



Coaching | Training | Opleiding

VIAPERSPECTIEF

Studiehandleiding tweedaagse training 'Motivational interviewing'

Motiveren tot bewegen

Vincent Kortleve

Deze cursus en cursushandleiding is ontwikkeld en geschreven door Viaperspectief.

Alle rechten voorbehouden. Niets van deze uitgave mag worden verveelvoudigd en/of openbaar gemaakt door middel van druk, fotokopie, microfilm of op welke andere wijze dan ook, zonder voorafgaande schriftelijke toestemming van Viaperspectief.

© 2015 Viaperspectief

Inhoudsopgave

Inleiding en verantwoording	4
Leeswijzer.....	6
Oriëntatie op het cursusprogramma	6
Doelstellingen	7
Planning en globale inhoud.....	7
Dag 1	7
Dag 2	10
Bibliografie	12
Bijlage I.....	13
Bijlage II.....	14
Bijlage III.....	15
Motiverende gespreksvoering in een notendop.....	15
Bijlage IV.....	20
Bijlage V.....	21
Bijlage VI - Tabel Verandertaal.....	22
Bijlage VII - Observatiebladen	23
Bijlage VIII.....	30

Inleiding en verantwoording

Inleiding

Fysiotherapeuten houden zich, bewust en onbewust, bezig met het beïnvloeden van gedrag van de cliënt. Al decennia lang. De laatste 10 jaar is er steeds meer aandacht voor het bewust en professioneel begeleiden van cliënten in het veranderen van hun gedrag. Gespreksvoering is hierin een belangrijk instrument. De huidige wetenschappelijke inzichten geven aan dat 'Motivational interviewing' of 'Motiverende gespreksvoering' een meerwaarde heeft bij het ondersteunen van gedragsverandering vanuit intrinsieke motivatie. Hiertoe is deze cursus ontwikkeld. De cursus is gericht op het ontwikkelen van vaardigheden en technieken in Motiverende gespreksvoering en de attitude passende bij Motiverende gespreksvoering.

De opzet van de cursus is zodanig gekozen dat u de belangrijkste technieken van Motiverende gespreksvoering leert toe te passen. Ook wordt stil gestaan bij de onderliggende attitude die van belang is tijdens het begeleiden van cliënten. Verder staan we stil bij uw eigen geschiktheid. Tenslotte maken we doelen en actieplannen om te zorgen dat u in de praktijk ook echt aan de slag gaat met het geleerde.

Overigens: gespreksvoering leren gaat meestal niet heel gemakkelijk. Voor het ontwikkelen van uw communicatieve vaardigheden en bijpassende attitude's is veel nodig. Uw tijd, geduld, doorzettingsvermogen, reflectie, feedback en wat talent. Dat lukt dus niet in twee dagen cursus. Na de cursus gaat het eigenlijk pas echt beginnen.....

Gespreksvoering verbeteren en communicatieprincipes ervaren.

Ieder mens die zich bewust wordt van zijn eigen wijze van communicatie herkent wel het volgende. Als je gaat letten op je manier van vragen stellen gaat het niet meer vanzelf. Sterker nog, iets wat je anders nooit gebeurt, gebeurt nu wel: je weet een moment even niet wat je zou moeten vragen en je zit te stotteren en hikkelen. Of erger: je loopt totaal vast. Je bent *bewust onbekwaam*. En dan voelt erg onaangenaam.

Maslow onderscheidt vier leerstadia die ook wel de vier bewustwordingsfases worden genoemd, hieronder staan de leerstadia met telkens een korte beschrijving:

Onbewust – onbekwaam

Toen Frits een aantal jaren fysiotherapeut was kwam hij in een praktijk te werken waar de therapeuten wettelijk met elkaar intervisie deden. Bij de eerste intervisie maakte een ervaren manueel therapeut hem bewust van het feit dat hij wel erg sturend was in zijn benadering van cliënten. Hij vond zelf altijd dat hij beleefd en respectvol was naar mensen en veel ruimte liet aan zijn cliënten. De voorbeelden die de collega noemde overtuigde hem er echter van dan hij mogelijk te sturend was. Omdat zijn klinisch redeneren volgens zijn collega erg slecht was besloot hij een vervolg opleiding te gaan volgen: manuele therapie.

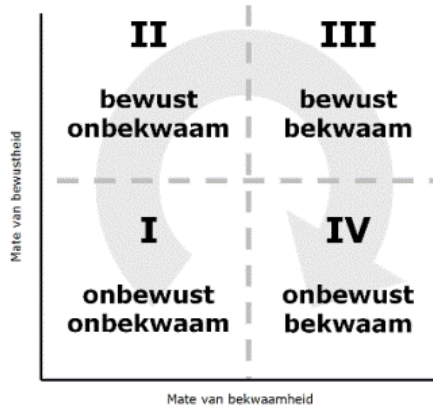
Bewust – onbekwaam

Frits stortte zich in zijn nieuwe opleiding. Tijdens deze opleiding werd ook de nodige aandacht besteedt aan professionele gespreksvoering door de therapeut. Tijdens één van de workshops moest hij in een oefening een gesprek voeren waarbij hij door middel van open vragen een analyse moest doen van het

gezondheidsprobleem van de cliënt. Na 3 vragen liep het gesprek vast. Hij had geen idee wat hij nog meer kon vragen; zijn open vragen waren 'op'.

Bewust – bekwaam

Het was Frits duidelijk: hij moest het stellen van open vragen verder ontwikkelen. In de gesprekken die



hij voerde met de cliënten in de praktijk probeerde hij vaker open vragen te stellen. Hij ontdekte dat hij sommige vragen vaker stelde. Daarom maakte hij een lijstje van open vragen die hij geschikt vond. In de loop der weken groeide dit lijstje uit tot een stevige lijst met mogelijke open vragen, min of meer gerangschikt op thema. Enkele maanden later kon hij tijdens een gesprek snel afwegen of hij een open of gesloten vraag wilde stellen en gebruikte dan af en toe zijn lijst met open vragen. Na enige tijd had hij de lijst niet meer nodig maar moest nog wel denken over welke vraag hij stellen zou.

Onbewust – bekwaam

Aan het einde van zijn opleiding ging het allemaal 'automatisch'. Hij kon zijn vragen op veel manieren stellen en kon bovendien als vanzelf juist gesloten of juist open vragen stellen, doelgericht en efficiënt.

Als je iets nog nooit gedaan hebt kan het eenvoudig lijken (onbewust onbekwaam) Als je start met oefenen kom je er achter wat er allemaal voor komt kijken en hoeveel oefening er nodig is. Soms heb je dan het idee dat het je nooit gaat lukken (bewust onbekwaam). Dit is vaak een onprettig gevoel. Langzamerhand krijg je het in de vingers en gaat het je steeds gemakkelijker af (bewust bekwaam). Tenslotte na heel veel oefening lijken de dingen als vanzelf te gaan (onbewust bekwaam). Je kunt deze fases voortdurend blijven rondgaan. Steeds kun je nieuwe dingen ontdekken die je nog niet kende. Het 'model' kan je helpen te begrijpen waarom bepaalde fases van het leerproces zo onaangenaam voelen. Hierdoor wordt het eenvoudiger deze fases gewoon te doorstaan. Als het nieuwe gedrag niet wordt volgehouden, treedt er terugval op naar een eerdere fase (relapse). Sommige mensen gaan sneller dan anderen en sommige blijven in een bepaalde fase steken. Mensen kunnen op elk punt het model binnenkomen of uitgaan. Hou dit dus in de gaten als het even niet lukt. En ja, het kost de nodige moeite. De woorden van William A. Foster zijn wat dit betreft treffend:

Quality is never an accident,

it is always the result of high intention, sincere effort,

intelligent direction and skillful execution,

it represents the wise choice of many alternatives.

Verantwoording

Het verklaren en beïnvloeden van het menselijk gedrag is ingewikkeld. Motiverende gespreksvoering kent tal van facetten en technieken. Deze cursus helpt u basis vaardigheden ontwikkelen op het gebied van Motiverende gespreksvoering en helpt u dit te doen vanuit de correcte grondhouding. Door tijdens de oefeningen in de cursus uit te gaan van uw beroepsspecifieke context, de kenmerkende patientengroep die u als fysiotherapeut ziet leert u de toepassing die voor u relevant is. Of u nu bekkenfysiotherapeut bent, psychosomatisch fysiotherapeut of manueel therapeut.

Leeswijzer

Enkele wenken bij het gebruik van deze cursushandleiding.

Lees als eerste de 'Inleiding en verantwoording' voor een plaatsbepaling van de cursus.

Een globaal overzicht van het cursusprogramma wordt beschreven in 'Oriëntatie op het cursusprogramma'.

Een uitgebreide beschrijving van de doelen van de cursusedagen vindt u in het hoofdstuk 'Doelstellingen'.

Per cursusedag is een programma samengesteld en zijn voorbereidingsopdrachten geformuleerd. Deze vragen voorbereidingstijd. De gedetailleerde dagprogramma's zijn te vinden in de hoofdstukken 'Dag 1' en 'Dag 2'.

In de bijlage zijn allerlei stukken opgenomen die u nodig heeft bij de voorbereidingsopdrachten. Hiernaar wordt telkens verwezen.

Oriëntatie op het cursusprogramma

Hoe? en Waarom?

Dit cursusprogramma is geschikt om de basisbeginselen van Motiverende gespreksvoering (MG) eigen te maken. Het behandelt de 'geest' van MG, de attitude van de therapeut die MG toepast en diverse technieken die van belang zijn. Ter voorbereiding op de bijeenkomst verdiept u zich in MG vanuit enige literatuur/artikelen. Ook reflecteert u op zichzelf met betrekking tot uw communicatieve eigenschappen en stijlen door middel van het samenstellen van een persoonlijk profiel. Het programma kent een interactief karakter. De voorbereiding op, en deelname van de cursisten tijdens de bijeenkomsten is cruciaal en bepalen in belangrijke mate het persoonlijke eindresultaat.

Vorbereiding en verwerking

Voor de cursusedagen wordt verwacht dat u de voorbereidende opdrachten hebt uitgevoerd zoals in deze modulehandleiding wordt beschreven. Deze opdrachten vragen de nodige tijd. Begin dus op tijd. Ook helpen de opdrachten u in de verwerking van de cursusedagen. Door een goede voorbereiding is uw leerrendement bij deze cursus groter.

Toetsing

Het certificaat wordt uitgereikt wanneer u voldoet aan de aanwezigheids- en deelnameplicht.

Doelstellingen

De fysiotherapeut.....

- ✓ *...weet wat motiverende gespreksvoering is. Hij kan uitleggen wat de uitgangspunten zijn, welke attitude elementen belangrijk zijn en welke technieken centraal staan*
- ✓ *... kent de rol van stages of change irt gedragsverandering en kent de centrale waarde van intrinsieke motivatie van de client*
- ✓ *... kan de basisvoorwaarden voor motiverende gespreksvoering realiseren in een rollenspel.*
- ✓ *....heeft inzicht in oorzaken van niet effectieve consulten en kent manieren daarmee anders om te gaan*
- ✓ *...heeft inzicht in eigen reparatiereflexen en hoe deze hanteerbaar te maken dan wel te vermijden en veranderen*
- ✓ *...heeft inzicht in de rol van eigen taalgebruik en ondersteunt en ontlokt verandertaal van de patient*
- ✓ *... weet op motiverende wijze (dus vanuit de uitgangspunten van motiverende gespreksvoering) de patient action plans te laten maken en zijn sociale omgeving te benutten in het kader van de gedragsverandering van de patient. Hij realiseert dit in een rollenspel.*

Beginvereisten

De deelnemende fysiotherapeuten worden toegelaten tot de cursus indien:

- ✓ zij een diploma fysiotherapie bezitten
- ✓ zij daarnaast de behoefte hebben hun niveau van fysiotherapeutische kennis en vaardigheden te verbeteren met betrekking tot het ondersteunen van de gedragsverandering van de cliënt en het versterken van het zelfmanagement.

Hoeveel bedraagt de studiebelasting?

De studiebelasting voor de cursusedagen bedraagt in totaal minimaal 20 uur studiebelasting. Dit is opgebouwd uit 2 x 7 uur contacttijd en (minimaal) 2 x 3 uur voorbereidingstijd. Accreditatie is verleend voor

Planning en globale inhoud

De cursus bestaat uit twee cursusedagen. De eerste dag staat in het teken van een introductie van Motiverende gespreksvoering en allerlei (basis)technieken. De tweede dag gaan we door op de diverse technieken en reflecteren we op je geschiktheid en ontwikkelmogelijkheden in Motiverende gespreksvoering.

Dag 1

Hieronder vind je de voorbereidingsopdrachten voor de eerste dag, het programma van de eerste cursusedag en de verwerkingsopdrachten van de eerste cursusedag.

Vorbereidingsopdrachten voor de 1^e dag

1. **Voer als allereerst de volgende opdracht uit.** In de bijlage van deze handleiding is een vragenlijst opgenomen om uw kennis te onderzoeken: Bijlage I – Korte vragenlijst MI. Ook is het

mogelijk dat u deze via email ontvangen heeft. Vul de vragenlijst in en mail deze naar het cursussecretariaat uiterlijk 2 dagen voor de eerste cursusdag. (tijdsindicatie 15-20 minuten)

2. Via email heb je een inlogcode ontvangen. Als je inlogt wordt je gevraagd een opdracht uit te voeren, een zogenaamde 'Waardensoortheertaak' (tijdsindicatie 30 minuten).
3. Bereid tenminste 2 eigen casuïstiek(en) voor waarbij het uitblijven van de gewenste gedragsverandering aan de orde was. Beschrijf bij voorkeur een client-profiel dat veelvuldig in uw eigen praktijk voorkomt. Werk de casuïstiek uit. (tijdsindicatie 45 minuten)
 - a. Beschrijf hierbij het gewenste gedrag
 - b. Uw interventies
 - c. Eventuele weerstand bij uw patiënt of uzelf
 - d. Uw eigen rol in dit proces
4. Lees het artikel 'Motiverende Gespreksvoering in een notendop' uit Bijlage III. Vat het artikel kort samen voor jezelf of maak een schema of 'mindmap' ervan. Een voorbeeld van een mindmap vindt je in bijlage II. (tijdsindicatie 120 minuten)

Programma dag 1

08.45 – 09.00	Ontvangst
09.00 – 09.30	Kennismaking en inventarisatie persoonlijke leerdoelen
09.30 – 10.45	Ambivalentie en 'Stages of Change' model Praktische oefening aan de hand van videofragment, analyse en plenaire simulatie
10.45 – 11.00	Pauze
11.00 – 11.45	Vervolg Ambivalentie; oefening in drietallen
11.45 – 12.30	Spirit en principes in de praktijk
12.30 – 13.00	Lunch
13.00 -14.45	Gesprekstechniek; gebruik van reflecties, open vragen, samenvattingen en affirmaties Uitleg en praktische oefening middels video-response en simulatie-dialogen
14.45 – 15.00	Pauze
15.00 – 15.30	Vier processen binnen MI Korte uitleg
15:30 – 17.00	Een aantal strategieën voor korte, druk-bezette

	consulten: · Agenda setting en advies geven · Informatie en Contact maken (rapid engagement)
17.00 – 17.15	Afronden dag 1 – formuleren persoonlijk actieplan implementatie in eigen praktijk

Verwerkingsopdracht van de 1^e dag.

1. Persoonlijke leerdoelen en actieplannen geformuleerd in de bijeenkomst mbt eigen gespreksvoering in de praktijk.
2. Maak voor de tweede cursusdag een audioopname van een gesprek dat jij voert met een patiënt. Dit mag een anamnese-gesprek zijn, een gesprek over therapietrouw, etc. Maak zelf een keuze. De lengte van het gesprek is niet relevant. Vervolgens:
 - a. Luister het gesprek later terug
 - b. In hoeverre zijn de processen van MI herkenbaar? Hoe vind je dat je dit gedaan hebt?
 - c. Welke vaardigheden heb je allemaal toegepast? Wat vind je hiervan? Waar ben je tevreden over en wat zou je hierin mogelijk willen verbeteren?
 - d. Schrijf deze reflecties op en neem ze mee naar de 2^e cursusdag (tijdsindicatie 30 minuten)

Dag 2

Hieronder vind je de voorbereidingsopdrachten voor de tweede dag, inclusief het programma en de verwerkingsopdrachten.

Vorbereidingsopdrachten voor de 2^e dag

1. Natuurlijk is het ook in deze cursus belangrijk te kijken naar de wetenschappelijke onderbouwing van MG. Hiertoe worden twee artikelen aangereikt ter voorbereiding op de tweede cursusdag. Tevens zijn meer artikelen digitaal beschikbaar; deze worden tijdens de cursus via een dropbox gedeeld en zijn vooral ter verdieping achteraf.
 - a. Lees uit de bijlage het wetenschappelijke artikel *A Meta-Analysis of Motivational Interviewing: Twenty-Five Years of Empirical Studies* van Brad W. Lundahl, Chelsea Kunz, Cynthia Brownell, Derrik Tollefson and Brian L. Burke. *Research on Social Work Practice* 2010 20: 137. (tijdsindicatie 100 minuten)
 - b. Lees uit de bijlage ook 'Motivational Interviewing' van Jennifer Hettema, Julie Steele, and William R. Miller uit *Annual Review Clin. Psychol.* 2005. 1:91–111. (tijdsindicatie 100 minuten)
 - c. Beschouw beide artikelen kritisch, werk dit schriftelijk uit. Neem je aantekeningen mee naar de bijeenkomst van dag 2. (tijdsindicatie 20 minuten)

Programma dag 2

08.45 – 09.00	Ontvangst
09.00 – 09.20	Terugblik op Dag 1
09.20 – 10.30	Weerstand en Verander-taal Uitleg Simulatie-oefeningen
10.30 – 10.45	Pauze
10.45 – 12.30	Weerstand en Verander-taal (vervolg)
12.30 -13.00	Lunch
13.00 – 14.00	Casuïstiek van deelnemers Inventarisatie Oefening plenair Oefening in kleine groepjes
14.00 – 14.45	Bespreking wetenschappelijk bewijs aan de hand van de artikelen uit de voorbereiding van vandaag

14.45 – 15.00	Pauze
15.00 – 16.00	Capita selecta. Opties o.a.: Therapietrouw ondersteunen, Terugval- preventie, Variatie in reflectie-diepte
16.00 – 17.00	Plenaire integratie-oefening. Iedereen oefent en/of geeft feedback. Thema: de balans tussen cliënt-gericht en directief zijn.
17.00 – 17.15	Afronden Dag 2 / Afsluiten en certificering

Verwerkingsopdracht van de 2^e dag.

1. Persoonlijke leerdoelen en actieplannen geformuleerd in de bijeenkomst mbt eigen gespreksvoering in de praktijk..
2. Facultatieve opdracht – voor wie door weer leren.....
 - i. Neem in de loop van de weken 3 gesprekken op (audio of video) die je voert met je cliënten en waarin pijn en motivatie centrale issue's zijn. Luister de gesprekken terug en observer je eigen vaardigheden met behulp van observatieblad 'Vechten of dansen', 'ORBS' en 'Verandertaal'. Vergeet niet om toestemming van de client te vragen voordat je een opname maakt! (tijdsindicatie 120 minuten)
 - ii. Kies het beste gesprek uit en schrijf een reflectie op dit gesprek en jou functioneren. Maak hierbij gebruik van de presentatie-handout en het observatieblad. Formuleer als besluit op je reflectie twee leerdoelen waarmee je aan de slag gaat in de praktijk en waar aan je wilt werken in de laatste cursusdag. (tijdsindicatie 30 minuten)
 - iii. Stuur de opname van het gesprek en jouw reflectie hierop naar het cursussercretariaat. Als het video/audio bestand erg groot is kun je eenvoudig gebruik maken van <https://www.wetransfer.com> (tijdsindicatie 10 minuten)

Bibliografie

Miller, W. R. & S. Rollnick (2014). *Motiverende gespreksvoering – derde editie. Mensen helpen veranderen*. Ekkesia.

Prochaska, J. R. (2002). The Transtheoretical model and stages of change. In *Health behaviour and health education: theory, research and practice*. (pp. 99-120). San Francisco: Jossey-Bass.

Jennifer Hettema, Julie Steele, and William R. Miller. *Motivational interviewing*. Annual Review Clin. Psychol. 2005. 1:91–111.

Marije S. Koelewijn-van Loon, Trudy van der Weijden, Gaby Ronda, Ben van Steenkiste, Bjorn Winkens, Glyn Elwyn, Richard Grol. *Improving lifestyle and risk perception through patient involvement in nurse-led cardiovascular risk management: A cluster-randomized controlled trial in primary care*. Preventive Medicine 50 (2010) 35–44.

Brad W. Lundahl, Chelsea Kunz, Cynthia Brownell, Derrik Tollefson and Brian L. Burke. *A Meta-Analysis of Motivational Interviewing: Twenty-Five Years of Empirical Studies*. Research on Social Work Practice 2010 20: 137

Renata K. Martins, Daniel W. McNeil. *Review of Motivational Interviewing in promoting health behaviors*. Clinical Psychology Review 29 (2009) 283–293

Adrian Schoo. *Motivational Interviewing in the Prevention and Management of Chronic Disease: Improving Physical Activity and Exercise in Line with Choice Theory*. International Journal of Reality Therapy • Spring 2008 • Vol.XXVII, number 2

V.F. Kortleve, 2015. *Motiverende gespreksvoering in een notendop*. Infysio 2015, 1 en 2.

K. Vibe Fersum et al. *Efficacy of classification-based cognitive functional therapy in patients with non-specific chronic low back pain: A randomized controlled trial*. European Journal of Pain (2012).

J. Rau et al. *Einfluss einer Motivations- intervention auf die Bewältigung chronischer Schmerzen. Ergebnisse einer kontrollierten Wirksamkeitsstudie*. Schmerz 2008, 22:575–585.

J. Rau, F. Petermann. *Motivationsförderung bei chronischen Schmerzpatienten*. Schmerz 2008, 22:209–219.

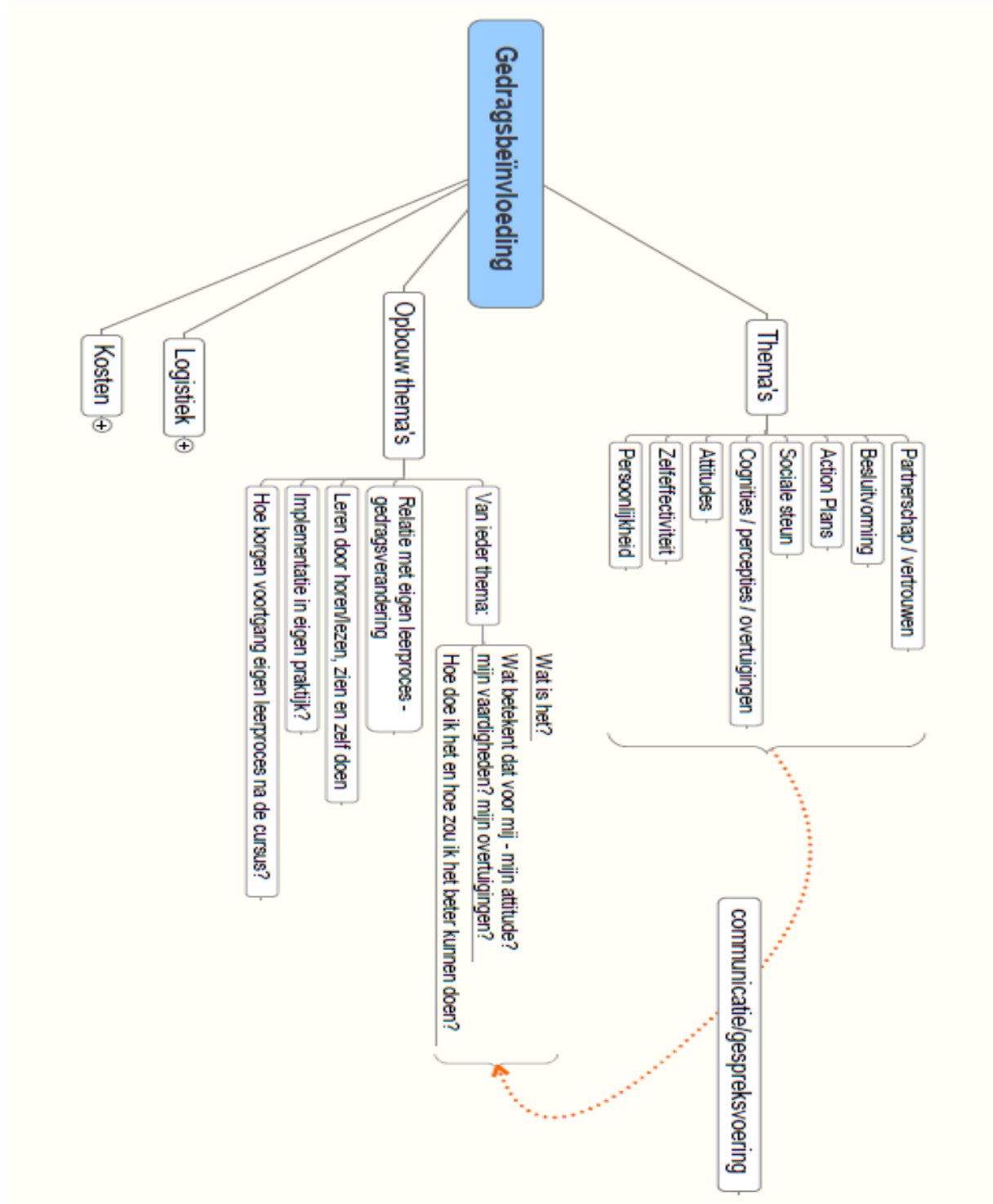
J. Nijs et al. *How to explain central sensitization to patient's with unexplained chronic musculoskeletal pain: Practice guidelines*. Manual Therapy, 2011.

Bijlage I

Vragenlijst MI – wordt per email toegezonden.

Bijlage II

Een voorbeeld van een mindmap, in dit geval een cursus (niet deze cursus) over gedragsverandering.



Bijlage III

Motiverende gespreksvoering in een notendop.

