2 diabetes. The cost and availability of close supervision in a clinic setting will need to be assessed separately. We standardised the training program to ease its dissemination. The program was clearly defined and it remains to be seen whether the results can be replicated with other health professionals and patient target populations. Subsequent publications will report the relationship between treatment effect and participant characteristics.

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