Vincent Kortleve

Inleiding

Veranderen is een lastig proces dat vaak moeizaam verloopt en veel energie kost. Of het nu ogenschijnlijk kleine veranderingen zijn zoals het doen van oefeningen of grote veranderingen zoals een verandering in leefstijl. Het is niet gemakkelijk om uit oude patronen te stappen en nieuw gedrag te ontwikkelen en vol te houden. Tegelijkertijd brengt de verandering ook nieuwe kansen met zich mee, verbeteringen, minder klachten, een betere gezondheid, trots over eigen kunnen, bevestiging dat iets wél kan. Een verandering die voordelen oplevert welke verbonden zijn met hetgeen door de betrokkene als belangrijk wordt gezien (en benoemt!) heeft meer kans van de grond te komen. De persoonlijke waarden of intrinsieke motivatie geeft hier de doorslag. Motiverende gespreksvoering helpt de intrinsieke motivatie te zoeken, te vinden en uiteindelijk te vergroten.

Wat is Motiverende gespreksvoering?

Motiverende gespreksvoering wordt door de grondleggers van de motiverende gespreksvoering, Miller en Rollnick, gedefinieerd als *een op samenwerking gerichte gespreksstijl die iemands eigen motivatie en bereidheid tot verandering versterkt. (2014, Miller/Rollnick)*. De definitie markeert duidelijk dat het gaat om de intrinsieke motivatie van de persoon zelf. Lastig aspect bij veranderen is dat veel mensen die iets willen veranderen ambivalent zijn: ze ervaren voordelen van de verandering maar tevens ook nadelen. Door als fysiotherapeut samen te werken met de cliënt en door de inzet van een gidsende gespreksstijl wordt deze ambivalentie door de cliënt verkent en uiteindelijk opgelost. Belangrijk is dat de cliënt zelf de argumenten die voor hem doorslaggevend zijn ten gunste van de verandering uitsprekt en hierin niet door de fysiotherapeut wordt geduwd of overtuigd. Deze acceptatie komt nog meer tot uitdrukking in de houding van de fysiotherapeut waarmee hij een veilige, ondersteunende en vertrouwde sfeer probeert te scheppen.

De centrale taak voor de fysiotherapeut is de cliënt zijn intrinsieke motivatie te helpen onderzoeken en door de gidsende interventies te helpen versterken. Dit maakt motiverende gespreksvoering niet vrijblijvend maar legt de focus op verandering die de cliënt expliciet of impliciet wenst.

De uitgangspunten

Motiverende gespreksvoering kent een viertal uitgangspunten. Deze zijn: partnerschap, acceptatie, compassie en ontlokken. De professional werkt vanuit deze vier uitgangspunten; ze vormen zijn attitude. Hij is intrinsiek overtuigd dat deze elementen essentieel zijn in zijn hulpverlening aan de ander.

Partnerschap: vanuit werkelijk gelijkwaardigheid werken cliënt en fysiotherapeut met elkaar samen.

Weliswaar verschilt beider expertise maar toch: beiden zijn expert en hebben elkaar nodig. De cliënt is expert in zichzelf en zijn dagelijks leven. De fysiotherapeut in zijn specifieke vakgebied en vertrouwt op de 'andere' expertise van de cliënt. Door nu werkelijk en zonder voorbehoud samen te werken komen beide expertises bij elkaar en ontstaat $1+1 = 3$.

Acceptatie: de accepterende houding van de fysiotherapeut probeert de autonomie van de cliënt op volledige sterkte te laten functioneren. Is de autonomie (tijdelijk) verminderd dan zet de fysiotherapeut

alles in het werk om de cliënt zijn potentieel volledig te laten aanspreken binnen de grenzen van het mogelijke. De cliënt is uiteindelijk degene die beslist en wordt hierin gefaciliteerd.

Compassie: door alles te doen om de belangen en het welzijn van de cliënt zo optimaal mogelijk te dienen toont de fysiotherapeut zijn compassie. Dit aspect maakt dat professionals vaak een bepaalde voorkeur hebben voor wat betreft de richting van het veranderproces, namelijk de richting die bijdraagt aan het welzijn en gezondheid van de cliënt. Lastig hierbij kan zijn dat compassie en acceptatie elkaar in de praktijk weleens 'in de weg lijken te zitten'.

Ontlokken: in motiverende gespreksvoering probeert de fysiotherapeut doelgericht gedachten en gevoelens van de cliënt te onderzoeken, te begrijpen en te reflecteren. Door het inzetten van empathie benoemt de fysiotherapeut ook aspecten binnen de motivatie van de cliënt die hij zelf slechts zijdelings bewust is. Hierdoor kan bij de cliënt begrip ontstaan van zijn eigen intrinsieke motivatie (zijn doelen, wensen, verwachtingen en beweegredenen) en vermindert zijn ambivalentie.

Processen van MG

Binnen het motiverende gesprek zijn vier processen te herkennen die structuur geven aan het gesprek. Dit zijn engageren, focussen, ontlokken en plannen. Deze processen verlopen deels volgorde-lijk alhoewel dit geen wetmatigheid is.

Engageren doelt op de relatie en het vertrouwen dat cliënt en fysiotherapeut in elkaar stellen. Dit is nodig om de andere processen mogelijk te maken. Engageren is als basis te zien voor het gesprek en vormt een fundament voor de andere processen. Door de cliënt voortdurend het gevoel te geven dat hij wordt gesteund ontstaat meer vertrouwen in eigen kunnen en tevens het gevoel er niet alleen voor te staan.

Het tweede proces, **focussen**, impliceert dat richting en doel ontstaat in het gesprek. Deze focus komt vanuit gezamenlijke besluitvorming tot stand en wordt door de fysiotherapeut gemonitord. Ook regelmatig reflecteren op afgesproken doelen en het bijstellen hiervan kan noodzakelijk zijn en vormt onderdeel van dit proces.

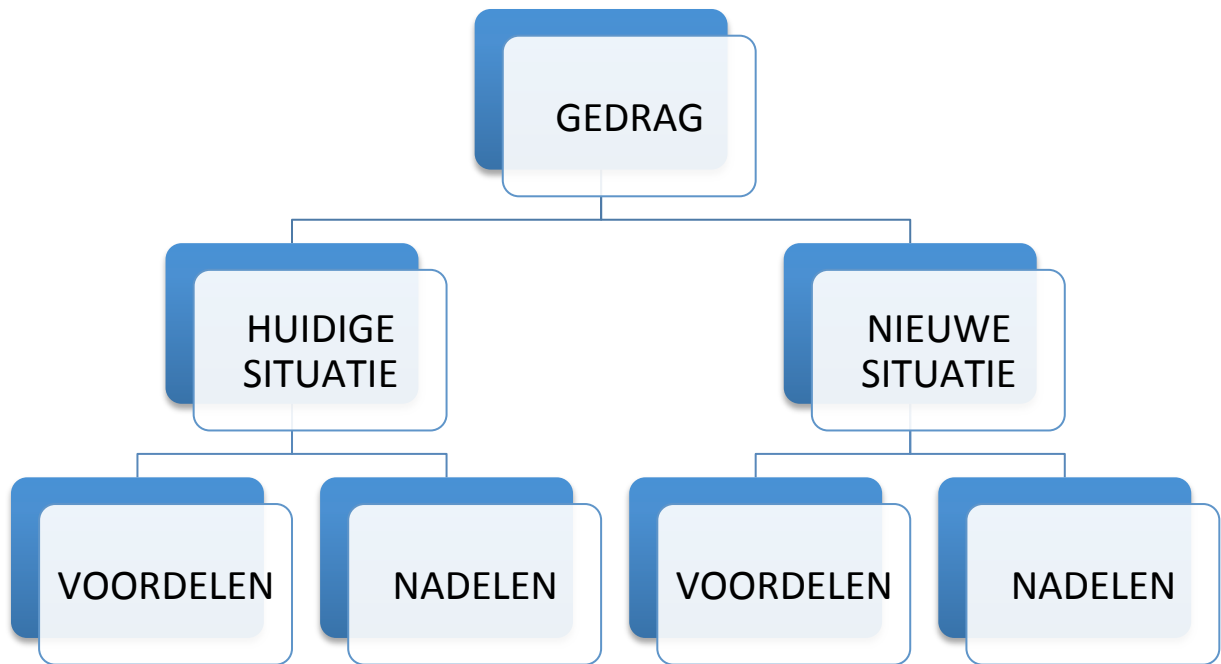
In het derde proces, **ontlokken**, wordt de intrinsieke motivatie van de cliënt gezocht en geëxploreerd. De fysiotherapeut luistert, stelt vragen en reflecteert de uitspraken van de cliënt waarin deze zijn ambivalentie met betrekking tot de verandering onder woorden brengt. Uiteindelijk probeert hij de cliënt motieven te ontlokken ten gunste van de verandering. Cruciaal hierin is dat de cliënt deze zelf benoemd.

Door het proces van **plannen** realiseert de fysiotherapeut samen met de cliënt uiteindelijk de transfer naar uiteindelijk gedrag. Bijvoorbeeld door een plan van aanpak op te stellen, stappen te zetten om terugval te voorkomen of een vervolgspraak te plannen waarin verder met elkaar wordt gesproken over de intrinsieke motivatie van de cliënt .

De processen van motiverende gespreksvoering passen goed binnen het fysiotherapeutisch consult. Op sommige momenten zal een en ander meer tijd vragen maar op andere momenten juist tijd en andere voordelen opleveren. Ook zijn korte interventies mogelijk die bovengenoemde processen als basis hebben.

Veranderen en ambivalentie

Veranderen geeft conflict tussen dingen die mensen belangrijk vinden. Dit uit zich in de uitspraken die mensen hierover doen. Zij praten over bezwaren en de inspanning die het hen kost maar ook over wat het hen oplevert: de verandering en resultaten waar zij naar verlangen. Waarschijnlijk herken je dit. Het wordt ambivalentie genoemd: iemand die iets wil veranderen ziet ook de knelpunten en schaduwkanten ervan. Deze 'tweelichtigheid' is zichtbaar bij veel mensen die een verandering overwegen. Ze wikken en wegen tussen voors en tegens. Gevolg is vaak dat menigee uiteindelijk niet aan verandering toekomt. Men blijft ambivalent en kiest daardoor niet. En daarmee blijft alles bij het oude, terwijl de persoon in kwestie toch eigenlijk best wil....ergens diep van binnen..... Ambivalentie kan overigens de indruk wekken dat iemand helemaal niet wil, niet gemotiveerd is. Maar dat is te kort door de bocht. Beter is het om te spreken van een 'intern conflict'.



De voor- en nadelen van de verandering staan natuurlijk niet op zichzelf. Het zijn de meer concrete zaken die mensen voor zichzelf zien. 'Onder' deze voor- en nadelen gaan echter die zaken schuil die mensen belangrijk vinden. Deze 'waarden' conflicteren met elkaar waardoor het komen tot een keuze en uiteindelijk gedrag bemoeilijkt wordt.

Door in gesprek met de cliënt de voor- en nadelen van de verandering te exploreren worden deze aan de betrokkene helder en ontstaat de mogelijkheid om hier expliciet over na te denken, betekenis aan te geven, te wikken en wegen en tenslotte te besluiten. In dit proces probeert de fysiotherapeut ook de cliënt te ontlocken meer gewicht toe te kennen aan argumenten die pleiten voor de verandering naar 'gezond gedrag'.

Technieken/vaardigheden

Wat is nu het concrete instrumentarium waarmee motiverende gespreksvoering wordt beoefend? Wel, vijf vaardigheden worden beschreven als zijnde de basisvaardigheden in motiverende gespreksvoering. Het gaat om:

- Open vragen stellen
- Reflectief luisteren
- Bevestigen
- Samenvatten
- Informatie en advies geven met toestemming

Deze basisvaardigheden laten zich samenvoegen onder het acroniem ORBSI. Op het oog heel gebruikelijke vaardigheden. Iedereen past deze vrijwel allemaal dagelijks toe in gesprekken met cliënten. Een korte toelichting helpt mogelijk om inzichtelijk te maken wat er bijzonder aan is.

Open vragen stellen

Het stellen van open vragen nodigt de cliënt uit te exploreren. Hij krijgt ruimte en vertrouwen doordat hij de mogelijkheid heeft de inhoud van het gesprek mede te bepalen. Op zoek naar de intrinsieke motieven van de cliënt zijn open vragen nuttig omdat ze de cliënt stimuleren zijn intrinsieke motivatie te onderzoeken en onder woorden te brengen. Tevens kan de fysiotherapeut het thema van het gesprek, en daarmee de 'mindset' van de cliënt, beïnvloeden als hij dat passend vindt. Kijk maar naar de volgende vraag: 'welke voordelen kan deze verandering je opleveren denk je?' Deze open vraag stuurt meer dan: 'wat kan deze verandering je opleveren denk je?'

Reflectief luisteren

Het reflectief luisteren is een vaardigheid die empathie veronderstelt. Hierdoor is de fysiotherapeut in staat om te benoemen wat de cliënt bedoelt te zeggen of met zijn non-verbale gedrag tot uitdrukking brengt. Hierin kan de fysiotherapeut dichtbij wat de cliënt zegt of bedoeld blijven. Daarnaast is het ook mogelijk in de reflectie de bedoeling van de cliënt enigszins te versterken. Hierbij wordt de mogelijke impliciete bedoeling van de uitspraak of uitdrukking van de cliënt gereflecteerd en zelfs min of meer 'aangedikt'. Dit past binnen het ontlokken zoals dat eerder in dit artikel is besproken. De reflectie heeft tot doel de cliënt terug te geven wat hij zegt of bedoelde, hem eventueel te ontlokken en laat bovendien blijken dat de fysiotherapeut heeft geluisterd en de ander probeert te begrijpen.

Bevestigen

Benoemen wat er goed gaat en wat er lukt speelt een belangrijke rol in het veranderproces. Veel cliënten (en fysiotherapeuten...) zijn geneigd te kijken naar wat er niet goed gaat en hier aandacht aan te geven. Gevolg is mogelijk dat de cliënt geneigd is te denken dat hij niet zal slagen en dat 'alles mislukt'. Door daarentegen die zaken te benoemen die helpend zijn voor de verandering of die al zijn gerealiseerd (hoe klein dan ook) verandert de 'mindset' van de cliënt in een veranderingsgezinde richting. Ook verandertaal zal hierdoor eerder ontstaan.

Samenvatten

Samenvatten van aspecten van het gesprek heeft als resultaat dat u als fysiotherapeut laat blijken dat u geluisterd heeft. Door specifieke elementen wel en andere juist niet samen te vatten biedt het bovendien de mogelijkheid het gesprek te structureren en sturen op een manier die past bij de fase van het gesprek.

Informatie en advies geven met toestemming

Ook in motiverende gespreksvoering wordt het van belang geacht dat de cliënt goed is geïnformeerd. Informeren wordt echter niet als eenrichtingsverkeer beschouwd maar als een interactie. Deze wordt bereikt door informatie altijd vooraf te laten gaan door het vragen om toestemming om de informatie te

geven. Vervolgens wordt gezocht naar wat de cliënt er al vanaf weet (als dat nog niet duidelijk is) en wordt informatie 'op maat' aangeboden. Tenslotte wordt de cliënt gevraagd wat hij van de aangeboden informatie vindt en wat het voor hem betekent.

Verandertaal

Veranderen geeft conflict tussen dingen die mensen belangrijk vinden. Dit uit zich in de uitspraken die mensen hierover doen. Uitspraken waarmee de cliënt zichzelf motieven geeft ten gunste van de verandering worden 'verandertaal' genoemd. Dit taalgebruik van de cliënt geeft aan in hoeverre de cliënt gemotiveerd is om te veranderen. Er worden vier categorieën beschreven:

- redenen
- wensen
- mogelijkheden
- noodzaak

Naarmate de cliënt meer uitspraken doet waarin verandertaal is te herkennen geeft de cliënt zichzelf meer argumenten om daadwerkelijk te veranderen. De fysiotherapeut kan dergelijke uitspraken op gewenste momenten in het gesprek ontlokken en versterken waardoor de intrinsieke motivatie van de cliënt nog duidelijker naar voren komt. Verander-uitspraken uit de mond van de fysiotherapeut hebben dit effect niet. Hoe meer verandertaal de cliënt gebruikt hoe duidelijk het voor hem is dat hij werkelijk aan verandering toe is en de ambivalentie afneemt ten gunste van de verandering,

Tot slot

Veranderen is een uitdagend proces. Motiverende gespreksvoering is een benadering die werkt mits het wordt beoefend als een stijl, vanuit een attitude. Het is geen trukendoos die de cliënt stuurt naar de plek waar de fysiotherapeut hem wil hebben.

Veel fysiotherapeuten gebruiken met succes motiverende gespreksvoering en hebben hun totale benadering van cliënten in de fysiotherapeutische praktijk er door laten beïnvloeden. Ook korte interventies vanuit een motiverende benadering kunnen effectief zijn: het is zeker niet nodig alleen nog maar met uw cliënten te praten waardoor u niet meer toekomt aan 'hands-on' interventies. Juist in combinatie met uw vakspecifieke 'skills' is motiverende gespreksvoering een verrijking van uw dagelijks werk.

Literatuur

Miller, W. & S. Rollnick. 2014. *Motiverende gespreksvoering. Mensen helpen veranderen*. Derde editie. Ekklesia

Rik Bes, 2014. *Introductietekst Motivational Interviewing*. Centre for Motivation and change.

Bijlage IV

A Meta-Analysis of Motivational Interviewing: Twenty-Five Years of Empirical Studies

Brad W. Lundahl, Chelsea Kunz, Cynthia Brownell, Derrik Tollefson and Brian L. Burke.

Research on Social Work Practice 2010 20: 137.

A Meta-Analysis of Motivational Interviewing: Twenty-Five Years of Empirical Studies

Research on Social Work Practice
20(2) 137-160
© The Author(s) 2010
Reprints and permission:
sagepub.com/journalsPermissions.nav
DOI: 10.1177/1049731509347850
rswp.sagepub.com



Brad W. Lundahl,¹ Chelsea Kunz,¹ Cynthia Brownell,¹
Derrick Tollefson,² and Brian L. Burke³

Abstract

Objective: The authors investigated the unique contribution motivational interviewing (MI) has on counseling outcomes and how MI compares with other interventions. **Method:** A total of 119 studies were subjected to a meta-analysis. Targeted outcomes included substance use (tobacco, alcohol, drugs, marijuana), health-related behaviors (diet, exercise, safe sex), gambling, and engagement in treatment variables. **Results:** Judged against weak comparison groups, MI produced statistically significant, durable results in the small effect range (average $g = 0.28$). Judged against specific treatments, MI produced nonsignificant results (average $g = 0.09$). MI was robust across many moderators, although feedback (Motivational Enhancement Therapy [MET]), delivery time, manualization, delivery mode (group vs. individual), and ethnicity moderated outcomes. **Conclusions:** MI contributes to counseling efforts, and results are influenced by participant and delivery factors.

Keywords

motivational interviewing; meta-analysis; review

Introduction

Motivational interviewing (MI), which originated in the early 1980s, has become a well-recognized brand of counseling. A simple literature search using the term “motivational interviewing” as the keyword in one database, PsycInfo, revealed three references during the 10-year span of 1980 to 1989, 35 references from 1990 to 1999, and 352 from 2000 to December of 2008. Interest in MI continues to grow at a rapid pace (Prochaska & Norcross, 2007), perhaps because it is short-term, teachable, and has a humanistic philosophy.

Only a brief definition of MI is given here as many other sources provide thorough explanations (e.g., Arkowitz, Westra, Miller, & Rollnick, 2008; Miller, & Rollnick, 2002; Rollnick, Miller, & Butler, 2008). MI is a counseling approach that is, at once, a philosophy and a broad collection of techniques employed to help people explore and resolve ambivalence about behavioral change. In brief, the philosophy of MI is that people approach change with varying levels of readiness; the role of helping professionals is thus to assist clients to become more aware of the implications of change and/or of not changing through a nonjudgmental interview in which clients do most of the talking. A central tenet of MI is that helping interventions are collaborative in nature and defined by a strong rapport between the professional and the client. MI is unmistakably person-centered in nature (cf., Rogers, 1951),

while also being directive in guiding clients toward behavioral change.

Professionals trained in MI generally gain knowledge and skills in four areas, consistent with the overall philosophy of MI: (a) expressing empathy, which serves many goals such as increasing rapport, helping clients feel understood, reducing the likelihood of resistance to change, and allowing clients to explore their inner thoughts and motivations; (b) developing discrepancy, which essentially means that clients argue, to themselves, reasons why they should change by seeing the gap between their values and their current problematic behaviors; (c) rolling with resistance, which means that clients' reluctance to make changes is respected, viewed as normal rather than pathological, and not furthered by defensive or aggressive counseling techniques; and (d) supporting clients' self-efficacy, which means that clients' confidence in their ability to change is acknowledged as critical to successful change efforts.

¹ University of Utah

² Utah State University

³ Fort Lewis College

Corresponding Author:

Brad W. Lundahl, 395 South 1500 East, Salt Lake City, UT 84121.
Email: Brad.Lundahl@socwk.utah.edu

Through meta-analysis, the current article examines the degree to which MI is able to help clients change. Considerable research has been applied to the question of whether MI is effective or efficacious, including primary studies, literature reviews, and meta-analyses. Indeed, many gold-standard trials have examined the question of efficacy of MI (e.g., Project Match, 1997, 1998) and several previous meta-analyses on MI have been published (Burke, Arkowitz, & Menchola, 2003; Hettema, Steele, & Miller, 2005; Vasilaki, Hosier, & Cox, 2006). While we believe these efforts have done much to enhance our understanding of MI's efficacy, we believe further investigation through meta-analytic techniques is warranted for several reasons. First, we believe a different approach to conducting a meta-analysis may reveal a "cleaner" picture of the unique contribution of MI as we delineate further below. Second, many new primary studies bearing on the effectiveness of MI have been published since the last meta-analysis, and our search yielded several articles not included in previous reviews. (Note: Studies included in this meta-analysis included both efficacy and effectiveness trials; we use the term "effectiveness" here for consistency.)

Prior to reviewing previously published meta-analyses, we briefly review the goals and methods used to conduct these types of studies (see Cooper & Hedges, 1994; Lipsey & Wilson, 2001; Lundahl & Yaffe, 2007). Meta-analysis is a method for quantitatively combining and summarizing the quantitative results from independent primary studies that share a similar focus. As most primary studies vary in the number of people who participated and the measurement tools used to assess outcomes, a meta-analysis utilizes a metric that can standardize results onto a single scale: an effect size. An effect size refers to the magnitude of the effect or the strength of the intervention. For the current meta-analysis, we used Hedge's g (a nonbiased estimate of Cohen's (1988) d) as our effect size, which is a measure of group differences expressed in standard deviation units. For example, an effect size of $d = 1.00$ would suggest positive movement of a full standard deviation of clients in the treatment group relative to the comparison group, whereas an effect size of $d = 0.50$ would suggest positive movement of a half of a standard deviation. In meta-analyses, convention holds that an effect size around the "0.20" range is small, yet statistically significant, whereas effect sizes in the "0.50" and "0.80" are moderate and large, respectively (Cohen, 1988).

In a meta-analysis, effect sizes are calculated from primary studies and then statistically combined and analyzed. In addition to describing the basic characteristics of the empirical studies of MI interventions, our review attempts to answer three questions that are commonly explored via a meta-analysis (Johnson, Mullen, & Salas, 1995). First, meta-analysis investigates the central tendency of the combined effect sizes. Second, meta-analysis is interested in understanding variability around the overall effect size. If variability is low, then the overall effect size is considered a good estimate of the average magnitude of effect across studies. If variability is high, then the overall effect size is not considered a good estimate, which leads to the third common question in meta-analysis:

what predicts the variability. To predict or understand high variability, two types of moderator analyses can be conducted: (a) an analog to the analysis of variance (ANOVA), wherein effect size differences are examined based on categorical variables within studies (e.g., treatment format, type of comparison group used), and (b) a weighted multiple regression, which uses continuous variables (e.g., treatment length) as potential predictors of the mean effect size (Borenstein, Hedges, Higgins, & Rothstein, 2005).

We now turn to a brief review of the three existing meta-analyses in the field of MI. Burke et al. (2003) published the first of these studies. These authors included 30 controlled clinical trials that focused primarily on the implementation of MI principles in face-to-face individual sessions. In terms of comparative efficacy, MI treatments were superior to no-treatment or placebo controls for problems involving alcohol, drugs, and diet and exercise, with effect sizes ranging from $d = 0.25$ to 0.57 . There was no support for the efficacy of adaptations of MI in the areas of smoking cessation and HIV-risk behaviors in the two studies available at that time. Results were near zero (0.02) in the seven studies that compared MI treatments to other active treatments, although the MI treatments were shorter than the alternative treatments by an average of 180 min (three or four sessions). Interestingly, MI effects were found to be durable across sustained evaluation periods. While only a few studies were included in the moderator analyses, Burke et al. (2003) found that higher doses of treatment and using MI as a prelude to further treatment were associated with better outcomes for MI in substance abuse studies.

Hettema et al. (2005) published the second meta-analysis that included 72 studies in which the singular impact of MI was assessed or in which MI was a component of another active treatment. Among groupings with three or more studies, effect sizes ranged from a low of $d = 0.11$ to a high of $d = 0.80$ ($p = .97$) across all studies, all outcomes (e.g., alcohol use, treatment compliance), and all time frames. While an overall effect size was provided, it may have been unduly influenced by a single outlier study that had an effect size that was more than 400% larger ($d = 3.40$) than the next largest value ($d = 0.80$). The authors also investigated several possible correlates or moderators of the outcomes, finding no relationship between outcomes and the following variables: methodological quality, time of follow-up assessment, comparison group type, counselor training, participants' age, gender composition, problem severity, or problem area. The only significant predictors of effect size for MI were as follows: manualized interventions yielded weaker effects and benefits from MI decreased significantly as follow-up times increased.

Vasilaki and colleagues (2006) published the third meta-analysis. Unlike the previous two meta-analyses that examined a wide range of behaviors, this study focused exclusively on studies of interventions that targeted excessive alcohol consumption. To be included, studies needed to claim that MI principles were adopted as well as include a comparison group and utilize random assignment. The aggregate effect size for the 15 included studies, when compared to no-treatment control

groups, was $d = 0.18$ and, when compared to other treatment groups, it was $d = 0.43$, although this difference by comparison group was not statistically significant.

Considering the converging outcomes across these three previous meta-analyses, there is sufficient evidence to support MI as a viable and effective treatment method. In many respects, the three studies point to a similar picture: outcomes tend to be in the low-to-moderate range of effect sizes and are not homogeneous. Key differences between these three meta-analyses include the fading of MI effects over time (supported by only two of the three reviews) and the moderating variables that emerged, ranging from dose and format of the treatment to manual guidance and sample ethnicity.

In the current meta-analysis, we sought to address two common shortcomings in the previous meta-analyses: (a) they ran moderator analyses with small numbers of studies and (b) they included studies that could not specifically isolate the unique effect of MI without being confounded by other treatments or problem feedback. Thus, the primary goal of the current meta-analysis was to investigate the unique effect of MI compared with other treatments or control conditions. While it can be argued that “pure” MI is not possible, given the likelihood of including other components, some studies utilize designs that allow for isolation of the unique contribution of MI or provide a direct comparison of MI to other treatments. Our review only included such studies in an effort to overcome the potential confounds found in prior meta-analyses. Furthermore, our review sought to examine and clarify the possibility of moderator effects.

Method

Literature Search

Three basic strategies were used to identify possible studies. First, we utilized a bibliography of outcome research assessing MI that was compiled by the co-founder of MI, Dr. William Miller. At the time of the literature search (2007), 167 articles were cited in the bibliography, all of which were secured and screened for eligibility. Second, we identified articles using the references cited in other meta-analyses and review studies. Third, we conducted a broad literature search using various article databases; this strategy had the most emphasis. Four search terms were used to identify articles reporting on MI. The two “brand names” most commonly used with MI were used, namely “motivational interviewing” and “motivational enhancement.” To ensure that we did not miss other articles, we also included more generic terms that involve motivational interventions, even though such interventions may not have used MI proper; the other terms were “motivational intervention” and “motivation intervention.” These four terms were entered using the connector “OR” so that any one of these terms would generate a hit.

The following 11 databases were searched: Psycinfo, PsycARTICLES, Psychology and Behavior, Medline, CINHALL, ERIC, Business Source Premier, Pub Med Academic Search Premier, Social Services Abstracts, and Sociological Abstracts.

We note that the other three meta-analyses, as far as we can discern, searched no more than four databases, which may account for the larger number of studies included in the current study.

In total, this strategy yielded 5,931 potential articles. These references were exported using Endnote software. In this process, references were categorized by author and 861 duplicates were identified and discarded. Using Endnote, the remaining 5,070 articles were screened and discarded if they were published before 1984 or were dissertations. Articles before 1984 were discarded because MI was not introduced until this date. This step removed 85 articles. We then used the Endnote to search within the remaining articles. Articles were excluded if they did not have the terms “motivational interviewing” or “motivational enhancement” in the keywords, leaving 1,288 articles. We then cross-referenced the 167 articles previously ordered from the bibliography with the articles retrieved in the basic literature search, which produced 1,128 articles that were screened for inclusion.

Screening Articles for Inclusion

The 1,128 articles were screened by their source and abstracts. Articles were retained if the abstract indicated that (a) the main principles of Motivational Enhancement Therapy (MET; see below for description) or MI were used; (b) a treatment group and a comparison group were included; (c) the intervention was delivered by humans; (d) the study was published in a peer-reviewed journal (Note: This was done to establish a more homogenous sample of studies, to facilitate potential replication by other researchers, and because searching the “gray” literature can introduce systematic sampling error); and (e) the study was reported in English. This screening strategy yielded 183 articles that were then retrieved and combined with the 167 articles taken from Miller’s bibliography.

Once the articles were obtained, they were subjected to a more rigorous screening using two criteria. First, the study design had to isolate the impact of MI on client behavior change or to provide a clear head-to-head comparison of MI to another intervention. A study was therefore included if (a) there was a comparison with waitlist or control groups, even when the effects of attention (talk time) were not controlled for (such as by mere dissemination of written materials); (b) an intervention used MI as an additive component and the comparison group also used the same intervention minus MI; (c) MI was compared to a “treatment as usual” (TAU) condition as this represents a head-to-head comparison of MI and other treatments even though the design cannot precisely isolate the impact of MI; or (d) the intervention was MET, even though this subdivision of MI includes feedback from standardized assessment measures (we used this subdivision as a possible moderator described below); or (e) the comparison group included the dissemination of written materials, such as an information pamphlet, as we reasoned that this type of comparison group is likely a hybrid between a waitlist and a TAU comparison group. Studies were excluded from this review if MI was specifically combined with another, identified intervention

and the comparison group was only a waitlist or control group. Finally, studies originating from the Project MATCH Research Group (1997, 1998) were excluded from this review, even though they represented head-to-head comparisons, because the result sections of these reports most consistently reported interaction effects whereas our meta-analysis required reporting of main effects. Thus, if we were to extract effect sizes, they would not be representative of the entire sample across all Project MATCH sites and participants resulting in systematic sampling bias.

Coding Studies: Reliability

Following the screening process, all articles were independently coded for participant characteristics and for study characteristics. Coding was conducted by graduate-level research assistants (CK and CB) under the supervision of the primary author. Average interrater reliability was high $r = .89$ for continuous variables and for categorical variables $\kappa = .86$ (Landis & Koch, 1977).

Dependent Variables: Outcomes Assessed

MI interventions have targeted a wide range of behaviors and, as expected, a wide range of measurement tools have been used to assess outcomes. Among the studies included in our review, we identified eight broad outcomes related to health. Of these, seven addressed observable behaviors: alcohol use, marijuana use, tobacco use, miscellaneous drug use (e.g., cocaine, heroin), increases in physically healthy behavior (e.g., exercise, eating patterns), reductions in risk-taking behavior (e.g., unprotected sex), and gambling. The other category included indicators of emotional or psychological well-being (e.g., depression or stress). Three other outcomes were also assessed that related more directly to client motivation: engagement in treatment (e.g., keeping appointments, participation in treatment), self-reported intention to change (e.g., movement in the Stages of Change model; Prochaska & Norcross, 2007), and self-reported confidence in one's ability to change. Finally, three other outcome groups were identified but not included beyond initial results because fewer than three studies contributed to each of the outcome groups: eating disorder behavior (binging/purging), parenting practices, and drinking potable water.

Within each broad category above, the specific dependent measures we identified were multifaceted. For example, indicators related to alcohol use include, but are not limited to, abstinence rates, relapse rates, number of drinking days per week, number of drinks consumed, number of bingeing episodes, blood alcohol concentration, dependency on alcohol, and/or problems arising from alcohol consumption (e.g., drinking and driving). Each indicator provides a nuanced perspective of alcohol use patterns, and different measurement tools may examine slightly different aspects of each perspective. In our review, we grouped the multifaceted aspects of a particular outcome into its broader category (e.g., alcohol use) so that the reader will have a general understanding of the value of MI.

Potential Moderators

We examined eight categorical variables and seven continuous variables as potential moderators to the effects of MI across these studies. The seven categorical variables were coded as follows.

Comparison group. Coded as one of five types: (a) waitlist/control groups that did not receive any treatment while MI was being delivered; (b) treatment as usual (TAU) without a specific treatment mentioned (e.g., groups received the typical intervention used in an agency); (c) TAU with a defined or specifically named program (e.g., 12-step program or cognitive behavioral therapy); (d) written materials given to the comparison group (e.g., pamphlet discussing the risks of unprotected sex, drug use, etc.); or (e) an attention control group wherein the comparison group received nonspecific attention.

Clients' level of distress. In an effort to estimate the degree to which MI works with populations with varying levels of distress, studies were coded into three groups: (a) significant levels of distress or impairment, which meant that most of the sample (i.e., above 50%) would qualify for a diagnosis (e.g., alcohol dependency) in a system such as the Diagnostic and Statistical Manual of Mental Disorders (*DSM*) or the International Classification of Disease (*ICD*); (b) moderate levels of distress, when a problematic behavior was targeted even though the behavior probably had not caused significant impairment in everyday functioning (e.g., occasional marijuana use, overweight college students); or (c) community sample, when the targeted behaviors were important, but the sample likely functioned well (e.g., increasing adherence to a medicine or exercise regime or increasing fruit and vegetable intake in an otherwise health sample of participants).

MI type. MI is usually delivered in one of two methods. First, "standard" or "pure" MI involves helping clients change through skills basic to MI as described above. A second way to deliver MI is one in which the client (often alcohol or drug addicted) is given feedback based on individual results from standardized assessment measures, such as the Drinker's Check Up (Miller, Sovereign, & Krege, 1988) or a modification of it; this approach is sometimes termed MET (Miller & Rollnick, 2002).

Use of a manual. Hettema et al. (2005) found that outcomes tended to be weaker when studies used a manual-guided process. If the study explicitly stated that a manual was used, above and beyond basic training in MI or MET, then it was coded as such; otherwise, studies were coded as not having used a manual.

Role in treatment. MI has been used in a variety of roles/formats in the treatment process, three of which were coded for this study as follows: (a) additive, when MI was integrated with

another treatment to provide an additive component. Again, if used in an additive fashion, the study design needed to be such that the role of MI could be isolated. For example, additive would be coded if two comparison groups examined the value of a nicotine patch and only one group used MI; (b) prelude, when MI was used as a prelude to another treatment. The format of prelude treatments was conceptually similar to an additive model, except that the MI component came before another intervention; or (c) stand-alone, when MI was used as the only treatment for that group of participants.

Fidelity to MI. Confidence that an intervention is linked to outcomes is increased when adherence or fidelity to the intervention can be established. Research teams have developed tools to measure fidelity to key principles of MI (e.g., Welch et al., 2003). Among the studies included in our meta-analyses, three levels of fidelity assessment were coded: (a) no assessment of fidelity; (b) fidelity was assessed or monitored, often through some form of taping or recording, with a qualitative system that did not produce a standardized score; (c) fidelity was assessed, often through some form of recording, using a standardized system (e.g., the MI skill code, MISC; Miller, 2002) that produced a numeric score.

Who delivered MI. As MI is being used by a variety of professional groups, we investigated whether educational background influenced outcomes. The following groups were coded whenever sufficient information was provided: (a) medical doctor; (b) registered nurse or registered dietician; (c) mental health provider with either a master's degree or a PhD; (d) mental health counselor with a bachelor's degree; or (e) student status, which generally indicates that the student was being supervised by someone with a master's or PhD degree.

Delivery mode. MI is traditionally delivered via individual counseling, though it is occasionally delivered via group format.

Continuous variables. The seven continuous variables we coded as potential moderators of MI effects can be divided into two broad categories: sample characteristics and study characteristics. Most of the continuous moderators need little explanation. Three different characteristics of the sample were coded: *participants' average age*, percentage of participants who were *male or female*, and the percentage of the sample who were *White, African American, or Hispanic*. (Note that we also coded for other racial groups but too little information existed to support analyses).

For study characteristics, we coded the *number of sessions* in which MI was delivered, the *total dosage* of MI in minutes, and *durability* by listing the longest time period in which post-treatment measures were administered. Finally, *study rigor* was also coded using an 18-point methodological quality scale (see Appendix for details).

Effect Size Calculation

Effect sizes were calculated and analyzed through Comprehensive Meta-Analysis, a software package that was produced by Borenstein, Hedges, Higgins, and Rothstein (2005). We used *Hedge's g* as our main measure of effect size, the standardized mean difference that uses an unbiased pooled standard deviation similar to *Cohen's d* but corrects for bias through calculating the pooled standard deviation in a different manner (Cooper & Hedges, 1994; Lipsey & Wilson, 2001). A random effects model was used for all analyses, which is more conservative than fixed effects models and assumes that effect sizes are likely to vary across samples and populations (Hunter & Schmidt, 2000). Effect size extraction and calculation were performed by the primary and secondary authors. Thirty-one percent of the effect sizes were double coded, with interrater reliability being very high (98% agreement).

Results

Study Characteristics

In total, 119 studies met the inclusionary criteria for this review. Of these, 10 compared two conditions of MI or two different comparison groups within the same study, and one study compared four MI groups to a single comparison group. Thus, a total of 132 MI groups were contrasted. Across these 132 group comparisons, a total of 842 effect sizes were computed because almost all of the studies reported on multiple outcomes, multiple indicators of an outcome, or multiple measurements of an outcome across time. With the exception of the meta-regression analyses (see below), multiple measures of a particular construct were averaged within studies to prevent violations of independence.

As we expected, this large body of literature varied in populations of focus, outcomes of interest, and how MI was presented to clients. Table 1 details some of the variability found in the studies, including the number of participants in the study, outcomes assessed, type of MI delivered, and the effect size for each individual study. Effect sizes in Table 1 are collapsed across dependent variables and moderators.

Overall Findings

We organized our results around the three goals of meta-analytic inquiries: central tendency, variability, and prediction (Johnson, Mullen, & Salas, 1995).

What is the overall magnitude of effect of MI interventions? The average effect size across the 132 comparisons and all outcomes was $g = 0.22$ (confidence interval [CI] 0.17-0.27), which was statistically significant, $z = 8.75$, $p < .001$. This value is consistent with Cohen's classification of a small but statistically meaningful effect. The lowest effect size for MI was -1.40 and the highest was 2.06 , neither of which were outliers. To gain a more complete picture of the distribution of effect sizes, percentile ranks are reported. The effect

Table 1. Selected Study Characteristics and Average Effect Sizes

Study Name	N: Tx/Comp	Compare Group	MI or MET	Session/ Minutes	Longest Follow-up (Months)	Targeted Behavior Change	Effect Size	CI
Ahiwalia et al. (2006)	189/189	Strong	MI	6/120	7-9	Cig	-0.35	-0.66/-0.06
Anton et al. (2005)	39/41	Strong	MET	4/-	1-3	Al, Eng	-0.15	-0.70/0.41
Baer, Kivlahan, Blume, MacKnight, and Marlatt (2001)	164/164	Weak	MET	1/-	4 years	Al	0.31	0.06/0.56
Baker et al. (2002)	11/8	Weak	MET	1/-	10-12	Al, Mar, OD	0.01	-0.56/0.57
Baker, Heather, Wodak, Dixon, and Holt (1993)	25/27	Weak	MI	1/75	4-6	Risks	-0.01	-0.55/0.52
Ball et al. (2007)	34/25	Strong	MET	3/-	IM	Al	0.09	-0.37/0.56
Ball et al. (2007)	34/29	Weak	MET	3/-	IM	Al	0.21	-0.28/0.70
Baros, Latham, Moak, Voronin, and Anton (2007)	80/80	Strong	MET	4/-	1-3	Al	-0.16	-0.47/0.15
Beckham (2007)	12/13	Weak	MET	1/52.5	1-3	Al	0.86	0.06/1.65
Bennett et al. (2005)	66/45	Weak	MI	1/60	7-9	Health	0.18	-0.20/0.56
Bernstein et al. (2005)	70/48	Weak	MI	1/20	4-6	OD	0.13	-0.19/0.45
Bien, Miller, and Boroughs (1993)	9/12	Weak	MI	1/60	4-6	Al	0.45	-0.34/1.24
Booth, Kwiatkowski, Iguchi, Pinto, and John (1998)	95/97	Strong	MI	4/-	IM	Eng	-0.07	-0.38/0.25
Booth, Corsi, and Mikulich-Gilbertson (2004)	283/294	Strong	MI	4/-	1-3	Eng	-0.03	-0.26/0.19
Borrelli et al. (2005)	76/96	Strong	MET	4/80	10-12	Cig	0.28	-0.32/0.89
Bowen et al. (2002)	82/82	Strong	MI	3/-	10-12	Eng	0.40	-0.04/0.85
Brodie and Inoue (2005)	22/18	Strong	MI	8/480	4-6	Health	0.49	-0.14/1.11
Brown and Miller (1993)	67/64	Strong	MET	1/-	1-3	Al	1.19	0.36/2.03
Brown et al. (2006)	13/13	Strong	MET	4/-	4-6	Al, IC/SC, OD	-0.18	-0.53/0.18
Butler et al. (1999)	202/210	Weak	MI	1/60	4-6	Cig, IC/SC	0.24	-0.15/0.62
Carey et al. (2000)	24/22	Weak	MET	4/360	1-3	IC/SC	0.48	0.00/0.96
Carroll et al. (2005)	37/42	Weak	MET	1/60	1-3	Al, Eng, IC/SC, OD, Risks	0.03	-0.80/0.86
Carroll, Libby, Sheehan, and Hyland (2001)	31/29	Weak	MI	1/105	1-3	Eng	0.55	-0.09/1.18
Channon et al. (2007)	27/20	Weak	MI	4/250	13-24	Health	0.63	0.05/1.21
Colby et al. (2005)	18/20	Weak	MET	2/47.5	4-6	Cig	0.37	-0.16/0.91
Colby et al. (1998)	43/42	Weak	MI	2/52.5	4-6	Cig, IC/SC	0.48	-0.43/1.38
Connors, Walitzer, and Dermen (2002)	38/38	Strong	MET	1/90	IM	Eng	0.23	-0.22/0.67
Connors et al. (2002)	38/50	Weak	MET	1/90	10-12	Al, Eng, GWB, OD	0.44	0.02/0.87
Curry et al. (2003)	156/147	Weak	MI	5/-	10-12	Cig	0.34	-0.22/0.90
Daley, Salloum, Zuckoff, Kirisci, and Thase (1998)	11/12	Weak	MET	9/-	1-3	Eng	1.82	0.38/3.26
Davidson, Gulliver, Longabaugh, Wirtz, and Swift (2006)	76/73	Strong	MET	4/180	IM	Al	-0.09	-0.41/0.23
Davis, Baer, Saxon, and Kivlahan (2003)	Total = 73	Weak	MET	1/57	1-3	Al, Eng, GWB	0.14	-0.33/0.60
Dench and Bennett (2000)	27/24	Weak	MI	2/67.5	IM	Eng, IC/SC	0.19	-0.61/0.98
Dunn, Neighbors, and Larimer (2006)	45/45	Weak	MET	1/45	IM	ED Bx, Eng, IC/SC	0.18	-0.24/0.59
Elliot et al. (2007)	168/186	Strong	MET	4/12.5	10-12	Health	-0.13	-0.34/0.08
Emmen, Schippers, Wollersheim, and Bleijenberg (2005)	168/135	Weak	MET	4/12.5	10-12	Health	0.26	0.04/0.49
Emmons et al. (2001)	61/62	Weak	MET	2/150	4-6	Al, IC/SC	0.18	-0.21/0.57
Galbraith (1989)	116/120	Weak	MET	1/37.2	4-6	Cig	0.30	0.04/0.55
Gentilello et al. (1999)	12/12	Strong	MI	1/45	10-12	A/C	0.51	-0.27/1.30
Golin et al. (2006)	66/307	Weak	MET	1/30	10-12	Al, Risks	0.15	-0.02/0.32
	30/35	Strong	MI	2/-	1-3	A/C, Al, Mar., Eng, OD	0.19	-0.28/0.66

Table 1. (continued)

Study Name	N: Tx/Comp	Compare Group	MI or MET	Session/ Minutes	Longest Follow-up (Months)	Targeted Behavior Change	Effect Size	CI
Graeber, Moyers, Griffith, Guajardo, and Tonigan (2003)	15/13	Strong	MI	3/180	4-6	Al	0.69	-0.18/1.56
Gray McCambridge, and Strang (2005)	90/48	Weak	MI	1/-	1-3	Al, Mar., Cig	0.13	-0.30/0.57
Grenard et al. (2007)	11/7	Weak	MI	1/25	1-3	Al, Mar., Cig, IC/SC, OD	0.53	-0.92/1.98
Handmaker, Miller, and Manicke (1999)	7/7	Weak	MET	1/60	10-12	Al	0.21	-0.64/1.05
Harland et al. (1999)	88/89	Weak	-	3/-	10-12	Health	0.40	-0.01/0.81
Haug, Svikis, and DiClemente (2004)	30/23	Weak	MET	4/-	1-3	Cig, IC/SC, OD	0.34	-0.36/1.04
Helstrom, Hutchison, and Bryan (2007)	38/29	Strong	MET	1/-	4-6	Cig	-0.07	-0.94/0.80
Hillsdon, Thorogood, White, and Foster (2002)	302/285	Weak	MET	3/48	10-12	Health	0.09	-0.07/0.25
Hodgins, Currie, El-Guebaly, and Peden (2004)	28/24	Weak	MET	1/25	13-24	Gam	0.32	-0.26/0.91
Hodgins, Currie, El-Guebaly (2001)	31/34	Weak	MET	1/32.5	<1	Gam	0.54	0.05/1.03
Hodgins et al. (2001)	31/33	Weak	MI	1/32.5	10-12	Gam	0.20	-0.45/0.84
Hulse and Tait (2003)	47/37	Weak	MET	1/45	4-6	Al	0.75	0.30/1.20
Hulse and Tait (2002)	58/62	Weak	MI	1/-	5 years	Al	0.14	-0.27/0.54
Humfress et al. (2002)	45/45	Weak	MET	1/-	<1	IC/SC	0.09	-0.32/0.50
Ingersoll et al. (2005)	94/105	Weak	MET	1/67.5	1-3	Al	0.34	-0.21/0.88
Jaworski and Carey (2001)	26/26	Strong	MET	1/150	1-3	IC/SC, risks	0.03	-0.51/0.57
Johnston, Rivara, Droesch, Dunn, and Copass (2007)	82/92	Weak	MI	1/20	4-6	Risks	0.19	-0.21/0.58
Juarez, Walters, Daugherty, and Radi (2006)	21/15	Weak	MET	1/70	1-3	Al	0.20	-0.46/0.85
Juarez et al. (2006)	21/18	Weak	MET	1/60	1-3	Al	0.52	-0.13/1.17
Juarez et al. (2006)	20/15	Strong	MET	1/35	1-3	Al	-0.27	-0.94/0.40
Juarez et al. (2006)	20/18	Strong	MET	1/35	1-3	Al	-0.04	-0.68/0.60
Kahler et al. (2004)	24/24	Weak	MET	1/60	10-12	Al, Eng	0.00	-0.56/0.56
Kelly and Lapworth (2006)	28/22	Weak	MI	1/60	4-6	A/C	0.57	-0.03/1.17
Kidorf et al. (2005)	98/96	Strong	MI	1/50	1M	Eng	0.00	-0.28/0.28
Kreman et al. (2006)	12/12	Weak	MI	1/35	1-3	Health	0.22	-0.60/1.04
Kuchipudi, Hobein, Flickinger, and Iber (1990)	45/49	Weak	MI	3/-	1-3	Al	-0.02	-0.47/0.42
Larimer et al. (2001)	64/52	Weak	MET	2/120	10-12	Al	0.19	-0.18/0.56
Litt, Kadden, and Stephens (2005)	137/128	Weak	MET	2/-	4-6	Eng	0.82	0.57/1.07
Longabaugh et al. (2001)	182/188	Weak	MET	1/50	10-12	Al	0.05	-0.15/0.26
Longabaugh et al. (2001)	169/188	Weak	MET	1/50	10-12	Al	0.16	-0.05/0.37
Longshore and Grills (2000)	40/41	Weak	MI	1/-	10-12	Al	0.41	-0.06/0.88
Maisto et al. (2001)	73/85	Weak	MET	1.5/72.5	10-12	Al	0.81	0.47/1.14
Maisto et al. (2001)	73/74	Strong	MET	1/72.5	10-12	Al	0.17	-0.17/0.52
Maltby and Tolin (2005)	7/5	Strong	MI	4/-	1M	Eng	0.73	-0.58/2.04
Marijuana tx project (2004)	128/137	Weak	MET	2/120	4-6	Mar.	0.35	0.04/0.66
Marsden et al. (2006)	166/176	Weak	MET	1/52.5	4-6	Al, Eng	-0.02	-0.23/0.19
Martino, Carroll, Nich, and Rounsaville (2006)	24/20	Strong	MET	2/120	1-3	Al, Eng, IC/SC, OD	0.00	-0.58/0.58
McCambridge and Strang (2004a)	65/81	Weak	MI	1/60	1-3	Al, Mar., Cig, OD	0.47	0.01/0.92
McCambridge and Strang (2004b)	84/78	Weak	MI	1/-	10-12	Al, Mar., Cig, OD	0.38	-0.19/0.96
Mhurchu, Margetts, and Speller (1998), 165	47/50	Weak	MI	3/-	1-3	Health	0.13	-0.27/0.53
Michael, Curtin, Kirkley, and Jones (2006)	47/44	Weak	MI	1/100	<1	Al	0.22	-0.19/0.63
Miller, Benefield, and Tonigan (1993)	14/14	Weak	MET	2/180	10-12	Al	0.35	-0.38/1.07

(continued)

Table 1. (continued)

Study Name	N: Tx/Comp	Compare Group	MI or MET	Session/ Minutes	Longest Follow-up (Months)	Targeted Behavior Change	Effect Size	CI
Miller et al. (1993)	14/14	Strong	MET	2/180	10-12	AI	0.02	-0.71/0.75
Miller, Yahne, and Tonigan (2003)	108/104	Weak	MET	1/120	1-3	Eng	0.00	-0.27/0.27
Mitcheson, McCambridge, and Byrne (2007)	12/17	Weak	MI	1/-	1-3	OD	0.25	-0.47/0.98
Monti et al. (1999), 171	Total = 62	Weak	MET	1/37.5	4-6	AI	0.45	-0.01/0.91
Morgenstern et al. (2007)	33/74	Weak	MET	4/-	10-12	AI	0.54	0.12/0.96
Mullins, Suarez, Ondersma, and Page (2004)	36/35	Strong	MI	3/180	1-3	Eng, OD	0.15	-0.89/1.20
Murphy et al. - 1 (2001)	14/12	Weak	MET	1/50	7-9	AI	0.78	0.00/1.57
Murphy et al. - 2 (2001)	14/14	Strong	MET	1/50	7-9	AI	0.94	0.18/1.71
Naar-King et al. (2006)	25/26	Weak	MET	4/240	1-3	AI, Risks, Mar.	0.41	-0.14/0.96
Nock and Kazdin (2005)	39/37	Strong	MET	6/60	IM	Eng	0.45	-0.01/0.91
Peterson, Baer, Wells, Ginzler, and Garrett (2006)	57/67	Weak	MET	3/135	1-3	AI, Mar., OD	0.01	-0.32/0.34
Picciano et al. (2001)	46/43	Weak	MET	1/105	1-3	IC/SC, Risks	0.27	-0.14/0.69
Rohsenow, Monti, Colby, and Martin (2002)	43/43	Strong	MI	2/65	<1	Cig	-0.89	-1.88/0.09
Rosenblum, Cleland, Magura, Mahmood, and Kosanke (2005)	95/91	Strong	MET	20/1800	4-6	AI, OD	-0.14	-0.42/0.15
Saitz et al. (2007)	141/146	Weak	MI	1/30	1-3	AI, Eng	0.10	-0.17/0.37
Saunders Wilkinson, and Phillips (1995)	52/49	Weak	MI	1/60	4-6	A/C, IC/SC, Eng, OD	0.20	-0.21/0.61
Schermer, Moyers, Miller, Miller, and Bloomfield (2006)	64/62	Weak	MI	1/30	3 years	AI	0.43	-0.11/0.97
Schmaling, Blume, and Afari (2001)	16/16	Weak	MET	1/45	IM	IC/SC	0.49	-0.30/1.29
Schneider, Casey, and Kohn (2000)	30/30	Strong	MET	1/60	4-6	AI, OD	0.02	-0.46/0.51
Secades-Villa, Fernánde-Hermida, and Arnáez-Montaraz (2004)	20/20	Weak	MET	3/180	4-6	Eng	0.48	-0.21/1.17
Sellman, Sullivan, Dore, Adamson, and MacEwan (2001)	40/42	Strong	MET	4/-	4-6	AI, GWB	0.29	-0.22/0.79
Sellman et al. (2001)	40/42	Strong	MET	6/-	4-6	AI, GWB	1.20	0.64/1.76
Smith, Kratt, Heckenmeyer, and Mason (1997)	6/10	Strong	MET	19/-	4-6	Eng, Health	0.82	-0.20/1.84
Smith et al. (2001)	40/42	Weak	MI	6/-	10-12	Cig	0.09	-0.48/0.65
Soria, Legido, Escolano, Yeste, and Montoya (2006)	114/86	Weak	MET	3/60	10-12	Cig	1.00	0.32/1.69
Spirito et al. (2004)	64/60	Weak	MET	1/40	10-12	AI	0.09	-0.42/0.61
Stein, Colby, et al. (2006)	20/15	Strong	MI	1/60	1-3	AI, Mar.	0.22	-0.37/0.79
Stein, Anderson, Charuvastra, Maksad, and Friedmann (2002)	45/50	Weak	MI	2/100	4-6	AI	0.11	-0.26/0.48
Stein, Monti, et al. (2006)	69/61	Strong	MET	2/150	1-3	Eng	0.21	-0.14/0.55
Stein, Charuvastra, Maksad, and Anderson (2002)	60/49	Weak	MI	2/100	4-6	AI, risks	0.36	-0.09/0.80
Steinberg, Ziedonis, Krejci, and Brandon (2004)	32/34	Strong	MET	1/40	1-3	Eng, IC/SC	1.00	-0.02/2.02
Stephens, Roffman, and Curtin (2000)	75/79	Weak	MET	2/180	4-6	Mar.	1.20	0.81/1.59
Stephans (2004)	75/95	Strong	MET	2/180	13-24	Mar.	-0.08	-0.39/0.22
Stotts, Schmitz, Rhoades, and Grabowski (2001)	25/25	Weak	MET	2/120	IM	Eng, IC/SC, OD	0.30	-0.24/0.83
Stotts, DeLaune, Schmitz, and Grabowski (2004)	19/19	Weak	MET	4/-	IM	A/C, GWB, IC/SC	0.66	0.02/1.30
Stotts, DiClemente, and Dolan-Mullen (2002)	83/83	Weak	MET	3/54.5	4-6	Cig	0.11	-0.23/0.45
Stotts, Potts, Ingersoll, George, and Martin (2006)	17/14	Weak	MET	2/120	<1	OD	0.77	-0.06/1.60
Tappin, Lumsden, Gilmour, et al. (2000)	48/49	Strong	MET	1/-	1-3	Cig	-0.12	-0.88/0.63
Tappin, Lumsden, Mckay, et al. (2000)	48/49	Weak	MI	4/150	<1	Cig	-0.32	-1.17/0.53
Tappin et al. (2005)	351/411	Weak	MI	3.5/105	1-3	Cig	0.08	-0.27/0.43
Thevos, Kaona, Sjaunza, and Quick (2000)	91/93	Strong	MI	3/150	IM	WSDP	0.73	0.31/1.15
UKAAT (2005)	293/214	Strong	MET	3/150	10-12	AI, GWB	0.04	-0.13/0.20
Valanis et al. (2002)	127/127	Weak	MI	-	13-24	Eng	0.12	-0.18/0.41

Table 1. (continued)

Study Name	N: Tx/Comp	Compare Group	MI or MET	Session/ Minutes	Longest Follow-up (Months)	Targeted Behavior Change	Effect Size	CI
Valanis et al. (2003)	126/127	Weak	MI	-	13-24	Eng	0.34	0.05/0.62
Walker, Roffman, Stephens, Berghuis, and Kim (2006)	47/50	Weak	MET	2/90	1-3	Mar.	0.31	0.11/0.74
Watkins et al. (2007)	167/172	Weak	MI	4/180	1-3	A/C	-0.01	-0.22/0.20
Weinstein, Harrison, and Benton (2004)	120/120	Weak	MI	7/-	10-12	Parenting	0.31	0.05/0.56
Westra and Dozois (2006)	25/30	Weak	MI	3/180	IM	A/C, Eng	0.54	-0.03/1.10
Wilhelm, Stephens, Hertzog, Rodehorst, and Gardener (2006)	20/20	Weak	MI	6/-	4-6	Parenting	0.21	-0.41/0.83

Note. Within a single study, authors often assessed several outcomes and the number of participants often varied; in such cases, we reported on the smallest number of participants in both the treatment and the comparison group. Strong indicates the comparison group was a specific intervention. Weak indicates the comparison group was one of the following: control, waitlist, reading materials, or TAU that was not specified. Effect sizes averaged across measures and outcomes within each study. A/C = ability or confidence to change; Al = alcohol; Cig = cigarettes and tobacco; Comp = comparison group; Ed Bx = eating disorder behavior; Eng = engagement or compliance; Gam = gambling; GWB = general well-being; IC/SC = intention to change/stages of change; IM = immediately after treatment; Health = increase healthy behavior; OD = other drugs; Risks = reduce risk taking behavior; WSDP = water—safe drinking practices. C.I. = Confidence Interval; Tx = treatment group.

size at the 25th percentile was 0.00, at the 50th percentile the effect size was 0.22, and at the 75th percentile the effect size was 0.50. Thus, 25% of the effect sizes were either neutral or negative, 50% of the effect sizes were greater than Cohen's classification of a small effect size, and 25% were larger than a medium effect size.

Given the wide variability of outcomes examined, populations targeted, and methods used to deliver and study MI, the overall effect size is likely too broad to guide clinical or administrative decision making. For that, we need to examine effect size variability.

How representative or homogeneous is the overall MI effect size? The overall effect size contained significant heterogeneity as evidenced by the within-class goodness of fit statistic, $Q_w(131) = 228.71, p < .001$. The presence of heterogeneity suggests that the findings vary based on features of participants and/or study characteristics, which can be further studied via moderator analyses.

What variables can account for the observed differences in MI effect sizes across these studies?

Step 1: Subdividing effect sizes using potential categorical moderators.

Based on findings from previous MI meta-analyses, we systematically examined potential moderators until between-group variance was eliminated, leaving homogeneous effect sizes that can confidently be interpreted.

Comparison group. We first examined the effect comparison group had on outcomes as the meta-analysis by Burke et al. (2003) suggested results varied based on this variable. In fact, significant heterogeneity was found, $Q_w = 14.75(4), p < .01$. Further analyses (see Table 2) revealed that when MI was compared to a TAU program that involved a specific program (e.g., 12-step or cognitive-behavioral) effects were significantly lower than when compared against a waitlist/comparison group ($Q_b = 18.95, p < .001$), a generic TAU without a specific program ($Q_b = 11.72, p < .005$), or written material groups ($Q_b = 4.90, p < .05$). Group difference analyses revealed no other significant differences among or between other types of comparison groups. Next, all the "weak" comparison groups were combined ($g = 0.28, k = 88$) and compared to those studies that pitted MI against a specific treatment or a "strong" comparison group ($g = .09, k = 39$). Studies that compared MI to a weak comparison showed significantly higher effect sizes, $Q_b = 13.58, p < .001$. In addition to being interesting in its own right, this finding suggests further analyses should be run separately for those that used a strong comparison group and those that used a weak comparison group.

Dependent variable. Next, we explored whether effect sizes would differ based on the dependent variable, as it has previously been shown that MI was not equally effective for all problem types (e.g., Burke et al., 2003). Table 2 presents effect sizes organized across the 14 outcome groups with subdivisions for strong and weak comparisons. The preponderance

of studies examined outcomes related to substance use, where MI originated: alcohol ($k = 68$), miscellaneous drugs ($k = 27$), tobacco ($k = 24$), and marijuana ($k = 17$). Of the 14 outcome groups, all yielded statistically significant positive effects for MI with the exception of emotional or psychological well-being, eating problems, and confidence in being able to succeed in change. The test of heterogeneity across the 11 dependent variable groupings was nonsignificant, $Q_b = 11.34(df = 10), p = 0.34$, suggesting that the outcomes across dependent variables were, on the whole, statistically homogenous. Exploratory between group analyses were conducted, and no significant group differences were found.

In line with the finding that comparison group type moderates outcomes, MI did not show significant advantage over strong comparison groups for any outcome. When positioned against a weak comparison group, outcomes for substance use-related outcomes ranged from a low of $g = 0.16$ for miscellaneous drugs to a high of $g = 0.35$ for tobacco. These values are in the small but significant range. Of the remaining health-related behavior outcomes, the strongest effect was for gambling ($g = 0.39$), though the small number of studies also made these variables the least stable as evidenced by wide confidence intervals. The effect for increases in healthy behaviors, which comprised outcomes related to diet, exercise, and compliance with medical recommendations, was in the small range ($g = 0.19$). The effect size for reducing risky behaviors, which most often comprised outcomes related to sexual behavior and drug use, was also small ($g = 0.15$). When positioned against a weak comparison group effect sizes for the three variables that concern clients' engagement in treatment ranged from a low of $g = 0.15$ for confidence to a high of $g = 0.35$ for engagement.

As was mentioned, when compared to other active, specific treatments such as 12-step or cognitive behavioral therapy MI did not produce significant nonzero effect sizes in any outcome. In the case of tobacco ($g = -0.21$) and miscellaneous drugs ($g = -0.12$), effect sizes were in the negative range, though nonsignificant. Among substance use outcomes, then, MI is certainly better than no treatment and not significantly different from other specific treatments with some effects being greater than nil and some being negative.

Client distress level. We next questioned whether clients' level of distress or impairment would moderate MI effects. Among the three different levels of distress, between group heterogeneity was not significant, $Q_b = 2.39(2), p = .67$, meaning that distress did not moderate MI effectiveness. As can be seen in Table 2, the same pattern tended to hold where outcomes were not significant if the comparison was made against a specific treatment program.

Moderators Among Studies Comparing MI to Weak Comparison Groups. The next moderator analysis examined whether results for MI compared to weak comparison groups (i.e., nonspecific TAU, waitlist control, written materials) would depend on the method of delivery—that is, MI in its basic form versus MET, which adds specific problem feedback to MI as described

Table 2. Effect Sizes for Overall Effect and Initial Moderators

Variable	k	Effect Size	CI	z Value/p Value	Heterogeneity Q Value (df)/p Value
Overall effectiveness (across studies)	132	0.22	0.17/0.27	8.75/.001*	228.71 (131)/.001*
Moderator: comparison group type					14.75 (4)/.01*
Attention	1	0.48	0.01/0.96	1.97/.050*	
Treatment as usual—nonspecific	42	0.24	0.17/0.31	6.40/.000*	
Treatment as usual—specific	39	0.09	−0.01/0.18	1.77/.080, <i>ns</i>	
Waitlist/control	35	0.32	0.22/0.42	6.49/.000*	
Written material	10	0.24	0.09/0.38	3.10/.002*	
Comparisons: combined weak	88	0.28	0.22/0.34	9.85/.000*	
Comparisons: strong	39	0.09	−0.01/0.18	1.77/.080, <i>ns</i>	13.58 (1)/.001*
Moderator: dependent variables					18.58 (13)/.14, <i>ns</i>
Health-related behaviors					
Alcohol-related problems	68	0.15	0.09/0.21	4.76/.001*	
Strong comparison	21	0.03	−0.08/0.13	0.53/.597, <i>ns</i>	
Weak comparison	47	0.20	0.12/0.27	5.31/.000*	6.90 (1)/.009*
Marijuana-related problems	17	0.26	0.10/0.43	3.17/.002*	
Strong comparison	3	0.07	−0.15/0.29	0.64/.525, <i>ns</i>	
Weak comparison	14	0.30	0.11/0.49	3.10/.002*	2.35 (1)/.125, <i>ns</i>
Tobacco-related problems	24	0.25	0.10/0.41	3.18/.002*	
Strong comparison	5	−0.21	−0.53/0.11	−1.29/.196, <i>ns</i>	
Weak comparison	18	0.35	0.22/0.48	5.20/.000*	10.60 (1)/.001*
Miscellaneous drug problems	27	0.08	−0.03/0.20	1.46/.145, <i>ns</i>	
Strong comparison	7	−0.12	−0.27/0.04	−1.45/.146, <i>ns</i>	
Weak comparison	10	0.16	0.02/0.29	2.28/.023*	6.70 (1)/.010*
Increase healthy behavior	11	0.21	0.06/0.36	2.78/.006*	
Strong comparison	4	0.30	−0.19/0.79	1.20/.229, <i>ns</i>	
Weak comparison	7	0.19	0.08/0.30	3.30/.001*	0.20 (1)/.658, <i>ns</i>
Reduce risky behavior	10	0.14	0.04/0.25	2.77/.005*	
Strong comparison	1	0.10	−0.44/0.64	0.36/.716, <i>ns</i>	
Weak comparison	9	0.15	0.04/0.26	2.66/.008*	0.03 (1)/.855, <i>ns</i>
Gambling	3	0.39	0.06/0.71	2.33/.020*	
Strong comparison			Not applicable		
Weak comparison	3	0.39	0.06/0.71	2.33/.020*	Not applicable
Emotional/psychological well-being	7	0.14	−0.02/0.30	1.67/.095, <i>ns</i>	
Strong comparison	3	0.05	−0.07/0.16	0.83/.408, <i>ns</i>	
Weak comparison	4	0.33	−0.03/0.68	1.80/.072, <i>ns</i>	2.11 (1)/.146, <i>ns</i>
Eating problems	1	0.18	−0.23/0.59	0.87/.390, <i>ns</i>	
Strong comparison	Not applicable				
Weak comparison	1	0.18	−0.23/0.59	0.87/.390, <i>ns</i>	Not applicable
Parenting practices	2	0.29	0.06/0.53	2.43/.015*	
Strong comparison	Not applicable				
Weak comparison	2	0.29	0.06/0.53	2.43/.015*	Not applicable
Drinking safe water	1	0.73	0.31/1.15	3.39/.001**	
Strong comparison	Not applicable				
Weak comparison	1	0.73	0.31/1.15	3.39/.001**	Not applicable
Approach to treatment					
Engagement	34	0.26	0.15/0.37	4.78/.001**	
Strong comparison	14	0.12	0.00/0.25	1.94/.053, <i>ns</i>	
Weak comparison	20	0.35	0.21/0.50	4.80/.000*	5.56 (1)/.018*
Intention to change	23	0.24	0.13/0.34	4.35/.001**	
Strong comparison	6	0.23	−0.09/0.55	1.40/.161, <i>ns</i>	
Weak comparison	17	0.24	0.13/0.35	4.15/.000*	0.01 (1)/.944, <i>ns</i>
Confidence/ability	11	0.18	−0.06/0.42	1.44/.149, <i>ns</i>	
Strong comparison	2	0.33	−0.08/0.74	1.50/.114, <i>ns</i>	
Weak comparison	9	0.15	−0.13/0.43	1.07/.286, <i>ns</i>	0.51 (1)/.473, <i>ns</i>
Moderator: clients' level of distress					2.39 (2)/.674, <i>ns</i>
Community sample	19	0.19	0.06/0.37	2.87/.004**	
Strong comparison	5	−0.01	−0.27/0.25	−0.09/.927, <i>ns</i>	
Weak comparison	14	0.28	0.17/0.39	5.12/.000*	4.14 (1)/.042*

(continued)

Table 2. (continued)

Variable	k	Effect Size	CI	z Value/p Value	Heterogeneity Q Value (df)/p Value
Moderate levels of distress	50	0.21	0.14/0.27	5.83/.001*	
Strong comparison	15	0.12	-0.01/0.25	1.79/.073, ns	
Weak comparison	35	0.24	0.15/0.32	5.55/.000*	2.40 (1)/.302, ns
Significant levels of distress	44	0.19	0.10/0.28	4.22/.001*	
Strong comparison	14	0.03	-0.12/0.17	0.35/.729, ns	
Weak comparison	30	0.26	0.16/0.35	5.08/.000*	6.47 (1)/.011*

Note. Numbers of studies vary because not all studies examined certain outcomes or reported on certain moderators. CI = confidence interval; df = degrees of freedom; k = number of studies; ns = nonsignificant. * $p < .05$.

above. Table 3 presents detailed information. MET ($g = 0.32$) was significantly more likely to produce positive change compared to typical MI ($g = 0.19$), $Q_b = 4.97 (1), p < .03$. Furthermore, between group comparisons were made by subdividing the groups that involved typical MI ($k = 33$) and those that involved MET ($k = 50$). Table 3 presents these results among MI studies with weak comparison groups.

Four other potential moderators were examined: whether a manual was used, format/role of MI in the treatment process, how fidelity to MI was assessed, and who delivered MI. Analyses revealed no significant heterogeneity in any of these four variables, suggesting that they did not moderate outcomes (all $ps > .05$). Because homogeneity was found within these four moderators, further between group comparisons were not conducted.

Moderators Among Studies Comparing MI to Strong Comparison Groups (Specific TAU). Moderator analyses for MI compared to specific TAU were run in the same order as those that did not involve a specific intervention above. Table 4 presents detailed data. Given the relatively smaller number of studies ($k = 40$), the power to detect moderators was reduced and the confidence intervals thus tended to be wider.

If the comparison group included a specific intervention, no significant difference was found whether MI was delivered via its typical format or MET, $Q_b (1) = 0.03, ns$. Thus, further moderator analyses were collapsed across these two groups. The use of a training manual ($k = 25, g = 0.00$) was associated with significantly smaller outcomes compared to when a manual was not used ($k = 11, g = 0.45; Q_b = 5.96, p < .05$), which is similar to the finding by Hettema et al. (2005). Given this difference, further moderator analyses were divided into those that did and did not use a manual. In both subgroups, the format of MI did not moderate outcomes nor did assessment of fidelity to MI or who delivered the MI intervention (all $ps > .06$).

Step 2: Examining potential continuous moderators via meta-regression. Analyses of continuous moderators were subdivided into those studies that compared MI interventions to a weak versus a strong comparison condition, as with the categorical analyses above. These results can be viewed in Table 5. Five participant characteristics were submitted to meta-regression:

participants' average age, the percent of male participants within a sample (and by converse female), and three indicators of ethnicity. With regard to ethnicity, we assessed the percentage of the sample who was White, African American, or Hispanic. Four study characteristics were submitted to meta-regression: overall study rigor, the number of sessions in which MI was delivered, the number of minutes MI was delivered to the sample, and durability (the longest length of time that a follow-up assessment was taken, which replicates the categorical analysis of time since treatment). Note that the meta-regression analyses involved all possible comparisons across studies and all moderator groups. Thus, each effect size drawn from a study was entered into the regression analyses; while this does not technically violate assumptions of independence because each effect size was compared independently, some studies contributed more data than other studies because they reported on more outcome indicators.

Studies Comparing MI to Weak Comparison Groups. Only one of the participant characteristics was significantly associated with MI outcomes: Studies that included a higher percentage of African American participants in their sample had significantly better outcomes with MI, $z = 2.90, q \text{ value} = 8.43 (1, 226), p < .01$. Average age, percentage of male participants, and percentage of White or Hispanic participants did not significantly influence MI outcomes. With regard to study characteristics, rigor, number of sessions, and durability (measurement interval beyond completion of treatment) were not related to outcomes. By contrast, the amount of services delivered was positively related to outcomes with a significant effect ($z = 4.23$) for the total number of minutes, $q \text{ value} = 17.89 (1, 428), p < .01$, such that longer treatments produced higher effect sizes for MI.

Studies Comparing MI to Strong Comparison Groups (Specific TAU). Three of the participant characteristics were significantly associated with higher effect sizes. Studies that included older participants were more likely to have positive outcomes, $q \text{ value} = 6.22 (1, 152), p < .01$. Contrary to the previous regression analyses, in studies that used a TAU with a specific program, a higher percentage of African American participants was negatively associated with outcomes ($q \text{ value} = 29.70, p < .001$). Moreover, a significant negative relationship was

Table 3. Moderators Among Studies Comparing MI to Weak Comparison Groups (Waitlist, Written Materials, Nonspecific Treatment as Usual)

Variable	k	Effect Size	CI	z Value/p Value	Heterogeneity Q Value (df)/p Value
Moderator: motivational interviewing (MI) or Motivational Enhancement Therapy (MET)					4.97 (1)/.032*
MI	33	0.19	0.11/0.27	4.76/.001*	
MET	50	0.32	0.23/0.40	7.51/.001*	
Moderator: use of manual					
Motivational interviewing					0.53 (1)/.459, ns
Manual not used	10	0.24	0.08/0.40	2.94/.003*	
Manual used	23	0.17	0.08/0.26	3.82/.001*	
Motivational Enhancement Therapy					
Manual not used	10	0.34	0.16/0.51	3.81/.001*	0.23 (1)/.891, ns
Manual used	39	0.32	0.22/0.41	6.26/.001*	
Moderator: role of MI in treatment					
Motivational interviewing					3.07 (2)/.218, ns
Additive	14	0.12	0.01/0.24	2.09/.040*	
Prelude	3	0.43	0.03/0.83	2.10/.040*	
Head-to-head	16	0.23	0.12/0.33	4.12/.001*	
Motivational Enhancement Therapy					3.69 (2)/.160, ns
Additive	13	0.36	0.17/0.55	3.65/.001*	
Prelude	7	0.16	-0.01/0.33	1.84/.070, ns	
Head-to-head	31	0.34	0.23/0.45	6.11/.001*	
Moderator: fidelity to MI model examined					
Motivational interviewing					5.02 (2)/.083, ns
No assessment	22	0.24	0.14/0.35	4.47/.001*	
Assessed, not scored	6	0.23	0.07/0.39	2.76/.010*	
Assessed, standardized score	5	0.03	-0.13/0.19	0.36/.720, ns	
Motivational Enhancement Therapy					3.15 (2)/.256, ns
No assessment	21	0.42	0.27/0.56	5.59/.001*	
Assessed, not scored	16	0.28	0.12/0.43	3.53/.001*	
Assessed, standardized score	12	0.25	0.14/0.37	4.38/.001*	
Moderator: Who Delivered MI					
Motivational interviewing					3.09 (3)/.389, ns
Mental health: Bachelors	1	0.19	-0.21/0.58	0.92/.360, ns	
Mental health: Masters/PhD	5	0.39	0.13/0.65	2.98/.001*	
Nurse	4	0.10	-0.11/0.31	0.93/.350, ns	
Student	3	0.23	-0.09/0.54	1.43/.150, ns	
Motivational Enhancement Therapy					0.47 (3)/.933, ns
Mental health: Bachelors	7	0.27	0.07/0.46	2.67/.008*	
Mental health: Masters/PhD	7	0.39	0.06/0.72	2.29/.022*	
Nurse	1	0.30	0.04/0.55	2.28/.022*	
Student	3	0.23	-0.13/0.59	1.25/.212, ns	

Note. Numbers of studies vary because not all studies examined certain outcomes or reported on certain moderators. CI = confidence interval; df = degrees of freedom; k = number of studies; ns = nonsignificant. * $p < .05$.

found for the percentage of White participants (q value = 6.27, $p < .01$). Thus, the higher the relative number of African American or White participants in the study (i.e., the lower the number of participants from other ethnic groups), the lower the overall mean MI effect sizes. Only one significant relationship emerged for the study characteristics in this subgroup. There was a significant negative relationship between study rigor and outcomes, q value = 8.80 (1, 253), $p < .01$, such that studies with higher rigor ratings yielded lower effect sizes for MI.

Step 3: Three further questions—treatment length, durability, and group MI

Time in treatment. To investigate whether MI is efficient compared to specific TAU or strong comparison groups, we assessed the number of appointments and total amount of time (minutes) spent in treatment. With regard to number of appointments, MI groups ($M = 3.70$, $SD = 3.82$) did not significantly differ from specific TAU groups ($M = 4.37$, $SD = 4.81$), $t(51) = 1.38$, ns. With regard to total time spent with clients (measured in minutes), specific TAU groups ($M = 308$, $SD = 447$) tended to meet for a longer time than MI groups ($M = 207$, $SD = 332$), $t(30) = 1.84$, $p < .08$, though this difference did not reach statistical significance.

Table 4. Moderator Analyses for Studies Compared to Treatment as Usual Groups With a Specific Treatment Program

Variable	K	Effect Size	CI	z Value/p Value	Heterogeneity Q Value (df)/p Value
Moderator: motivational interviewing (MI) or Motivational Enhancement Therapy					0.03 (1)/.867, ns
Motivational interviewing	15	0.05	-0.10/0.19	0.64/.534, ns	
Motivational Enhancement Therapy	23	0.06	-0.04/0.17	1.16/.245, ns	
Moderator: use of training manual					5.96 (1)/.049*
Manual used	25	0.00	-0.07/0.07	-0.08/.931, ns	
Manual not used	11	0.45	0.09/0.81	2.46/.024*	
Moderator: role of MI in treatment					
Manual used					0.95 (1)/.624, ns
Additive	11	-0.03	-0.16/0.10	-0.43/.667, ns	
Prelude	6	0.07	-0.08/0.22	0.91/.362, ns	
Head-to-head	8	0.02	-0.10/0.14	0.27/.392, ns	
Manual not used					5.75 (2)/.056, ns
Additive	4	0.10	-0.43/0.62	0.36/.721, ns	
Prelude	3	1.06	0.47/1.66	3.52/.001*	
Head-to-head	4	0.54	0.13/0.96	2.57/.014*	
Moderator: fidelity to MI model examined					
Manual used					1.28 (2)/.533, ns
No assessment	7	0.08	-0.06/0.21	1.12/.261, ns	
Assessed, not scored	7	-0.03	-0.22/0.17	-0.29/.767, ns	
Assessed, standardized score	11	-0.01	-0.11/0.09	-0.24/.806, ns	
Manual not used					Not applicable
No assessment	11	0.45	0.09/0.81	2.46/.013*	
Insufficient studies to make comparisons on: assessed, not scored and assessed, standardized score					
Moderator: who delivered MI					
Manual used					3.76 (3)/.294, ns
Mental health: Bachelors	5	-0.00	-0.21/0.21	-0.01/.989, ns	
Mental health: Masters/PhD	2	-0.04	-0.24/0.17	-0.36/.721, ns	
Nurse	2	0.36	0.01/0.72	1.98/.045*	
Student	2	0.05	-0.19/0.28	0.38/.715, ns	
Manual not used					1.34 (2)/.511, ns
Mental health: Masters/PhD	1	0.69	-0.18/1.56	1.56/.115, ns	
Nurse	1	0.52	-0.27/1.30	1.28/.204, ns	
Student	2	1.06	0.49/1.62	3.66/.001*	

Note. Numbers of studies vary because not all studies examined certain outcomes or reported on certain moderators. CI = confidence interval; df = degrees of freedom; k = number of studies; ns = nonsignificant. * $p < .05$.

Durability. To support continuous analyses of durability, outcomes were grouped into five different time frames: immediately following treatment ($g = 0.15$, $k = 15$), 3 months beyond treatment ($g = 0.14$, $k = 45$), between 4 and 12 months beyond treatment ($g = 0.29$, $k = 32$), up to 2 years beyond treatment ($g = 0.24$, $k = 3$), and 25 months or more ($g = 0.24$, $k = 2$). No significant differences emerged between time frames, $Q_b = 5.27$ (4), $p = .38$, ns. With the exception of the longest time frame, all effect sizes were significantly greater than zero (all $ps < .02$).

Delivery mode. Interest in group-delivered MI exists, yet no meta-analysis has investigated delivery mode as a moderator. We found very few studies that delivered MI in a group format (see Table 6), so we ran this analysis separately from the other moderators. Whereas no statistically significant differences were found, visual inspection suggests that delivering MI through a group format only may dilute effects compared to when MI is also delivered individually. The small number of

studies addressing this question certainly warrants caution when making inferences from these results.

Discussion

From a broad perspective, a robust literature exists that examines the ability of MI to promote healthy behavior change across a wide variety of problem areas. That 119 studies met our inclusion criteria is remarkable and suggests MI is an approach that will be part of the treatment landscape for the foreseeable future. To guide practitioners and researchers, we now pose and answer several practical questions that flow from this meta-analysis below.

Does MI Work?

To the degree that MI is rooted in health care, social work, and psychology settings, the question of “does it work” is relevant. Our analyses strongly suggest that MI does exert small though

Table 5. Meta-Regression: Continuous Moderator Analyses

	Slope	z Value	q Value (df)	p Value
Comparison groups: waitlist, TAU, and written materials				
Participant characteristics				
Average age	−0.001	−0.63	0.41 (1, 234)	.53, <i>ns</i>
% Male	−0.001	−0.89	0.80 (1, 224)	.37, <i>ns</i>
% White	0.001	0.67	0.44 (1, 319)	.51, <i>ns</i>
% African American	0.003	2.90	8.43 (1, 226)	.004*
% Hispanic	0.002	0.76	0.58 (1, 186)	.45, <i>ns</i>
Study characteristics				
Rigor	−0.010	−1.50	2.26 (1, 485)	.13, <i>ns</i>
Dose: # of sessions	0.015	1.30	1.68 (1, 516)	.20, <i>ns</i>
Dose: # of minutes	0.001	3.85	14.82 (1, 403)	.001*
Durability: F/U time	0.002	0.18	0.03 (1, 543)	.85, <i>ns</i>
Comparison groups: TAU with specific treatment				
Participant characteristics				
Average age	0.006	2.49	6.22 (1, 152)	.01*
% Male	−0.000	−0.19	0.05 (1, 133)	.85, <i>ns</i>
% White	−0.003	−2.51	6.27 (1, 213)	.01*
% African American	−0.007	−5.45	29.70 (1, 130)	.001*
% Hispanic	−0.001	−0.39	0.15 (1, 80)	.70, <i>ns</i>
Study characteristics				
Rigor	−0.028	−2.97	8.80 (1, 253)	.01*
Dose: # of sessions	0.003	0.30	0.09 (1, 260)	.77, <i>ns</i>
Dose: # of minutes	0.000	0.07	0.01 (1, 177)	.94, <i>ns</i>
Durability: F/U time	−0.017	−1.04	1.09 (1, 278)	.30, <i>ns</i>

Note. Degrees of freedom of studies vary because not all studies examined certain outcomes or reported on certain moderators. * $p < .05$.

Table 6. Mode of Delivery: Group, Individual, or Combined Delivery

	N	Effect Size	CI	z Value/p Value
Collapsed across weak and strong comparisons				
Combined	3	0.45	−0.46/1.36	0.96 (.34, <i>ns</i>)
Group	5	0.05	−0.19/0.28	0.38 (0.38, <i>ns</i>)
Individual	104	0.23	0.17/0.28	7.76 (.001*)
MI compared to weak comparison groups				
Combined	2	0.76	−1.02/2.55	0.84 (.40, <i>ns</i>)
Group	2	0.33	0.02/0.64	2.09 (0.04*)
Individual	76	0.28	0.22/0.34	8.89 (.001*)
MI compared to strong comparison groups				
Combined	1	0.15	0.89/1.20	0.29 (.77, <i>ns</i>)
Group	3	0.13	0.33/0.08	2.09 (0.23, <i>ns</i>)
Individual	29	0.06	0.04/0.16	1.12 (.25, <i>ns</i>)

Note. CI = confidence interval. Numbers of studies vary because not all studies examined certain outcomes or reported on certain moderators. * $p < .05$.

significant positive effects across a wide range of problem domains, although it is more potent in some situations compared to others, and it does not work in all cases. When examining all the effect sizes in this review, the bottom 25% included effect sizes that ranged from zero to highly negative outcomes, which means MI was either ineffective or less effective when compared to other interventions or groups about a quarter of the time. Remember, a negative effect size does not necessarily suggest that participants receiving MI were directly harmed—just that the comparison group either progressed more or regressed less. Conversely, a full 75% of participants

gained some improvement from MI, with 50% gaining a small but meaningful effect and 25% gaining to a moderate or strong level. Our results resemble findings from other meta-analyses of treatment interventions. Specially, Lipsey and Wilson (1993) generated a distribution of mean effect sizes from 302 meta-analyses of psychological, behavioral, or educational interventions, reporting the mean and median effect sizes to be around 0.50 ($SD = 0.29$). The results of our meta-analysis are generally within one standard deviation of this mean effect size, indicating that MI produces effects consistent with other human change interventions.

Should I or My Agency Consider Learning or Adopting MI?

On the whole, the data suggest “yes.” While we did not perform a cost-benefit analysis, adopting MI is very likely to produce a statistically significant and positive advantage for clients and may do so in less time. Note that, when compared to other active treatments such as 12-step and cognitive behavioral therapy (CBT), the MI interventions took over 100 fewer minutes of treatment on average yet produced equal effects. This holds across a wide range of problem areas, including usage of alcohol, tobacco, and marijuana. Furthermore, MI is likely to lead to client improvement when directed at increasing healthy behaviors and/or decreasing risky or unhealthy behaviors as well increasing client engagement in the treatment process. Of course, in MI fashion, the decision to adopt or even consider adopting MI requires considerable thought and is ultimately an individual (or agency) choice.

Is MI Only Indicated for Substance Use Problems?

No. Although MI originated in substance abuse fields, its effectiveness is currently much broader. While most of the studies included in this analysis were related to substance use problems, MI was also effective for other addictive problems such as gambling as well as for enhancing general health-promoting behaviors. Furthermore, MI was associated with positive gains in measures of general well-being (e.g., lower stress and depression levels), which is interesting because MI is geared toward motivating clients to make some form of change and directly targets clients’ engagement in the change process. Thus, it may be that MI increased client well-being indirectly, after they had made successful changes in certain areas of their life.

Is MI Successful in Motivating Clients to Change?

Yes. MI significantly increased clients’ engagement in treatment and their intention to change, the two variables most closely linked to motivation to change. MI certainly shows potential to enhance client change intentions and treatment engagement, as well as possibly boost their confidence in their ability to change.

Is MI Only Successful With Very Troubled Clients?

No. Our results suggest MI is effective for individuals with high levels of distress as well as for individuals with relatively low levels of distress. In fact, a recent study comparing MI to CBT for generalized anxiety disorder revealed that receiving MI was substantively and specifically beneficial for those reporting high worry severity at baseline, compared to those reporting severity not receiving MI (Hal Arkowitz, personal communication, November 2008).

Is MI as Successful as Other Interventions?

To begin, MI is certainly better than no treatment and weak treatment such as a written materials or nonspecific TAU

groups as judged by the significant positive changes. Furthermore, MI mostly held its own with specific TAU groups. While MI was not significantly better than such groups, it was at least as successful except in the case of tobacco use and miscellaneous drug-use problems. This finding mirrors the general “Dodo bird verdict” from psychotherapy reviews and meta-analyses that no one intervention model or theory is clearly superior (see Prochaska & Norcross, 2007). If MI is as successful as other interventions, then decision making about whether to adopt MI rests more with practical and theoretical considerations. Ease of learning MI and costs are practical concerns, whereas theoretical issues pertain to whether the individual or agency can adopt a client-centered model that emphasizes collaboration with clients over directing and pushing people to change. Of interest, MI does not require more resources, such as number of sessions or amount of time, and may require less time to achieve results similar to other specific treatments.

Are the Effects of MI Durable?

Our analyses suggest that they are. Results did not significantly differ when participants’ improvements were measured immediately following treatment, 3 months beyond treatment, or up to a year following treatment completion. This finding comes from over 97 comparisons with a minimum of 15 for each time frame; furthermore, our regression analyses showed a nonsignificant relationship across 842 effect sizes where time could be classified. Our results also suggest MI was durable at the 2-year mark and beyond, though so few studies evaluated such long-term outcomes that confidence has to be tempered pending further research.

Should Practitioners Learn “Basic MI” or “MET?”

The answer to this question depends on many factors, such as whether standardized assessment tools exist for the target problem area under consideration and whether another specific intervention is already being used. First, if the main goal of the practitioner is to combine MI with other psychotherapy techniques such as CBT (e.g., Anton et al., 2006) or use MI as an integrative framework throughout treatment for clinical problems like depression (e.g., Arkowitz & Burke, 2008), then basic MI is the best choice. If the goal is to target specific behavior changes, however, then our review suggests that if another specific program is not currently being used, employing MET will produce significantly better results than only using MI. This makes theoretical sense because MET is “MI plus,” adding a problem feedback component to the MI paradigm that could constitute an effective treatment in its own right. Furthermore, if one considers the findings originating from Project MATCH (1997, 1998), where MET produced results equal to CBT and 12-step in considerably less time, adopting MET seems like the right choice to specifically target addictive or other problem behaviors. Finally, MET may be easier to learn/train because it is more focused than basic MI.

Is Manual-Guided MI Superior to the Alternative?

Our results suggest not. When MI was compared to a weak comparison group, the use of a manual did not matter, whereas when MI was compared to a specific TAU, the use of a manual was significantly less effective. Hettema et al. (2005) found the use of a manual detracted from outcomes; our results suggest that this may be the case only when MI is being compared to a specific TAU. On one hand, treatment manuals should encourage fidelity to the MI approach, although fidelity also showed no significant correlations with MI outcome. Yet, MI by definition strives toward a humanistic, client-centered approach where a manual may interfere with truly centering on the client by causing practitioners to focus unduly on the manual. To our knowledge, no primary study has explicitly tested this question in a MI context and we hope future research into the process of MI will do so.

Does the Format or Role of MI Influence Outcomes?

MI is a versatile approach. It has been used as additive to other interventions, as a prelude to another treatment where the assumption is that MI will serve a preparatory role, and as a stand-alone intervention. Our data suggest that MI format does not matter as judged by homogenous effect sizes. However, visual inspection revealed a fair amount of variability across different conditions, suggesting that basic MI may work best as a prelude to further treatment (as in Burke et al., 2003), whereas MET may be optimal as an additive or stand-alone intervention.

The overall finding that format of MI does not significantly influence its outcome fits with its basic philosophy. MI aims to improve the working alliance with a client, to manage resistance, to express empathy, and to build motivation to change while addressing ambivalence about change. These targeted goals seem broadly acceptable to most change efforts and are likely useful at any stage of an intervention process. Thus, it appears that one of the strengths of MI lies in its portability across many different treatment formats or roles.

Does Level of Training Influence Success of MI?

Our data suggest “no.” However, very few studies contributed data to this question, and any inferences must be made tentatively. Of note, William Miller has stated (personal communication, December 2006) that what is most important is a helping professional’s ability to empathize with clients and not their training background (e.g., nursing, social work, psychology). Moreover, research has often suggested that little difference can be attributed to professional training in psychological arenas (e.g., Berman & Norton, 1985).

Does MI Dosage Matter?

Our answer is that it likely does. When MI conditions were compared to weak (and shorter) alternatives, a significant positive relationship was found, suggesting a dose effect—i.e.,

more treatment time was related to better outcomes for MI. The data therefore suggest that it cannot hurt to provide more MI and that it is unreasonable to assume that a very short MI intervention will lead to lasting change. That said, our data cannot suggest minimum or maximum levels of MI-related contact. Many MI practitioners anecdotally report that MI becomes integrated within much of their treatment, such that it cannot be separated from other interventions, which thereby makes the question of dosage less pertinent.

Does MI Work for Most Clients?

We cannot provide a simple response to this important question based on our review, although our data do suggest a few insights in that regard. On the whole, MI appears broadly capable of helping across many problem domains ranging from addictive to health-promoting behaviors. We also looked at two participant characteristics: age and ethnicity. Regression analyses showed a significant relationship between participants’ average age and outcomes only when MI was compared to specific TAU, where studies with older participants yielded better results for MI. Considering developmental issues, MI is conducted within a cognitive medium and requires some degree of abstract reasoning that should be present after the age of 12 years (based on Piaget’s (1962) model) and thus may not be as helpful for preteen children.

Our data also provide a mixed picture with regard to race. When MI was compared with a weak alternative, a significant positive correlation was found between percentages of African American participants and, to a lesser degree, Hispanic Americans for MI outcomes. Furthermore, when MI was compared to a strong alternative (specific TAU), a lower percentage of Whites and a lower percentage of African Americans (i.e., a higher percentage of other minorities) was significantly related to better MI outcomes. Taken together, these findings suggest that MI may be particularly effective with clients from minority ethnic groups (but not necessarily African Americans), a pattern similar to that reported by Hettema et al. (2005). We conjecture that MI may be particularly attractive to groups who have experienced social rejection and societal pressure because MI adopts a humanistic approach that prizes self-determination, although why results would differ by comparison group type is not clear to us at this juncture.

Does MI Work in Group Formats?

Limited data can be applied to this question because only eight studies used some form of group delivery; however, our interpretation of the data is that relying solely on group-delivered MI would be a mistake. While no statistically significant differences emerged based on delivery mode (individual, group, or combined), visual inspection of Table 6 seems to discourage group-only delivery and may favor a combined approach instead.

In summary, the combined results of the present meta-analysis as well as those previously published meta-analyses suggest a relatively low risk in implementing MI because it

works across a wide range of problem behaviors/types and is unlikely to harm clients. Compared to other active and specific treatments, MI was equally effective in our review and shorter in length. When compared to weaker alternatives—such as waitlist, control groups, nonspecific TAU, or written material—MI provides a small yet significant advantage for a diverse array of clients regardless of symptom severity, age, and gender, with possibly an even stronger advantage for minority clients.

It is our sense that MI enjoys a clear and articulate theoretical frame accompanied by specific techniques that can readily be learned (e.g., Arkowitz & Miller, 2008; Markland, Ryan, Tobin, & Rollnick, 2005; Miller & Rollnick, 2004; Vansteenkiste & Sheldon, 2006). Indeed, a rather large body of training materials and trainers for MI has emerged along with mounting research addressing training effectiveness (e.g., see Burke, Dunn, Atkins, & Phelps, 2004), resulting in a rather standardized training approach (see motivationalinterviewing.org). Moreover, MI researchers are also investing much time and energy into best practices in training MI (Teresa Moyers, personal communication, November 2008) and efforts to assess fidelity to MI are well underway (e.g., Miller, 2002). Furthermore, MI has been judged to be an evidenced-based practice by organizations such as SAMHSA (Substance Abuse and Mental Health Service Administration). In sum, 25 years of MI research has generated broad scientific inquiry and deep scrutiny, and the MI approach has clearly passed the initial test.

The results of our meta-analysis suggest several potentially fruitful avenues for future MI research. In this review, we made the point that MI may well be more cost-effective than viable alternative treatments even if they are not more clinically effective. While only a handful of MI studies have examined this important variable to date, cost-effectiveness research would certainly add significantly to the MI literature and would be of special interest to policy makers and clinical administrators alike.

Furthermore, although a substantial amount of thought, practice, and research has already been devoted to MI, we still do not understand the precise links between its processes and outcomes (Burke et al., 2002). MI may work via increasing a specific type of client change talk—what they say in session about their *commitment* to making behavioral changes—and decreasing client speech that defends the status quo (Amrhein, Miller, Yahne, Palmer, & Fulcher et al., 2003). Consistent with its client-centered background, MI may also work through therapist interpersonal skills (such as accurate empathy as measured by the MISC; Miller, 2002), which are positively associated with client involvement as defined by cooperation, disclosure, and expression of affect (Moyers, Miller, & Hendrickson et al., 2005). Thus, there may be two specific active components underlying the MI mechanism: a *relational* component focused on empathy and the interpersonal spirit of MI, both of which minimize client resistance, and a *technical* component involving the differential evocation and reinforcement of client change talk (Miller & Rose, 2009).

Finally, a considerable body of theory and research suggests that MI may be effective for clinical areas beyond the addictions, such as for depression and anxiety disorders (Arkowitz et al., 2008). Our review is supportive of such an assertion because virtually anytime MI has been tested empirically in new areas (e.g., health-promoting behaviors); it has shown positive and significant effects. Thus, we have likely not yet found the limits of the types of problems and symptoms to which MI can be profitably applied.

Authors' Note

The first and last authors are affiliated with the MINT group and may, therefore, be biased. To control for this bias we explicitly instructed our research team that positive and negative findings were welcomed and expected. Further, we consciously determined to present the results regardless of whether they supported or undermined MI's effectiveness. Lastly, we strove to clearly detail our methodology to be transparent and to encourage possible replication.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interests with respect to the authorship and/or publication of this article.

Funding

The Utah Criminal Justice Center, housed within the University of Utah, funded two research assistants (CK, CB) for this project.

Acknowledgments

Thanks to the Utah Criminal Center who paid for the RAs; thanks to the J. Willard Marriott Library.

Appendix

Rating Study Rigor

Studies received 1-point if they did the following: reported on three or more demographic indicators of the sample, collected data at a follow-up period beyond immediate completion of the study, included more than one site, reported data from all dependent variables they assessed, utilized coders who were "blind" to participants' group assignment, utilized objective measurement tools (e.g., records, physiological indicators) instead of relying solely on client self-report, utilized a manual to direct training or standardized delivery, reported on dropouts, and included more than 20 participants in the intervention and comparison groups. Studies earned up to 2 points if the data used to calculate effect sizes came from means, standard deviations, and/or numbers of participants (percentages), 1 point if an exact statistic was used (e.g., *t* test), and no point if effect sizes were derived from *p* values. Studies earned 2 points if measurement of outcomes came from at least two sources (e.g., participant and collateral source), 1 point if collateral only, and no point if participant only. Studies earned 2 points if fidelity was assessed and considered high, 1 point if fidelity was assessed but not scored, and no point if fidelity was not measured. Lastly, studies earned 3 points if true randomization was used, 2 points if matched groups were used, 1 point if the

groups were tested for pretreatment equivalence, and no point if groups were not equivalent or equivalence could not be determined.

References

References marked with an asterisk "*" indicate studies included in the meta-analysis.

- *Ahluwalia, J. S., Okuyemi, K., Nollen, N., Choi, W. S., Kaur, H., Pulvers, K., et al. (2006). The effects of nicotine gum and counseling among African American light smokers: A 2 x 2 factorial design. *Addiction, 101*, 883-891.
- Amrhein, P. C., Miller, W. R., Yahne, C. E., Palmer, M., & Fulcher, L. (2003). Client commitment language during motivational interviewing predicts drug use outcome. *Journal of Consulting and Clinical Psychology, 71*, 862-878.
- *Anton, R. F., Moak, D. H., Latham, P., Waid, L. R., Myrick, H., Voronin, K., et al. (2005). Naltrexone combined with either cognitive behavioral or motivational enhancement therapy for alcohol dependence. *Journal of Clinical Psychopharmacology, 25*, 349-357.
- Anton, R. F., O'Malley, S. S., Ciraulo, D. A., Cisler, R. A., Couper, D., & Donovan, D. M. et al. (2006). Combined pharmacotherapies and behavioral interventions for alcohol dependence. The COMBINE study: A randomized controlled trial. *Journal of the American Medical Association, 295*, 2003-2017.
- Arkowitz, H., & Burke, B. L. (2008). Motivational interviewing as an integrative framework for the treatment of depression. In H. Arkowitz, H. A. Westra, W. R. Miller, & S. Rollnick (Eds.), *Motivational interviewing in the treatment of psychological problems*, (pp. 145-172). New York: Guilford.
- Arkowitz, H., & Miller, W. (2008). Learning, applying, and extending motivational interviewing. In H. Arkowitz, H. A. Westra, W. R. Miller, & S. Rollnick (Eds.), *Motivational interviewing in the treatment of psychological problems*, (pp. 1-25). New York: Guilford.
- Arkowitz, H., Westra, H. A., Miller, W. R., & Rollnick, S. (2008). *Motivational interviewing in the treatment of psychological problems*. New York: Guilford.
- *Baer, J. S., Kivlahan, D. R., Blume, A. W., MacKnight, P., & Marlatt, G. A. (2001). Brief intervention for heavy-drinking college students: 4-year follow up and natural history. *American Journal of Public Health, 91*, 1310-1316.
- *Baker, A., Heather, N., Wodak, A., Dixon, J., & Holt, P. (1993). Evaluation of a cognitive-behavioral intervention for HIV prevention among injecting drug users. *AIDS, 7*, 247-256.
- *Baker, A., Lewin, T., Reichler, H., Clancy, R., Carr, V., Garret, R., et al. (2002). Evaluation of a motivational interview for substance use within psychiatric in-patient services. *Addiction, 97*, 1329-1337.
- *Ball, S. A., Todd, M., Tennen, H., Armeli, S., Mohr, C., Affleck, G., et al. (2007). Brief motivational enhancement and coping skills interventions for heavy drinking. *Addictive Behaviors, 32*, 1105-1118.
- *Baros, A. M., Latham, P. K., Moak, D., Voronin, K., & Anton, R. F. (2007). What role does measuring medication compliance play in evaluating the efficacy of Naltrexone? *Alcoholism: Clinical and Experimental Research, 31*, 596-603.
- *Beckham, N. (2007). Motivational interviewing with hazardous drinkers. *Journal of the American Academy of Nurse Practitioners, 19*, 103-110.
- *Bennett, J. A., Perrin, N. A., Hanson, G., Bennett, D., Gaynor, W., Flaherty-Robb, M., et al. (2005). Healthy aging demonstration project: Nurse coaching for behavior change in older adults. *Research in Nursing and Health, 28*, 187-197.
- Berman, J. S., & Norton, N. C. (1985). Does professional training make a therapist more effective? *Psychological Bulletin, 98*, 401-407.
- *Bernstein, J., Bernstein, E., Tassiopoulos, K., Heeren, T., Levenson, S., & Hingson, R. (2005). Brief motivational intervention at a clinic visit reduces cocaine and heroin use. *Drug and Alcohol Dependence, 77*, 49-59.
- *Bien, T. H., Miller, W. R., & Boroughs, J. M. (1993). Motivational interviewing with alcohol outpatients. *Behavioral and Cognitive Psychotherapy, 21*, 347-356.
- *Booth, R. E., Corsi, K. F., & Mikulich-Gilbertson, S. K. (2004). Factors associated with methadone maintenance treatment retention among street-recruited injection drug users. *Drug and Alcohol Dependence, 74*, 177-185.
- *Booth, R. E., Kwiatkowski, C., Iguchi, M., Pinto, F., & John, D. (1998). Facilitating treatment entry among out-of-treatment injection drug users. *Public Health Reports, 113*, 117-129.
- Borenstein, M., Hedges, L., Higgins, J., & Rothstein, H. (2005). *Comprehensive Meta-Analysis (Version 2)* [Computer software]. Englewood, NJ: Biostat.
- *Borrelli, B., Novak, S., Hecht, J., Emmons, K., Papandonatos, G., & Abrams, D. (2005). Home health care nurses as a new channel for smoking cessation treatment: Outcomes from project CARES (Community-nurse Assisted Research and Education on Smoking). *Preventive Medicine, 41*, 815-821.
- *Bowen, D., Ehret, C., Pedersen, M., Snetselaar, L., Johnson, M., Tinker, L., et al. (2002). Results of an adjunct dietary intervention program in the woman's health initiative. *Journal of the American Dietetic Association, 102*, 1631-1637.
- *Brodie, D. A., & Inoue, A. (2005). Motivational interviewing to promote physical activity for people with chronic heart failure. *Journal of Advanced Nursing, 50*, 518-527.
- *Brown, J. M., & Miller, W. R. (1993). Impact of motivational interviewing on participation and overcome in residential alcoholism treatment. *Psychology of Addictive Behavior, 7*, 211-218.
- *Brown, T. G., Dongier, M., Latimer, E., Legault, L., Seraganian, P., Kokin, M., et al. (2006). Group-delivered brief intervention versus standard care for mixed alcohol/other drug problems: A preliminary study. *Alcoholism Treatment Quarterly, 24*, 23-40.
- Burke, B., Arkowitz, H., & Dunn, C. (2002). The efficacy of motivational interviewing. In W. R. Miller, & S. Rollnick (Eds.), *Motivational interviewing: Preparing people for change* (2nd ed. pp. 217-250). New York: Guilford.
- Burke, B. L., Arkowitz, H., & Menchola, M. (2003). The efficacy of motivational interviewing: A meta-analysis of controlled clinical trials. *Journal of Consulting and Clinical Psychology, 71*, 843-861.

- Burke, B. L., Dunn, C. W., Atkins, D., & Phelps, J. S. (2004). The emerging evidence base for motivational interviewing: A meta-analytic & qualitative inquiry. *Journal of Cognitive Psychotherapy, 18*, 309-322.
- *Butler, C. C., Rollnick, S., Cohen, D., Bachman, M., Russell, I., & Stott, N. (1999). Motivational consulting versus brief advice for smokers in general practice: A randomized trial. *British Journal of General Practice, 49*, 611-616.
- *Carey, M. P., Baaten, L. S., Maisto, S. A., Gleason, J. R., Forsyth, A. D., Durant, L. E., et al. (2000). Using information, motivational enhancement, and skills training, to reduce the risk of HIV infection for low-income urban women: A second randomized clinical trial. *Health Psychology, 19*, 3-11.
- *Carroll, K. M., Ball, S. A., Nich, C., Martino, S., Frankforter, T. L., Farentinos, C, et al. (2005). Motivational interviewing to improve treatment engagement and outcome in individuals seeking treatment for substance abuse: a multisite effectiveness study. *Drug and Alcohol Dependence, 81*, 301-312.
- *Carroll, K. M., Libby, B., Sheehan, J., & Hyland, N. (2001). Motivational interviewing to enhance treatment initiation in substance abusers: An effectiveness study. *The American Journal on Addictions, 10*, 335-339.
- *Channon, S. J., Huws-Thomas, M. V., Rollnick, S., Hood, K., Canning-John, R. L., Rogers, C., et al. (2007). A multicenter randomized controlled trial of motivational interviewing in teenagers with diabetes. *Diabetes Care, 30*, 1390-1395.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.
- *Colby, S. M., Monti, P. M., Barnett, N. P., Rosenhow, D. J., Weissman, K., & Spirito, A. et al. (1998). Brief motivational interviewing in a hospital setting for adolescent smoking: A preliminary study. *Journal of Consulting and Clinical Psychology, 66*, 574-578.
- *Colby, S. M., Monti, P. M., Tevyaw, T. O., Barnett, N. P., Spirito, A., Rosenhow, D. J., et al. (2005). Brief motivational intervention for adolescent smokers in medical settings. *Addictive Behaviors, 30*, 865-874.
- *Connors, G. J., Walitzer, K. S., & Dermen, K. H. (2002). Preparing clients for alcoholism treatment: Effects on treatment participation and outcomes. *Journal of Consulting and Clinical Psychology, 70*, 1161-1169.
- Cooper, H., & Hedges, L. V. (1994). *The handbook of research synthesis*. New York: Russell SAGE.
- *Curry, S. J., Ludman, E. J., Graham, E., Stout, J., Grothaus, L., & Lozano, P. (2003). Pediatric-based smoking cessation intervention for low-income based women. *Archives of Pediatrics and Adolescent Medicine, 157*, 295-302.
- *Daley, D. C., Salloum, I. M., Zuckoff, A., Kirisci, L., & Thase, M. E. (1998). Increasing treatment adherence among outpatients with depression and cocaine dependence: Results of a pilot study. *American Journal of Psychiatry, 155*, 1611-1613.
- *Davidson, D., Gulliver, S. B., Longabaugh, R., Wirtz, P. W., & Swift, R. (2006). Building better cognitive-behavioral therapy: Is broad-spectrum treatment more effective than motivational-enhancement therapy for alcohol-dependent patients treated with Naltrexone? *Journal of Studies on Alcohol and Drugs, 68*, 238-247.
- *Davis, T. M., Baer, J. S., Saxon, A. J., & Kivlahan, D. R. (2003). Brief motivational feedback improves post-incarceration treatment contact among veterans with substance use disorders. *Drug and Alcohol Dependence, 69*, 197-203.
- *Dench, S., & Bennett, G. (2000). The impact of brief motivational intervention at the start of an outpatient day programme for alcohol dependence. *Behavioral and Cognitive Psychotherapy, 28*, 121-130.
- *Dunn, E. C., Neighbors, C., & Larimer, M. E. (2006). Motivational enhancement therapy and self-help treatment for binge eaters. *Psychology of Addictive Behaviors, 20*, 44-52.
- *Elliot, D. L., Goldberg, L., Kuehl, K. S. Moe, E. L., Breger, R. K. R., & Pickering, M. A. (2007). The PHLAME (Promoting Healthy Lifestyles: Alternative Model's Effects) firefighter study: Outcomes of two models of behavior change. *Journal of Occupational and Environmental Medicine, 49*, 204-213.
- *Emmen, M. J., Schippers, G. M., Wollersheim, H., & Bleijenberg, G. (2005). Adding psychologist's intervention to physician's advice to problem drinkers in the outpatient clinic. *Alcohol & Alcoholism, 40*, 219-226.
- *Emmons, K. M., Hammond, K., Fava, J. L. Velicer, W. F., Evans, J. L., & Monroe, A. D. (2001). A randomized trial to reduce passive smoke exposure in low income households with young children. *Pediatrics, 108*, 18-24.
- *Gailbraith, I. G. (1989). Minimal intervention with problem drinkers: A pilot study of the effect of two interview styles on perceived self-efficacy. *Health Bulletin, 47*, 311-314.
- *Gentilello, L. M., Rivara, F. P., Donovan, D. M., Jurkovich, G. J., Daranciang, E., Dunn, C. W., et al. (1999). Alcohol interventions in a trauma center as a means of reducing the risk of injury recurrence. *Annals of Surgery, 230*, 473-483.
- *Golin, C. E., Earp, J., Tien, H. C., Stewart, P., Porter, C., & Howie, L. (2006). A 2-arm, randomized, controlled trial of a motivational interviewing-based intervention to improve adherence to antiretroviral therapy (ART) among patients failing or initiating ART. *Journal of Acquired Immune Deficiency Syndromes, 42*, 42-51.
- *Graeber, D. A., Moyers, T. B., Griffith, G., Guajardo, E., & Tonigan, S. (2003). A pilot study comparing motivational interviewing and an educational intervention in patients with schizophrenia and alcohol use disorders. *Community Mental Health Journal, 39*, 189-202.
- *Gray, E., McCambridge, J., & Strang, J. (2005). The effectiveness of motivational interviewing delivered by youth workers in reducing drinking, cigarette and cannabis smoking among young people: Quasi-experimental pilot study. *Alcohol & Alcoholism, 40*, 535-539.
- *Grenard, J. L., Ames, S. L., Wiers, R. W., Thush, C., Stacy, A.W., & Sussman, S. (2007). Brief intervention for substance use among at risk adolescents: A pilot study. *Journal of Adolescent Health, 40*, 188-191.
- *Handmaker, N. S., Miller, W. R., & Manicke, M. (1999). Findings of a pilot study of motivational interviewing with pregnant drinkers. *Journal of Studies on Alcohol, 60*, 285-287.

- *Harland, J., White, M., Drinkwater, C., Chinn, D., Farr, L., & Howel, D. (1999). The Newcastle exercise project: a randomized controlled trial of methods to promote physical activity in primary care. *British Medical Journal*, *319*, 828-832.
- *Haug, N. A., Svikis, D. S., & DiClemente, C. (2004). Motivational enhancement therapy for nicotine dependence in methadone-maintained pregnant women. *Psychology of Addictive Behaviors*, *18*, 298-292.
- *Helstrom, A., Hutchison, K., & Bryan, A. (2007). Motivational enhancement therapy for high-risk adolescent smokers. *Addictive Behaviors*, *32*, 2404-2410.
- Hettema, J., Steele, J., & Miller, W. (2005). Motivational interviewing. *Annual Review of Clinical Psychology*, *1*, 91-111.
- *Hillsdon, M., Thorogood, M., White, I., & Foster, C. (2002). Advising people to take more exercise is ineffective: A randomized controlled trial of physical activity promotion in primary care. *International Journal of Epidemiology*, *31*, 808-815.
- *Hodgins, D. C., Currie, S. R., & El-Guebaly, N. (2001). Motivational enhancement and self-help treatments for problem gambling. *Journal of Consulting and Clinical Psychology*, *69*, 50-57.
- *Hodgins, D. C., Currie, S. R., El-Guebaly, N., & Peden, N. (2004). Brief motivational treatment for problem gambling: A 24-month follow-up. *Psychology of Addictive Behaviors*, *18*, 293-296.
- *Hulse, G. K., & Tait, R. J. (2002). Six month outcomes associated with a brief alcohol intervention for adult in-patients with psychiatric disorders. *Drug and Alcohol Review*, *21*, 105-112.
- *Hulse, G. K., & Tait, R. J. (2003). Five year outcomes of a brief alcohol intervention for adult inpatients with psychiatric disorders. *Addiction*, *98*, 1061-1068.
- *Humfress, H., Igel, V., Lamont, A., Tanner, M., Morgan, J., & Schmidt, U. (2002). The effect of a brief motivational intervention on community psychiatric patients' attitudes to their care, motivation to change, compliance and outcome: A case control study. *Journal of Mental Health*, *11*, 155-166.
- Hunter, J. E., & Schmidt, F. L. (2000). Fixed effects versus random effects meta-analysis models: Implications for cumulative research knowledge. *International Journal of Selection and Assessment*, *8*, 275-292.
- *Ingersoll, K. S., Ceperich, S. D., Nettleman, M. D., Karanda, K., Brocksen, S., & Johnson, B. A. (2005). Reducing alcohol-exposed pregnancy risk in college women: Initial outcomes of a clinical trial of a motivational intervention. *Journal of Substance Abuse Treatment*, *29*, 173-180.
- *Jaworski, B. C., & Carey, M. P. (2001). Effects of a brief, theory-based STD-prevention program for female college students. *Journal of Adolescent Health*, *29*, 417-425.
- Johnson, B. T., Mullen, B., & Salas, E. (1995). Comparison of three major meta-analytic approaches. *Journal of Applied Psychology*, *80*, 94-106.
- *Johnston, B. D., Rivara, F. P., Drosch, R. M., Dunn, C., & Copass, M. K. (2007). Behavior change counseling in the emergency department to reduce injury risk: A randomized controlled trial. *Pediatrics*, *110*, 267-274.
- *Juarez, P., Walters, S. T., Daugherty, M., & Radi, C. (2006). A randomized trial of motivational interviewing and feedback with heavy drinking college students. *Journal of Drug Education*, *36*, 233-246.
- *Kahler, C. W., Read, J. P., Ramsey, S. E., Stuart, G. L., McCrady, B. S., & Brown, R. A. (2004). Motivational enhancement for a 12-step involvement among patients undergoing alcohol detoxification. *Journal of Consulting and Clinical Psychology*, *72*, 736-741.
- *Kelly, A. B., & Lapworth, K. (2006). The HYP program- targeted motivational interviewing for adolescent violations of school tobacco policy. *Preventive Medicine*, *43*, 466-471.
- *Kidorf, M., Disney, E., King, V., Kolodner, K., Beilenson, P., & Brooner, R. K. (2005). Challenges in motivating treatment enrollment in community syringe exchange participants. *Journal of Urban Health*, *82*, 457-465.
- *Kreman, R., Yates, B. C., Agrawal, S., Fiandt, K., Briner, W., & Shurmer, S. (2006). The effects of motivational interviewing on physiological outcomes. *Applied Nursing Research*, *19*, 167-170.
- *Kuchipudi, V., Hobein, K., Flickinger, A., & Iber, F. L. (1990). Failure of a 2-hour motivational intervention to alter recurrent drinking behavior in alcoholics with gastrointestinal disease. *Journal of Studies on Alcohol*, *51*, 356-360.
- Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, *33*, 159-174.
- *Larimer, M. E., Turner, A. P., Anderson, B. K., Fader, J. S., Kilmer, J. R., Palmer, R. S., et al. (2001). Evaluating a brief alcohol intervention with fraternities. *Journal of Studies on Alcohol*, *62*, 370-380.
- Lipsey, M., & Wilson, D. (1993). The efficacy of psychological, educational, and behavioral treatment: Confirmation from meta-analysis. *American Psychologist*, *48*, 1181-1209.
- Lipsey, M. W. & Wilson, D. B. (2001). *Practical meta-analysis*. Applied Social Research Methods Series (Vol. 49). Thousand Oaks, CA: SAGE Publications.
- *Litt, M. D., Kadden, R. M., & Stephens, R. S. (2005). Coping and self-efficacy in marijuana treatment: Results from the marijuana treatment project. *Journal of Consulting and Clinical Psychology*, *73*, 1015-1025.
- *Longabaugh, R., Woolard, R. F., Nirenberg, T. D., Minugh, A. P., Becker, B., Clifford, P.R., et al. (2001). Evaluating the effects of a brief motivational intervention for injured drinkers in the emergency department. *Journal of Studies on Alcohol*, *62*, 806-817.
- *Longshore, D., & Grills, C. (2000). Motivating illegal drug use recovery: Evidence for a culturally congruent intervention. *Journal of Black Psychology*, *26*, 288-301.
- Lundahl, B. W., & Yaffe, J. (2007). Use of meta-analysis in Social Work and allied disciplines. *Journal of Social Service Research*, *33*, 1-11.
- *Maisto, S. A., Conigliaro, J., McNeil, M., Kraemer, K., Conigliaro, R. L., & Kelley, M. E. (2001). Effects of two types of brief intervention and readiness to change on alcohol use in hazardous drinkers. *Journal of Studies on Alcohol*, *62*, 605-614.
- *Maltby, N., & Tolin, D. F. (2005). A brief motivational intervention for treatment-refusing OCD patients. *Cognitive Behavioral Therapy*, *34*, 176-184.
- *Marijuana Treatment Project Research Group. (2004). Brief treatments for cannabis dependence: Findings from a randomized

- multisite trial. *Journal of Consulting and Clinical Psychology*, 72, 455-466.
- Markland, D., Ryan, R., Tobin, V., & Rollnick, S. (2005). Motivational interviewing and self-determination theory. *Journal of Social & Clinical Psychology*, 24, 811-831.
- *Marsden, J., Stillwell, G., Barlow, H., Boys, A., Taylor, C., Hunt, N., et al. (2006). An evaluation of a brief motivational intervention among young ecstasy and cocaine users: No effect on substance and alcohol use outcomes. *Addiction*, 101, 1014-1026.
- *Martino, S., Carroll, K. M., Nich, C., & Rounsaville, B. J. (2006). A randomized controlled pilot study of motivational interviewing for patients with psychotic and drug use disorders. *Addiction*, 101, 1479-1492.
- *McCambridge, J., & Strang, J. (2004a). Deterioration over time in effect of motivational interviewing in reducing drug consumption and related risk among young people. *Addiction*, 100, 470-478.
- *McCambridge, J., & Strang, J. (2004b). The efficacy of a single-session motivational interviewing in reducing drug consumption and perceptions of drug related risk and harm among young people: Results from a multi-site cluster randomized trial. *Addiction*, 99, 39-52.
- Mhurchu, C. N., Margetts, B. M., & Speller, V. (1998). Randomized clinical trial comparing the effectiveness of two dietary interventions for patients with hyperlipidaemia. *Clinical Science*, 95, 479-487.
- *Michael, K. D., Curtin, L., Kirkley, D. E., & Jones, D. L. (2006). Group-based motivational interviewing for alcohol use among college students: An exploratory study. *Professional Psychology: Research and Practice*, 37, 629-634.
- Miller, W. R. (2002). *Motivational interviewing skill code (MISC) coder's manual*. Retrieved November 2, 2008, from <http://motivationalinterview.org/training/MISC2.pdf>
- *Miller, W. R., Benefield, G., & Tonigan, J. S. (1993). Enhancing motivation for change in problem drinking: A controlled comparison of two therapist styles. *Journal of Consulting and Clinical Psychology*, 61, 455-461.
- Miller, W. R., & Rollnick, S. (2002). *Motivational interviewing: Preparing people for change* (2nd ed.). New York: Guilford.
- Miller, W. R., & Rollnick, S. (2004). Talking oneself into change: Motivational interviewing, stages of change, and the therapeutic process. *Journal of Cognitive Psychotherapy*, 18, 299-308.
- Miller, W. R., & Rose, G. S. (2009). Toward a theory of motivational interviewing. *American Psychologist*, 64, 527-537.
- Miller, W. R., Sovereign, R. G., & Krege, B. (1988). Motivational interviewing with problem drinkers: II. The drinker's check-up as a preventive intervention. *Behavioural Psychotherapy*, 16, 251-268.
- *Miller, W. R., Yahne, C. E., & Tonigan, S. (2003). Motivational interviewing in drug abuse services: A randomized clinical trial. *Journal of Counseling and Clinical Psychology*, 71, 754-763.
- *Mitcheson, L., McCambridge, J., & Byrne, S. (2007). Pilot cluster-randomized trial of adjunctive motivational interviewing to reduce crack cocaine use in clients on methadone maintenance. *European Addiction Research*, 13, 6-10.
- *Monti, P. M., Colby, S. M., Barnett, N. P., Spirito, A., Rohsenow, D. J., & Myers, M. et al. (1999). Brief intervention for harm reduction with alcohol-positive older adolescents in a hospital emergency department. *Journal of Consulting and Clinical Psychology*, 67, 989-994.
- *Morgenstern, J., Parsons, J. T., Bux Jr., D. A., Irwin, T. W., Wainberg, M. L., Muench, F., et al. (2007). A randomized controlled trial of goal choice interventions for alcohol use disorders among men who sex with men. *Journal of Counseling and Clinical Psychology*, 75, 72-84.
- Moyers, T. B., Miller, W. R., & Hendrickson, S. M. L. (2005). How does motivational interviewing work? Therapist interpersonal skill predicts client involvement within motivational interviewing sessions. *Journal of Consulting and Clinical Psychology*, 73, 590-598.
- *Mullins, S. M., Suarez, M., Ondersma, S. J., & Page, M. C. (2004). The impact of motivational interviewing on substance abuse treatment retention: A randomized control trial of women involved with child welfare. *Journal of Substance Abuse Treatment*, 27, 51-58.
- *Murphy, J. G., Duchnick, J. J., Vuchinich, R. E., Davison, J. W., Karg, J. W., Olson, A.M., et al. (2001). Relative efficacy of a brief motivational intervention for college student drinkers. *Psychology of Addictive Behaviors*, 15, 373-379.
- *Naar-King, S., Wright, K., Parsons, J. T., Frey, M., Templin, T., Lam, P., et al. (2006). Healthy choices: Motivational enhancement therapy for health risk behaviors in HIV-positive youth. *AIDS Education and Prevention*, 18, 1-11.
- *Nock, M. K., & Kazdin, A. E. (2005). Randomized controlled trial of a brief intervention for increasing participation in parent management training. *Journal of Consulting and Clinical Psychology*, 73, 872-879.
- *Peterson, P. L., Baer, J. S., Wells, E. A., Ginzler, J. A., & Garrett, S. B. (2006). Short-term effects of a brief motivational intervention to reduce alcohol and drug risk among homeless adolescents. *Psychology of Addictive Behaviors*, 20, 254-264.
- Piaget, J. (1962). The stages of the intellectual development of the child. *Bulletin of the Menninger Clinic*, 26, 120-128.
- *Picciano, J. F., Roffman, R. A., Kalichman, S. C., Rutledge, S. E., & Berghuis, J. P. (2001). A telephone based brief intervention using motivational enhancement to facilitate HIV risk reduction among MSM: A pilot study. *AIDS and Behavior*, 5, 251-262.
- Prochaska, J. O., & Norcross, J. C. (2007). *Systems of psychotherapy: A transtheoretical approach*. South Melbourne, Australia: Thompson Brooks/Cole.
- Project MATCH Research Group. (1997). Matching alcoholism treatment to client heterogeneity: Project MATCH post treatment drinking outcomes. *Journal of Studies on Alcohol*, 58, 7-29.
- Project MATCH Research Group. (1998). Matching alcoholism treatment to client heterogeneity: Project MATCH three-year drinking outcomes. *Alcoholism: Clinical and Experimental Research*, 23, 1300-1311.
- Rogers, C. R. (1951). *Client centered therapy*. Boston: Houghton-Mifflin.
- *Rohsenow, D. J., Monti, P. M., Colby, S. M., & Martin, R. A. (2002). Brief interventions for smoking cessation in alcoholic smokers. *Alcoholism: Clinical and Experimental Research*, 26, 1950-1951.
- Rollnick, S., Miller, W. R., & Butler, C. C. (2008). *Motivational interviewing in health care: Helping patients change behavior*. New York: Guilford.

- *Rosenblum, A., Cleland, C., Magura, S., Mahmood, D., & Kosanke, N. (2005). Moderators of effects of motivational enhancements to cognitive behavioral therapy. *The American Journal of Drug and Alcohol Abuse, 31*, 35-58.
- *Saitz, R., Palfal, T. P., Cheng, D. M., Horton, N. J., Freedner, N., Dukes, K., et al. (2007). Brief intervention for medical inpatients with unhealthy alcohol use. *Annals of Internal Medicine, 146*, 167-176.
- *Saunders, B., Wilkinson, C., & Phillips, M. (1995). The impact of a brief motivational intervention with opiate users attending a methadone programme. *Addiction, 90*, 415-424.
- *Schermer, C. R., Moyers, T. B., Miller, T. B., Miller, W. R., & Bloomfield, L. A. (2006). Trauma center brief interventions for alcohol disorders decrease subsequent driving under the influence arrests. *The Journal of Trauma Injury, Infection, and Critical Care, 60*, 29-34.
- *Schmaling, K. B., Blume, A. W., & Afari, N. (2001). A randomized controlled pilot study of motivational interviewing to change attitudes about adherence to medications for asthma. *Journal of Clinical Psychology in Medical Settings, 8*, 167-171.
- *Schneider, R. J., Casey, J., & Kohn, R. (2000). Motivational versus confrontational interviewing: A comparison of substance abuse assessment practices at employee assistance programs. *The Journal of Behavioral Health Services and Research, 27*, 60-74.
- *Secades-Villa, R., Fernández-Hermida, J. R., & Arnáez-Montaraz, C. (2004). Motivational interviewing and treatment retention among drug user patients: A pilot study. *Substance Use and Misuse, 39*, 1369-1378.
- *Sellman, J. D., Sullivan, P. F., Dore, G. M., Adamson, S. J., & MacEwan, I. (2001). A randomized controlled trial of motivational enhancement therapy (MET) for mild to moderate alcohol dependence. *Journal of Studies on Alcohol, 62*, 389-396.
- *Smith, D. E., Kratt, P. P., Heckenmeyer, C. M., & Mason, D. A. (1997). Motivational interviewing to improve adherence to a behavioral weight-control program for older obese women with NIDDM. *Diabetes Care, 20*, 52-53.
- *Smith, S. S., Jorenby, D. E., Fiore, M. C., Anderson, J. E., Mielke, M., & Beach, K. E. et al. (2001). Strike while the iron is hot: Can stepped-care treatments resurrect relapsing smokers? *Journal of Counseling and Clinical Psychology, 69*, 429-445.
- *Soria, R., Legido, A., Escolano, C., Yeste, A. L., & Montoya, J. (2006). A randomised controlled trial of motivational interviewing for smoking cessation. *British Journal of General Practice, 56*, 768-774.
- *Spirito, A., Monti, P. M., Barnett, N. P., Colby, S. M., Sindelar, H., & Rosenhow, D. J. (2004). A randomized clinical trial of a brief motivational intervention for alcohol-positive adolescents treated in an emergency department. *The Journal of Pediatrics, 145*, 396-402.
- *Stein, M. D., Anderson, B., Charuvastra, A., Maksad, J., & Friedmann, P. D. (2002). A brief intervention for hazardous drinkers in a needle exchange program. *Journal of Substance Abuse Treatment, 22*, 23-31.
- *Stein, M. D., Charuvastra, A., Maksad, J., & Anderson, B. J. (2002). A randomized trial of a brief alcohol intervention for needle exchangers (BRAINE). *Addiction, 97*, 691-700.
- *Stein, L. A. R., Colby, S. M., Barnett, N. P., Monti, P. M., Golembeske, C., & Lebeau-Craven, R. (2006). Effects of motivational interviewing for incarcerated adolescents on driving under the influence after release. *The American Journal on Addictions, 15*, 50-57.
- *Stein, L. A. R., Monti, P. M., Colby, S. M., Barnett, N. P., Golembeske, C., & Lebeau-Craven, R. (2006). Enhancing substance abuse treatment engagement in incarcerated adolescents. *Psychological Services, 3*, 25-34.
- *Steinberg, M. L., Ziedonis, D. M., Krejci, J. A., & Brandon, T. H. (2004). Motivational interviewing with personalized feedback: A brief intervention for motivating smokers with schizophrenia to seek treatment for tobacco dependence. *Journal of Consulting and Clinical Psychology, 72*, 723-728.
- *Stephens, R. S., Roffman, R. A., & Curtin, L. (2000). Comparison of extended versus brief treatments for marijuana use. *Journal of Consulting and Clinical Psychology, 68*, 898-908.
- *Stotts, A. L., DeLaune, K. A., Schmitz, J. M., & Grabowski, J. (2004). Impact of a motivational intervention on mechanisms of change in low-income pregnant smokers. *Addictive Behaviors, 29*, 1649-1657.
- *Stotts, A. L., DiClemente, C. C., & Dolan-Mullen, P. (2002). One-to-one: A motivational intervention for resistant pregnant smokers. *Addictive Behaviors, 27*, 275-292.
- *Stotts, A. L., Potts, G. F., Ingersoll, G., George, M. R., & Martin, L. E. (2006). Preliminary feasibility and efficacy of a brief motivational intervention with psychophysiological feedback for cocaine abuse. *Substance Abuse, 27*, 9-20.
- *Stotts, A. L., Schmitz, J. M., Rhoades, H. M., & Grabowski, J. (2001). Motivational interviewing with cocaine with cocaine-dependent patients: A pilot study. *Journal of Consulting and Clinical Psychology, 69*, 858-862.
- *Tappin, D. M., Lumsden, M. A., Gilmour, W. H., Crawford, F., McIntyre, D., Stone, D. H., et al. (2005). Randomised controlled trial of home based motivational interviewing by midwives to help pregnant smokers quit or cut down. *British Medical Journals, 331*, 373-377.
- *Tappin, D. M., Lumsden, M. A., McIntyre, D., McKay, C., Gilmour, W. H., Webber, R., et al. (2000). A pilot study to establish a randomized trial methodology to test the efficacy of a behavioural intervention. *Health Education Research: Theory and Practice, 15*, 491-502.
- *Tappin, D. M., Lumsden, M. A., McKay, C., McIntyre, D., Gilmour, H., Webber, R., et al. (2000). The effect of home-based motivational interviewing on the smoking behavior of pregnant women: A pilot randomized controlled efficacy study. *Ambulatory Child Health, 6*, 34-35.
- *Thevos, A. K., Kaona, F. A. D., Siajunza, M. T., & Quick, R. E. (2000). Adoption of safe water behaviors in Zambia: Comparing educational and motivational approaches. *Education for Health, 13*, 366-376.
- *UKAAT (United Kingdom Alcohol Treatment Trial) Research Team. (2005). effectiveness of treatment for alcohol problems: Findings of the randomised UK alcohol treatment trial. *British Medical Journal, 331*, 541-544.

- *Valanis, B., Glasgow, R. E., Mullooly, J., Vogt, T., Whitlock, E. E., Boles, S. M., et al. (2002). Screening HMO women overdue for both mammograms and pap tests. *Preventive Medicine, 34*, 40-50.
- *Valanis, B., Whitlock, E. E., Mullooly, J., Vogt, T., Smith, S., Chen, C., et al. (2003). Screening rarely screened women: Time-to-service and 24-month outcomes of tailored interventions. *Preventive Medicine, 37*, 442-450.
- Vansteenkiste, M., & Sheldon, K. (2006). There's nothing more practical than a good theory: Integrating motivational interviewing and self-determination theory. *British Journal of Clinical Psychology, 45*, 63-82.
- Vasilaki, E., Hosier, S., & Cox, W. (2006). The efficacy of motivational interviewing as a brief intervention for excessive drinking: A meta-analytic review. *Alcohol and Alcoholism, 41*, 328-335.
- *Walker, D. D., Roffman, R. A., Stephens, R. S., Berghuis, J., & Kim, W. (2006). Motivational enhancement therapy for adolescent marijuana users: A preliminary randomized controlled trial. *Journal of Consulting and Clinical Psychology, 74*, 628-632.
- *Watkins, C. L., Auton, M. F., Deans, C. F., Dickinson, H. A., Jack, C. I. A., Lightbody, E., et al. (2007). Motivational interviewing early after acute stroke: A randomized, controlled trial. *Stroke, 38*, 1004-1009.
- *Weinstein, P., Harrison, R., & Benton, T. (2004). Motivating parents to prevent caries in their young children: One year findings. *Journal of the American Dental Association, 135*, 731-738.
- Welch, G., Rose, G., Hanson, D., Lekarcyk, J., Smith-Ossman, S., Gordon, T., et al. (2003). Changes in Motivational Interviewing Skills Code (MISC) scores following motivational interviewing training for diabetes educators. *Diabetes, 52*, A421.
- *Westra, H. A., & Dozois, D. J. A. (2006). Preparing clients for cognitive behavioral therapy: A randomized pilot study of motivational interviewing for anxiety. *Cognitive Therapy and Research, 30*, 481-498.
- *Wilhelm, S. L., Stephans, M. B. F., Hertzog, M, Rodehorst, T. K. C., & Gardener, P. (2006). Motivational interviewing to promote sustained breastfeeding. *Journal of Obstetric, Gynecologic, & Neonatal Nursing, 35*, 340-348.

Bijlage V

'Motivational Interviewing'

v

an Jennifer Hettema, Julie Steele, and William R. Miller.

Annual Review Clin. Psychol. 2005. 1:91–111.

MOTIVATIONAL INTERVIEWING

Jennifer Hettema, Julie Steele, and William R. Miller

*Department of Psychology, University of New Mexico, Albuquerque, New Mexico
87131-1161; email: jhettema@unm.edu, jmsteele@unm.edu, wrmiller@unm.edu*

Key Words substance abuse, health behavior, treatment outcome, meta-analysis, counseling

■ **Abstract** Motivational interviewing (MI) is a client-centered, directive therapeutic style to enhance readiness for change by helping clients explore and resolve ambivalence. An evolution of Rogers's person-centered counseling approach, MI elicits the client's own motivations for change. The rapidly growing evidence base for MI is summarized in a new meta-analysis of 72 clinical trials spanning a range of target problems. The average short-term between-group effect size of MI was 0.77, decreasing to 0.30 at follow-ups to one year. Observed effect sizes of MI were larger with ethnic minority populations, and when the practice of MI was not manual-guided. The highly variable effectiveness of MI across providers, populations, target problems, and settings suggests a need to understand and specify how MI exerts its effects. Progress toward a theory of MI is described, as is research on how clinicians develop proficiency in this method.

CONTENTS

INTRODUCTION	92
META-ANALYTIC METHODS	94
Study Identification and Coding	94
Computing Effect Sizes	95
Comparison of Problem Areas, Comparison Group, and Motivational Interviewing Purity	95
Analysis of Motivational Interviewing Efficacy Across Time	96
Homogeneity Analyses	96
RESULTS	96
Characteristics of Included Trials	96
TREATMENT EFFECTS OF MOTIVATIONAL INTERVIEWING	99
General Observations	99
Correlates of Effect Size	101
Effects of Motivational Interviewing by Problem Domain	102
DISCUSSION	103
Treatment Adherence	103
Immediacy of Effect	104
Are Manuals a Good Idea?	104
Matching Indications	105

TOWARD A THEORY OF MOTIVATIONAL INTERVIEWING	105
LEARNING MOTIVATIONAL INTERVIEWING	108
SUMMARY	109

INTRODUCTION

Anyone who aspires to help others change will quickly discover that people are often less than “ready, willing, and able” to do so. The “able” part of this formula is comfortable territory for most cognitive-behavior therapists, who are quite prepared to help clients build self-efficacy and learn how to change through a rich armamentarium of effective coping strategies. Less familiar is the terrain of readiness. Often clients are expected to come already prepared with sufficient motivation for change. In substance abuse treatment, it was once common to tell less-motivated clients, “Come back when you’re ready.”

Yet, hesitancy about change is human nature. To be sure, clients present with a wide range of readiness. Some do come already convinced that something has to change. Others come reluctantly or grudgingly, nudged through the door by loved ones or the courts. It is a safe assumption that most clients seeking treatment or change are ambivalent about it: They want it, and they don’t.

Motivational interviewing (MI) was developed as a way to help people work through ambivalence and commit to change (Miller 1983). An evolution of client-centered therapy, MI combines a supportive and empathic counseling style (Rogers 1959) with a consciously directive method for resolving ambivalence in the direction of change. Drawing on Bem’s self-perception theory (Bem 1972) that people tend to become more committed to that which they hear themselves defend, MI explores the client’s own arguments for change. The interviewer seeks to evoke this “change talk”—expressions of the client’s desire, ability, reasons, and need for change—and responds with reflective listening. Clients thus hear themselves explaining their own motivations for change, and hear them reflected again by the counselor. Furthermore, the counselor offers periodic summaries of change talk that the client has offered, a kind of bouquet composed of the client’s own self-motivational statements (Miller & Rollnick 2002).

The net effect of evoking change talk in an empathic and supportive manner is to strengthen the client’s commitment to change. Verbalized intention results in an increased probability of behavior change, particularly when it is combined with a specific plan for implementation (Gollwitzer 1999). In psycholinguistic analyses of MI sessions with drug dependent people, we found that the strength of commitment language predicted drug abstinence. Stated desire, ability, reasons, and need for change all contributed to subsequent strength of commitment language, but only commitment directly predicted behavior change (Amrhein et al. 2003). To say that one wants to, can, has cause to, or needs to change is not the same as making a commitment or stating the intention to change. MI is therefore differentiated into two phases: the first is focused on increasing motivation for change, and the second on consolidating commitment (Miller & Rollnick 2002).

MI is normally brief, provided in one to two sessions. It can be delivered as a freestanding intervention, or as a motivational prelude to other treatment. It has also been common to combine the clinical method of motivational interviewing with other intervention components, which have been called adaptations of MI (AMIs) (Burke et al. 2003). The most widely used AMI is motivational enhancement therapy (MET), which combines MI with personal feedback of assessment results (Miller et al. 1992).

Like other psychotherapies, MI is a complex and skillful method that is learned over time. Counselors sometimes come to MI workshops expecting to learn tricks for getting people to do what counselors want them to do. On the contrary, MI is a systematic and collaborative method for helping people to explore their own values and motivations, and how these may be served by status quo or behavior change. It emphasizes and honors client autonomy, to choose whether, when and how to change. When done well, MI involves listening more than telling. It does not operate from a deficiency model that seeks to instill knowledge, insight, skills, correct thinking, or even motivation. Rather, the counselor seeks to evoke the client's own motivation, with confidence in the human desire and capacity to grow in positive directions. Instead of implying that "I have what you need," MI communicates, "You have what you need." In this way, MI falls squarely within the humanistic "third force" in the history of psychotherapy. Nevertheless, MI is compatible with a variety of other approaches and appears to amplify the efficacy of treatment methods with which it is combined.

Proficiency in MI is not readily acquired by reading about it, viewing videotapes, or attending a clinical workshop (Miller & Mount 2001). Proper training focuses instead on helping clinicians learn how to learn MI from their clients. Once counselors learn to recognize and evoke change talk and committing language, clients thereafter provide continuous and immediate in-session reinforcement for good practice. Client resistance, on the other hand, represents immediate feedback of dissonance and serves as a cue to shift strategies. Within MI, "resistance" is simply client speech that defends and expresses commitment to status quo; in other words, it reflects the other side of the client's ambivalence. Pushing against resistance tends to focus on and amplify it. Instead, the interviewer acknowledges and rolls with resistance, calling attention to both sides of the ambivalence and redirecting the emphasis toward change.

MI differs from client-centered counseling in its directive intention. Some have maintained that Rogers himself was unconsciously directive, differentially attending to and reinforcing certain types of client speech (Truax 1966). In MI, such differential response to change talk is conscious and strategic. This means, of course, that MI is appropriate when there is a clear desired direction for change. That direction may come from the client's own expressed desires, from the counselor's perspective, or from the context within which counseling occurs. Interesting ethical dilemmas can arise when therapists and clients disagree on the perception of a problem and the need to change. MI has been argued to lie on a continuum between passivity and coercion and seeks to resolve mismatches between clients

and counselors by evoking the clients' intrinsic motivations (Miller 1994, Miller & Rollnick 2002).

Research indicates that MI is particularly useful with clients who are less motivated or ready for change, and who are more angry or oppositional. For these populations, action-oriented counseling with a goal of behavior change is likely to evoke resistance and reactance. From a transtheoretical perspective, this happens because of a mismatch in stages of change: The counselor is working at the action stage, whereas the client is in the earlier precontemplation or contemplation stage (Prochaska & DiClemente 1984). In the case of clients who are less ready for change, MI meets them where they are and invites them to move along through contemplation, preparation, and action. For clients who indicate readiness to change, MI may be less useful, and some findings indicate that it can be counterproductive. If such clients subsequently show ambivalence in action-oriented counseling, one can always fall back to an MI style.

The treatment outcome literature for MI is growing rapidly and has spread well beyond its original focus on addictive behaviors. Our primary purpose in this chapter is to provide an up-to-date summary of the evidence base for MI, drawing data primarily, but not exclusively, from controlled clinical trials. The findings that we summarize here are based on a new meta-analysis, the full scope of which is beyond the space limitations of this chapter. Full details of the meta-analysis and a comprehensive bibliography of MI are available at <http://www.motivationalinterview.org/>.

META-ANALYTIC METHODS

Study Identification and Coding

In order to identify MI treatment outcome studies, we searched PsycINFO using the term "motivational interviewing," and hand-searched bibliographies from the motivational interviewing web page (<http://www.motivationalinterview.org/>) and previous reviews (Burke et al. 2003, Dunn et al. 2001, Miller & Wilbourne 2003). Studies having (a) at least one group or individual intervention with components of MI, and (b) at least one posttreatment outcome measure were included in the overall pool for analyses investigating within-group effect sizes. In addition, studies contributing between-group effect sizes required (c) at least one control condition or comparison intervention without any components of MI, and (d) a procedure to provide pretreatment equivalence of groups (e.g., randomization, cohort, or sequential group assignment).

All outcome studies were independently coded by the first two authors (J. Hettema and J. Steele). The characteristics of included studies (type, goal, format, setting, intervention agent, treatment components, and sample characteristics) were categorized using a coding manual from prior treatment outcome reviews (Miller & Wilbourne 2003), with adaptations for the specific content of MI. Classification discrepancies were resolved by consensus of the coders, with reference to the original article and coding manual. All studies were also rated using 12 methodological

quality criteria from the same coding system, including method for assignment to groups, presence of quality control of treatment, follow-up rate, follow-up duration, type of follow-up data collection, collateral verification of self-report, objective verification of follow-up data, inclusion of treatment dropouts in analyses, consideration of cases lost to follow-up, masked follow-up data collection, acceptable statistical analyses, and the inclusion of multiple sites. Total methodological quality scores were computed, with a possible range from 0 to 16. In addition, we coded information on the amount and type of MI training provided to interventionists, and specific components of MI reported to have been included in the interventions.

Computing Effect Sizes

For each study, effect sizes and confidence intervals were computed for all outcome variables related to the target problem, and for which sufficient information was provided. As feasible, study authors were contacted for missing information. When no other option was available, effect sizes reported in previously published meta-analyses were used (Bien et al. 1993, Burke et al. 2003, Dunn et al. 2001). When insufficient information was provided to determine effect sizes and significance tests indicated $p > 0.05$, zero effect sizes were assigned.

When calculating within-group effect sizes, baseline mean values of all included variables were compared to every follow-up point. For between-group calculations, mean MI scores on every included variable were compared to every other investigated treatment condition at all follow-up points. When mean, standard deviation, and sample size information were reported, an unbiased estimator of effect size (g) was calculated using the following formula (Hedges & Olkin 1985): $[g = J(N - 2) * (Y^E - Y^C/s)]$, where $J(N - 2)$ is a bias correction factor, Y^E and Y^C are the experimental and control group means, and s is the pooled sample standard deviation. When mean, standard deviation, or sample size information was not provided, effect sizes were estimated from significance tests. F , t , or chi-square statistics were transformed to r values and then converted to effect sizes (d) using the following formula (Rosenthal 1991): $[d = 2r/\text{SQRT}(1 - r^2)]$. For all effect sizes, 95% confidence intervals were then calculated using the following formula (Hedges & Olkin 1985, p. 86): $\sigma^2(d) = \{(n^E + n^C)/(n^E n^C)\} + \{d^2/2(n^E + n^C)\}$. In addition, we calculated for each study a combined effect size (d_c), averaging all variables at each follow-up point using weighted linear combinations (Hedges & Olkin 1985, pp. 109–117). To minimize the variance of the combined effect sizes, weights that were inversely proportional to the variance of each effect size were assigned to each variable included in the analyses.

Comparison of Problem Areas, Comparison Group, and Motivational Interviewing Purity

This review includes studies across all behavior domains for which the efficacy of MI has been investigated, and we report effect sizes by target behaviors. We further differentiated trials comparing MI to untreated control groups from those in which

MI was added to or compared with other types of active treatment. A previous meta-analysis reported slightly larger effects of MI when added to other treatment than when tested as a stand-alone intervention (Burke et al. 2003). Finally, we did our best to differentiate studies of “pure” MI from those in which MI was combined with another established treatment. We computed composite effect sizes to address each of these issues, using the combined effect size from each relevant study to determine the relative efficacy of MI across problem areas, design types, and in studies with more “pure” forms of MI versus those in which MI was combined with another treatment. In all, we estimated more than 884 effect sizes in preparing this review.

Analysis of Motivational Interviewing Efficacy Across Time

Most studies of MI have reported outcome data across several follow-up points. To provide cross-study consistency, we classified follow-ups as having occurred at posttreatment and at the following posttreatment intervals: 1–3 months, 4–6 months, 7–12 months, 13–24 months, and longer than 2 years. Combined between-group effect sizes were calculated for all data during each of the follow-up intervals. In addition, combined within-group effect sizes for MI were calculated for each time interval, comparing each follow-up variable value with its baseline level.

Homogeneity Analyses

To determine the appropriateness of later statistical procedures, such as t-tests and multiple regression analyses, homogeneity analyses were conducted on groups of effect sizes that were entered into these analyses. T-tests and multiple regression analyses assume homoscedasticity, or that nonsystematic variance is equal across observations, and little is known about the violation of this assumption on these conventional statistical methods (Hedges & Olkin 1985). A Q statistic was calculated and tested for significance for each group that would be entered into a later analysis. A significant Q statistic indicates that the group is statistically heterogeneous.

RESULTS

Characteristics of Included Trials

STUDY DESIGN For full details of the characteristics of each trial, see the Supplemental Material link for Supplemental Table 1 in the online version of this chapter or at <http://www.annualreviews.org/>. Seventy-two studies met inclusion criteria for this meta-analysis. The studies tested the efficacy of motivational interviewing within the following behavioral domains: alcohol (31), smoking (6), HIV/AIDS (5), drug abuse (14), treatment compliance (5), gambling (1), intimate relationships (1), water purification/safety (4), eating disorders (1), and diet and exercise (4).

TABLE 1 Combined effect sizes (d_c , 95% confidence intervals) by target problem and comparison group*

	Combined d_c across all follow-up points				Combined d_c at follow-ups \leq three months			
	All studies	Untreated	Additive	Treatment	All studies	Untreated	Additive	Treatment
Alcohol	0.26 (N = 31) (0.18, 0.33)	0.38 (N = 14) (0.20, 0.56)	0.33 (N = 5) (0.23, 0.44)	0.11 (N = 13) (0.05, 0.17)	0.41 (N = 18) (0.31, 0.51)	0.44 (N = 9) (0.30, 0.59)	0.28 (N = 3) (0.03, 0.54)	0.38 (N = 6) (0.23, 0.53)
Smoking	0.14 (N = 6) (0.09, 0.20)	0.13 (N = 2)		0.17 (N = 5) (0.08, 0.25)	0.04 (N = 2) (-0.08, 0.16)	0.01 (N = 1) (-0.27, 0.30)		0.05 (N = 1) (-0.09, 0.18)
HIV	0.53 (N = 5) (0.24, 0.81)	0.12 (N = 3) (-0.04, 0.28)		0.94 (N = 2) (0.41, 1.46)	0.71 (N = 4) (0.24, 1.19)	0.12 (N = 3) (-0.04, 0.28)		3.4 (N = 1) (2.4, 4.5)
Drugs	0.29 (N = 13) (0.15, 0.43)	0.45 (N = 6) (0.16, 0.74)	0.53 (N = 2) (-0.05, 1.12)	0.12 (N = 6) (-0.05, 0.20)	0.51 (N = 9) (0.13, 0.90)	0.69 (N = 5) (0.05, 1.32)	0.53 (N = 2) (-0.05, 1.12)	0.02 (N = 2) (-0.08, 0.13)
Treatment compliance	0.72 (N = 5) (0.56, 0.89)	0.10 (N = 2) (-0.15, 0.36)	0.80 (N = 3) (0.64, 0.97)		0.42 (N = 4) (0.21, 0.63)	0.16 (N = 2) (0.16, 0.48)	0.75 (N = 2) (0.41, 1.09)	
Gambling	0.29 (N = 1) (0.16, 0.42)	0.46 (N = 1) (0.17, 0.74)		0.24 (N = 1) (0.09, 0.40)	0.44 (N = 1) (0.27, 0.61)	0.46 (N = 1) (0.17, 0.74)		0.43 (N = 1) (0.21, 0.65)
Water purification/safety	0.30 (N = 4) (0.05, 0.55)			0.30 (N = 4) (0.05, 0.55)	0.51 (N = 2) (0.30, 0.72)			0.51 (N = 2) (0.30, 0.72)
Eating disorder	-0.07 (N = 1) (-0.42, 0.26)			-0.07 (N = 1) (-0.42, 0.26)	-0.07 (N = 1) (-0.42, 0.26)			-0.07 (N = 1) (-0.42, 0.26)
Diet and exercise	0.78 (N = 4) (0.41, 1.16)			0.78 (N = 4) (0.41, 1.16)	0.14 (N = 1) (-0.16, 0.44)			0.14 (N = 1) (-0.16, 0.44)

*Note: $p < 0.05$; N represents the number of studies from which variables were taken (some studies had outcome variables in two comparison categories).

In the analyzed studies, MI was seldom given alone, but was typically combined with feedback and often some other form of treatment. In 41 studies, treatment groups received MI or MI plus feedback only, whereas in 31 studies, MI was combined with some other type of intervention, including education, self-help manuals, relapse prevention, cognitive therapy, skills training, Alcoholics Anonymous, stress management, and treatment as usual for the particular setting. Comparison groups also differed widely across studies. In 21 studies, MI was compared to a no-treatment or placebo condition. Five studies investigated the additive effects of MI to standard treatment, whereas six studies directly contrasted MI with an unspecified standard treatment. Seven studies investigated the effects of MI when added to another established treatment, twenty-five studies contrasted MI with another established treatment, six studies had mixed designs, and two studies solely investigated within-group change.

As discussed above, all studies were coded for 12 dimensions of methodological quality, yielding methodological quality scores that ranged from 4 to 16 (mean = 10.76, SD = 2.43), slightly higher than the mean score (10.68) reported for 361 alcoholism clinical trials in general (Miller & Wilbourne 2003). In comparison to these 361 trials, studies of MI were more likely to report some form of intervention quality control (78% versus 57%) and to be multisite trials (28% versus 5%), but were less likely to follow clients for 12 months or longer (18% versus 51%) or to complete follow-up with 70% or more of enrolled participants (45% versus 75%). The duration of follow-up ranged from 0 to 60 months posttreatment (mean = 8.8, SD = 10.28).

All outcome variables for which effect sizes could be calculated were enumerated for each study. The number of reported outcome variables ranged from 1 to 12 (mean = 3.3, SD = 2.3). To avoid capitalization on chance by the number of statistical tests conducted, we combined effect sizes across all reported outcome variables in each study.

CHARACTERISTICS OF MOTIVATIONAL INTERVIEWING For full details of the characteristics of MI for each trial see the Supplemental Material link for Supplemental Table 2 in the online version of this chapter or at <http://www.annualreviews.org/>. Characteristics of MI were also coded for all studies. As a rough index of the degree to which each study had implemented MI, we coded whether interventions were specified as including the following components of MI: being collaborative, being client centered, being nonjudgmental, building trust, reducing resistance, increasing readiness to change, increasing self-efficacy, increasing perceived discrepancy, engaging in reflective listening, eliciting change talk, exploring ambivalence, and listening empathically. The total number of these strategies reported to have been implemented in interventions identified as MI ranged from 0 to 12 (mean = 3.6, SD = 2.8).

The duration of MI interventions also varied. In 68 studies that reported these data, MI duration ranged from 15 minutes to 12 hours, with an average dose of about two sessions (mean = 2.24 hours, SD = 2.15). When MI was combined with

other treatment components, “duration” included only the time committed to MI. Comparison group treatment durations ranged from 0 to 28 hours (mean = 2.89, SD = 5.57). The difference in treatment duration between MI and comparison groups ranged from –25 hours (the comparison treatment was 25 hours longer than MI) to +6 hours [MI was 6 hours longer than the no-treatment control (mean = –0.48, SD = 4.9)].

Of the 72 studies included in the analyses, most (74%) reported that the MI intervention had been standardized by a manual or a specific training. For 13 studies that reported amount of training time, a mean of 9.92 (SD = 7.35) hours was spent in training. Only 26 studies (29%) provided any kind of posttraining support (such as supervision) for therapists, and only 21 studies (36%) included any form of competency or fidelity assessment after initial training.

MI was delivered in a variety of settings, including aftercare/outpatient clinics (15), inpatient facilities (11), educational settings (6), community organizations (6), general practitioner offices (5), prenatal clinics (3), emergency rooms (2), employee assistance programs (2), halfway houses (2), over the telephone (3), in patients’ homes (1), in jail (1), in mixed settings (7), or in unspecified treatment settings (8). The agents implementing the MI, when specified, included paraprofessionals or students (8), master’s level counselors (6), psychologists (6), nurses (3), physicians (2), dieticians (1), and modally a mix of varying levels of professionals (22).

CHARACTERISTICS OF STUDY SAMPLES For full details of the characteristics of each trial sample see the Supplemental Material link for Supplemental Table 3 in the online version of this chapter or at <http://www.annualreviews.org/>. The 72 studies enrolled between 21 and 952 participants (mean = 198.16, SD = 204.39), for a total of 14,267 clients. On average, the samples included 54.77% males (range: 0%–100%), and ranged in age from 16 to 62 (mean = 34.11, SD = 8.96). Only 37 studies specified ethnic composition, of which 16 samples (43%) were comprised primarily of participants from U.S. minority groups, including 10 with predominantly or entirely African American samples. Problem severity varied widely, and eight samples specifically recruited participants with concomitant substance use and mental disorders.

TREATMENT EFFECTS OF MOTIVATIONAL INTERVIEWING

General Observations

Before examining MI effects by target problem areas, we offer some broad observations from our analysis of 72 outcome studies. The effect sizes for each variable at every follow-up point is available at the Supplemental Material link for Supplemental Table 4 in the online version of this chapter or at <http://www.annualreviews.org/>.

First of these observations is the wide variability in effect sizes across studies, even within problem areas. In studies of alcohol abuse, for example, although most trials have reported statistically significant effects of MI, the observed effect sizes have varied from $d_c = 0$ to more than 3.0 (where $d_c = 1.0$ represents a between-group difference of one standard deviation). This means that in using ostensibly the same treatment method (MI) with the same target problem, very different effects are obtained across sites and populations. In Project MATCH, a nine-site study of treatments for alcohol use disorders, the relative efficacy of an MI-based intervention varied significantly across sites and therapists despite extensive efforts to standardize training and treatment procedures (Project MATCH Research Group 1998). Thus, it appears that variation in the delivery of MI can have substantial impact on its outcome.

A second broad observation is that an effect of MI tends to be seen early and to diminish across a year of follow-up. To examine this, we combined effects for all variables from all studies within specific follow-up period ranges. As displayed in Figure 1, relative effect sizes for MI decrease across time. Across all studies, d_c was 0.77 (95% confidence interval: 0.35, 1.19) at 0 to 1 month posttreatment, 0.39 (0.27, 0.50) at >1 to 3 months, 0.31 (0.23, 0.38) at >3 to 6 months, 0.30 (0.16, 0.43) at >6 to 12 months, and 0.11 (0.06, 0.17) at follow-ups longer than 12 months. An interesting exception to this trend, seen in Figure 1, is found in studies where the additive effect of MI is tested. In these studies, clients are typically randomized to receive or not to receive MI at the beginning of a standard or specified treatment

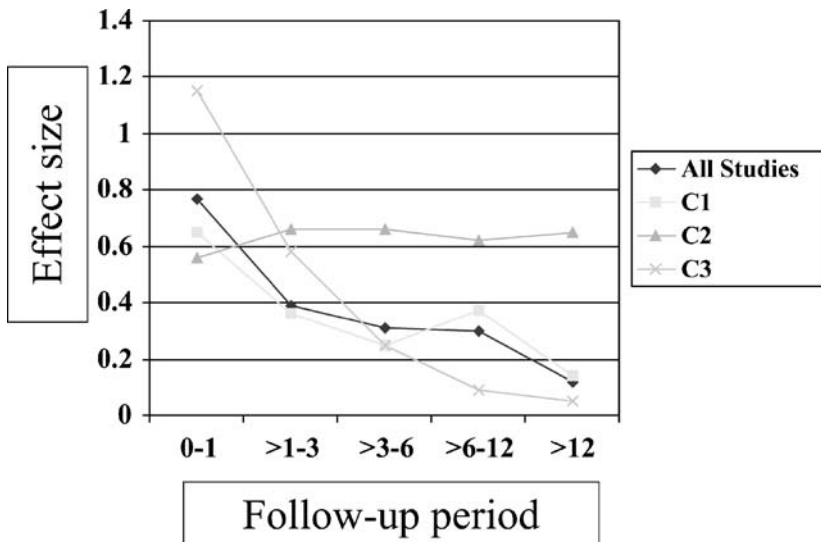


Figure 1 Combined effect sizes of motivational interviewing across follow-up intervals.

program. In this case, the effect of MI in improving outcome is maintained or increased over time, hovering around $d_c = 0.60$.

Outcome variability, however, makes it difficult to specify a meaningful average effect size for MI without regard to problem domain, population, interventionists, or follow-up duration. A full table of combined between-group effect sizes for each included study can be viewed online. See the Supplemental Material link in the online version of this chapter or at <http://www.annualreviews.org/>. The combined effect sizes (pooling across outcome variables and follow-up points) for individual studies ranged from -0.19 to 3.25 (mean = 0.43 , SD = 0.62). Using d_c for all reported outcome variables across all follow-up points, 38 of the studies (53%) showed a significant effect favoring MI ($p < 0.05$).

Correlates of Effect Size

STUDY CHARACTERISTICS We also examined relationships between observed combined effect size (d_c) and a number of study attributes as potential moderators of outcome. In regression as well as correlational analyses, we found no significant relationship between d_c and study characteristics including methodological quality, number of outcome variables, longest follow-up point, MI purity, type of comparison group, or problem area.

MI CHARACTERISTICS In multiple regression analyses, we found that d_c was not significantly predicted by our measures of MI duration, purity, counselor training, or posttraining support. Of MI delivery characteristics, only the presence of a manual was significantly related to outcome, predicting 8.5% of the variance in d_c ($\beta = -0.292$, $p < 0.05$). The direction of this difference was such that studies not reporting use of a manual had a mean $d_c = 0.65$ (SD = 0.62), whereas those standardizing treatment with a manual reported a mean $d_c = 0.37$ (SD = 0.62). A follow-up independent sample t-test reflected this difference as a trend ($t = 1.53$, $p = 0.28$). It should be noted that no studies provided data allowing for within-study comparison of manual-guided versus nonmanual-guided MI. Because the evidence that manual-guided treatments are associated with smaller effect size comes solely from between-study comparisons, it is possible that other important differences between studies exist.

SAMPLE CHARACTERISTICS Similarly, we regressed d_c onto study sample characteristics including mean age, gender composition, ethnic composition, and problem severity. Only ethnic composition significantly predicted d_c , accounting for 19% of variance ($\beta = 0.434$, $p < 0.05$). A follow-up test ($t = -0.39$, $p < 0.05$) revealed that effects of MI were significantly larger for minority samples ($M d_c = 0.79$) than for non-minority white samples ($M d_c = 0.26$).

OUTCOME MEASURES Within behavioral domains, studies utilized a wide variety of treatment outcome measures. Although most behavioral domains had too

few studies and too many different outcome variables to form meaningful groups, alcohol outcome variables could be divided into quantity, frequency, intoxication (blood alcohol concentration, or BAC) level, and alcohol-related problems categories. Combined effect sizes were determined for each of these variables across studies and follow-up points. A $d_c = 0.30$ (0.09, 0.52; $p < 0.05$) was found for quantity variables, $d_c = 0.31$ (0.18, 0.44; $p < 0.05$) for frequency variables, $d_c = 0.22$ (0.10, 0.34; $p < 0.05$) for BAC variables, and $d_c = 0.08$ (-0.02, 0.19; $p > 0.05$) for alcohol-related problems. For smoking studies, a $d_c = 0.15$ (-0.06, 0.23; $p < 0.05$) was found for abstinence outcome variables, and $d_c = 0.11$ (0.00, 0.21; $p > 0.05$) for quit attempt variables. Variables from HIV studies could be divided into knowledge with $d_c = 1.46$ (-0.54, 3.45; $p > 0.05$), behavioral intentions with $d_c = 0.88$ (0.05, 1.72; $p < 0.05$), and sexual risk behaviors with $d_c = 0.07$ (-0.05, 0.19; $p > 0.05$).

Effects of Motivational Interviewing by Problem Domain

Table 1 provides a concise summary of effect sizes, combined across outcome variables, for studies of MI in various problem domains. In contrast to the above-reported analyses (Figure 1), which showed substantial reduction in d_c over time, Table 1 provides separate d_c means in the short-term (up to three-month follow-up), and then combined across all follow-up points. Combined effect sizes are further subdivided based on the nature of the comparison group: (a) MI versus no treatment or placebo, (b) MI versus no MI added to standard or specified treatment, or (c) MI contrasted with a standard or specified treatment. For studies with mixed comparisons, individual variables were selected based on comparison type, and were categorized appropriately.

ADDICTIVE BEHAVIORS In terms of volume of studies, the strongest support by far for MI efficacy is in the area for which it was originally designed: altering substance use (Miller 1983). A total of 32 trials have focused on alcohol abuse, yielding d_c values ranging from -0.08 to 3.07, with a mean of 0.41 posttreatment, and 0.26 across all follow-up points. The largest effects (all >0.7) were reported in studies comparing MI with no treatment (Gentilello et al. 1999), a wait-list control (Kelly et al. 2000) or education (Graeber et al. 2003), or adding MI to standard treatment (Aubrey 1998, Brown & Miller 1993). An additional 13 trials tested the between-group effect of MI in addressing illicit drug use, again with a large range of effects (0 to 1.81). Here effect sizes on average were larger at early than at later follow-ups (0.51 versus 0.29). Curiously, MI appears to have been largely unsuccessful to date in promoting smoking cessation. Six MI trials yielded only one small effect collapsing across outcome variables (Butler et al. 1999). We are aware, however, of several unpublished positive trials that may soon alter this picture with regard to smoking. One study reported significant effects of MI in treating pathological gambling (Hodgins et al. 2001).

HEALTH BEHAVIORS MI has also been tested with other health behaviors in the context of health promotion (Miller 2004). Large but inconsistent effects (d_c from -0.19 to 3.25) have been reported in five trials of MI for HIV risk reduction. Thevos and colleagues have reported large effects of MI to encourage the adoption of water purification/safety technology in rural African villages (Thevos et al. 2000, 2002/2003). Encouraging effects have also been reported for MI in promoting adherence to diet and exercise programs. A single study found no difference between MI and brief behavior therapy in treating bulimia.

TREATMENT ADHERENCE Finally, several studies have reported large effects of MI in promoting treatment engagement, retention, and adherence. As noted above, the effects of MI appear to persist or increase over time when added to an active treatment.

DISCUSSION

Across a growing array of problem areas, MI generally shows small to medium effects in improving health outcomes. As a stand-alone brief intervention, MI has been particularly well tested and found promising in addressing addictive behaviors, with the notable exception (to date) of smoking cessation. Further research is needed to determine the reliability of and possible explanations for the discrepant findings observed for smoking behaviors. Applications to health behavior, particularly in the management of chronic illnesses, have been expanding rapidly, and initial trials suggest similar benefit to that observed with addictive behaviors.

It is clear, however, that MI as practiced in trials to date does not consistently improve outcome. Even among studies focused on the same problem domain, high variability exists in effects across studies and therapists.

An obvious research direction, therefore, is to identify factors that influence the effectiveness of MI, including specific factors that mediate and moderate its effects. With a reasonable base of clinical trials supporting specific efficacy, research has recently turned to a search for “active ingredients” and aspects of MI delivery that influence outcomes. This search has been impeded, however, because few studies have detailed how interventionists were trained, provided documentation of the fidelity of delivery of MI, or included process measures to relate to outcomes (Burke et al. 2002). In some cases (e.g., Kuchipudi et al. 1990), the brief descriptions of treatment delivered as MI appear to be inconsistent with the spirit and principles described by its progenitors (Rollnick & Miller 1995). Progress toward a theory of MI efficacy is briefly discussed in the final section of this chapter.

Treatment Adherence

Several trends emerged from our meta-analysis. One is that relatively high effect sizes are often observed when MI is added at the outset of a treatment program,

including unspecified “treatment as usual” (Aubrey 1998, Brown & Miller 1993, Daley et al. 1998). This is somewhat counterintuitive, in that larger effect sizes might be expected when MI is compared with no treatment, rather than having to exert an additive effect above active treatment. Significant improvement in treatment outcome when MI is added appears to be attributable to its effects on treatment retention and adherence. In a randomized trial, Brown & Miller (1993) found that therapists in an inpatient substance abuse treatment program who were unaware of which patients had received MI, reliably rated the MI group as more motivated and adherent and as having better prognosis. These therapist ratings, in turn, mediated the effect of MI in doubling posttreatment abstinence rates. Large effects are also reported when treatment retention and adherence are the specific targets of MI. Aubrey (1998) reported a doubling of outpatient substance abuse treatment sessions attended by adolescents given a single session of MI at intake, as well as a doubling of three-month abstinence rates.

Immediacy of Effect

Controlled trials also commonly report a rapid impact of MI, with a gradual decrease of effect size across time. This is, of course, a common finding for discrete interventions. During eight weeks of drug administration, for example, a medication may yield significant benefits that subsequently fade after dosing is discontinued. In part, this decrease in between-group effects is attributable to a “catching up” of the control/comparison groups with which MI is compared. If MI is offered as a stand-alone intervention, long-term effects may be enhanced by booster sessions or stepped care. When MI is used as a prelude to treatment, however, its effects appear to endure across time, suggesting a synergistic effect of MI with other treatment procedures.

Are Manuals a Good Idea?

An unexpected finding of our meta-analysis was the relationship between effect size and the use of manuals to guide MI delivery. Our finding that manual-guided MI was associated with smaller effect sizes bears replication and further exploration.

We have had, however, one salient experience related to manual-guided MI. Following a series of findings that an early MI session improves treatment outcomes, we conducted a large randomized trial in two public substance abuse treatment programs (Miller et al. 2003). Clients were randomly assigned to receive or not to receive a single session of MI shortly after treatment intake. The MI was manual guided and participants were followed for one year. Contrary to prior trials, we found no significant benefit of MI.

Subsequent psycholinguistic analyses of these MI sessions revealed an informative pattern (Amrhein et al. 2003). Clients who subsequently abstained from drug use during follow-up had shown a characteristic pattern of increasing motivation for and commitment to abstinence over the course of the MI session. Nonresponders,

in contrast, showed a similar increase in motivation and commitment, which suddenly reversed in the final minutes of the session and crashed back to zero. What happened? The treatment manual, designed to complete MI in one session, instructed therapists to end the session by constructing a concrete behavior change plan regardless of whether the client seemed ready to do so. This would have the predictable (but unanticipated) effect, during the closing minutes of the session, of eliciting resistance from clients who were less ready for change, which in turn would be expected to undermine behavior change. The problem, it seems, is that the therapists did exactly what the manual instructed them to do, pressing forward to complete the change plan even if the client resisted, which is itself a violation of good MI practice.

Matching Indications

Another unexpected result of our meta-analysis was the finding of larger effects of MI with U.S. samples comprised primarily or exclusively of people from ethnic minority groups. We have no theoretical explanation for this finding, but it does converge with a recently completed reanalysis of data from a multisite alcoholism treatment trial (Villanueva et al. 2003). Analyzing treatment data for only Native American participants in Project MATCH, we found significantly better outcome for those assigned to 4-session MI (motivational enhancement therapy) than for those assigned to 12-session cognitive-behavior therapy or 12-step facilitation therapy. Our informal experience in MI training with Native American populations suggests that the client-centered, supportive, and nonconfrontational style of MI may resemble the normative communication style of Indian populations, at least in the American Southwest, thereby representing a culturally congruent intervention. Similar analyses, however, failed to find an advantage for MI in African American (Tonigan et al. 2003) or Hispanic American (Arroyo et al. 2003) clients.

MI also appears to be differentially effective with clients who are more angry and resistant, or less ready for change (Heather et al. 1996, Project MATCH Research Group 1997). This is consistent with the original intent and theoretical rationale for MI. Conversely, MI may be contraindicated for clients who are already clearly committed to change and ready for action.

TOWARD A THEORY OF MOTIVATIONAL INTERVIEWING

The high variability of effect sizes combined with the frequency of observed significant effects indicates that MI is an active treatment, but that the mechanisms of action are not well understood. Our crude measure of MI purity (the number of MI-particular components mentioned in an article) failed to predict effect size. Although there are clear therapist differences in effectiveness in delivering MI, we have been unsuccessful in predicting MI proficiency from personal characteristics

of counselors (Project MATCH Research Group 1998). This suggests that it may be fruitful to examine therapeutic processes occurring within MI sessions, as possible correlates of treatment outcome.

In its origins (Miller 1983), MI was not derived from theory, but rather it arose from specification of principles underlying intuitive clinical practice. The client-centered phenomenological perspective of Carl Rogers (1959), which was clearly influential as a guiding spirit of MI, emphasized empathic understanding and radical acceptance as triggers for change. Early conceptual ties were also made to cognitive dissonance (Festinger 1957) and self-perception theory (Bem 1972), based on the reasoning that when people verbally justify behavior change they are more likely to follow through with it (Miller & Rollnick 1991).

MI places strong emphasis on eliciting the client's own perceptions, values, and motivations for change. In Socratic fashion, it should be the client rather than the counselor who makes the arguments for change. The reasoning behind this is that people in need of change, including those who present for formal treatment, are normally also ambivalent about change. A counselor who advocates for change is likely to elicit from the client the opposite (resistance) side of the client's own ambivalence. That might be harmless enough, except for the robust finding that people tend to become more committed to positions that they defend verbally (Bem 1967). Thus, people can literally talk themselves out of (or into) behavior change.

Therefore, counselors should act in a manner that calls forth the prochange side of client ambivalence, the side that elicits the client's own motivations for change. Conversely, counselors should assiduously avoid the position in which they argue for change while the client argues against it. MI is, in essence, both a counseling style and a set of clinical strategies and skills for evoking change talk from clients, and for defusing resistance when it arises (Miller & Rollnick 2002).

Over the two decades since MI was introduced, data have shaped an emergent theory of the inner workings of this approach. In simplest form, the theory is expressed in three hypotheses:

1. Counselors who practice MI will elicit increased levels of change talk and decreased levels of resistance from clients, relative to more overtly directive or confrontational counseling styles.
2. The extent to which clients verbalize arguments against change (resistance) during MI will be inversely related to the degree of subsequent behavior change.
3. The extent to which clients verbalize change talk (arguments for change) during MI will be directly related to the degree of subsequent behavior change.

We have found strong support for the first two of these hypotheses. MI does roughly double the rate of change talk and halve the rate of resistance, relative to action-focused counseling or confrontation (Miller et al. 1993). The counseling skill of accurate empathy (Truax & Carkhuff 1967) has been particularly linked

to improved outcomes in treating alcohol problems (Miller & Baca 1983, Miller et al. 1980, Valle 1981). We also have found that frequency of client resistance predicted continued drinking after treatment (Miller et al. 1993). Thus, client responses appear to be highly influenced by counselor style, and in turn predict treatment outcome.

We consistently failed to find support, however, for the third hypothesis—that increased client change talk would predict behavior change. Frequency of change talk statements, which we usually measured during the first 20 minutes of an MI session, was unrelated to subsequent behavioral outcomes. This obviously posed a serious problem for the fledgling theory of MI.

Collaboration with psycholinguist Paul Amrhein led to a different approach to analyzing client speech. Amrhein suggested that we had been combining too many speech events in our single concept of change talk, and recommended disaggregating it into natural language components: desire, ability, reasons, need, and commitment. He analyzed more than 100 entire MI sessions, meticulously coding each client utterance for these speech events. In addition to counting them (frequency), he also rated the strength of motivation reflected in the client's speech. To say, "I'll think about it," or "I'll try," for example, reflects a much lower level of commitment than "I promise" or "I will."

The results were striking (Amrhein et al. 2003). Only one of the subtypes of change talk—commitment—predicted behavior change. Furthermore, it was not the frequency but rather the strength of commitment language, and more particularly the pattern of commitment across the session, that robustly predicted behavioral outcomes, in this case, drug abstinence. Desire, ability, reasons, and need did not predict change, but all four did predict the emergence of commitment, which in turn was prognostic of change. His psycholinguistic findings gave substance to the early intuitive distinction between two phases of MI (Miller & Rollnick 1991). In phase 1 of MI, the goal is to enhance motivation for change by eliciting the client's statements of desire, ability, reasons, and need for change. Then in phase 2, the focus shifts to strengthening commitment to change. Amrhein's findings also converge with the commonsense precept that people tend to find their own verbalizations persuasive for guiding their behavior (Bem 1967, Hosford et al. 1995), and with more recent finding that stated implementation intentions predict behavioral follow-through, particularly when accompanied by a specific plan for carrying out the change (Gollwitzer 1999). These psycholinguistic data provided a missing piece in the emergent theory of MI, supporting the link between client in-session speech and posttreatment outcomes. We had been measuring the wrong statistic (intercept rather than slope) for the wrong metric (frequency instead of intensity) of the wrong dependent variable (generic change talk rather than commitment), and in the wrong portion of MI sessions (beginning rather than ending). The client's starting level of motivation in an MI session was unrelated to outcome; it was commitment strength during the final minutes of the session that most strongly predicted behavior change (Amrhein et al. 2003).

LEARNING MOTIVATIONAL INTERVIEWING

Finally, research has addressed the question of optimal methods for helping clinicians to learn the intervention style of MI. Trainers are often asked to teach MI in periods varying from one hour to one day, and counselors sometimes attend such training in the hope of learning a few tricks to make clients do what they want them to do. MI is nothing of the sort. Rather, it is a complex clinical style for eliciting the client's own values and motivations for change. It is far more about listening than telling, about evoking rather than instilling. MI communicates not, "I have what you need," but instead, "You have what you need, and together we will find it."

The most familiar vehicle for continuing professional education is the expert workshop, which in MI is often offered over the course of two full days. How effective are such workshops in increasing clinician proficiency in MI? This was the question addressed in an evaluation of a two-day workshop offered by Miller, with outcomes assessed not only by clinician self-report but also by practice samples obtained before and after training (Miller & Mount 2001). Participants submitted tape recordings of their counseling with actual clients prior to and several months after the workshop and interacted with a standard-patient actor to demonstrate their posttraining skill acquisition. After training, the clinicians showed modest albeit statistically significant increases in MI-congruent practice behavior, but not enough to make any difference in how their clients responded. Clients showed no change in levels of resistance or change talk after the clinicians were trained. On self-report, however, workshop participants reported confidence that they were now reasonably proficient in MI and were implementing it in practice. Such glowing self-reports of benefit from training are common (Rubel et al. 2000), but proved to be uncorrelated with actual increases in proficiency (Miller & Mount 2001).

In a subsequent trial of training methods, clinicians who wanted to learn MI were randomly assigned to receive or not to receive, in addition to the two-day workshop, one or both of two aids for learning: specific proficiency feedback from practice tapes, and six expert coaching consultations by telephone (Miller et al. 2005). A wait-list control group was given the MI book and training videotapes (Miller et al. 1998) and asked to improve their MI skills on their own, prior to attending the workshop. Based on Amrhein's findings reported above, we also changed our training to a learning-to-learn format. We instructed trainees that they would not be skillful in MI by the end of the workshop, but that if we were successful they would know how to learn MI from their clients. Specific emphasis was placed on recognizing client speech events (change talk, commitment, resistance) that are relevant to behavioral outcomes, and using these as differential cues to shape successful practice.

As before, those receiving only the workshop showed modest gains in MI skills, and did not reach proficiency thresholds required for therapists in a clinical trial. Clinicians working on their own from MI tapes and book showed little improvement in skillfulness. Either or both of the training aids, however, significantly

improved post-workshop MI proficiency, and participants in these groups on average reached levels required for clinical trial certification.

SUMMARY

The evidence base for motivational interviewing is strong in the areas of addictive and health behaviors. Useful as a brief intervention in itself, MI also appears to improve outcomes when added to other treatment approaches. New research is clarifying the causal processes underlying the efficacy of motivational interviewing, and exploring optimal methods for helping practitioners to develop proficiency in this clinical method.

**The Annual Review of Clinical Psychology is online at
<http://clinpsy.annualreviews.org>**

LITERATURE CITED

- Amrhein PC, Miller WR, Yahne CE, Palmer M, Fulcher L. 2003. Client commitment language during motivational interviewing predicts drug use outcomes. *J. Consult. Clin. Psychol.* 71:862–78
- Arroyo JA, Miller WR, Tonigan JS. 2003. The influence of Hispanic ethnicity on long-term outcome in three alcohol treatment modalities. *J. Stud. Alcohol* 64:98–104
- Aubrey LL. 1998. *Motivational interviewing with adolescents presenting for outpatient substance abuse treatment*. Unpubl. doctoral dissert., Univ. New Mexico, Albuquerque
- Bem DJ. 1967. Self-perception: an alternative interpretation of cognitive dissonance phenomena. *Psychol. Rev.* 74:183–200
- Bem DJ. 1972. Self-perception theory. In *Advances in Experimental Social Psychology*, ed. L Berkowitz, 6:1–62. New York: Academic
- Bien TH, Miller WR, Tonigan JS. 1993. Brief interventions for alcohol problems: a review. *Addiction* 88:315–36
- Brown JM, Miller WR. 1993. Impact of motivational interviewing on participation and outcome in residential alcoholism treatment. *Psychol. Addict. Behav.* 7:211–18
- Burke BL, Arkowitz H, Dunn C. 2002. The efficacy of motivational interviewing on participation and outcome in residential alcoholism treatment. In *Motivational Interviewing: Preparing People for Change*, ed. WR Miller, S Rollnick, 2:217–50. New York: Guilford. 2nd ed.
- Burke BL, Arkowitz H, Menchola M. 2003. The efficacy of motivational interviewing: a meta-analysis of controlled clinical trials. *J. Consult. Clin. Psychol.* 71:843–61
- Butler CC, Rollnick S, Cohen D, Bachmann M, Russell I, et al. 1999. Motivational consulting versus brief advice for smokers in general practice: a randomized trial. *Br. J. Gen. Pract.* 49:611–16
- Daley DC, Salloum IM, Suckoff A, Kirisci L, Thase ME. 1998. Increasing treatment adherence among outpatients with depression and cocaine dependence: results of a pilot study. *Am. J. Psychiatry* 155:1611–13
- Dunn C, Deroo L, Rivara FP. 2001. The use of brief interventions adapted from motivational interviewing across behavioral domains: a systematic review. *Addiction* 96:1725–42
- Festinger L. 1957. *A Theory of Cognitive Dissonance*. Stanford, CA: Stanford Univ. Press
- Gentilello LM, Rivara FP, Donovan DM,

- Jurkovich GJ, Duranciang E, et al. 1999. Alcohol interventions in a trauma center as a means of reducing the risk of injury recurrence. *Ann. Surg.* 230:473–83
- Gollwitzer PM. 1999. Implementation intentions: simple effects of simple plans. *Am. Psychol.* 54:493–503
- Graeber DA, Moyers TB, Griffith G, Guajardo E, Tonigan JS. 2003. A pilot study comparing motivational interviewing and an educational intervention in patients with schizophrenia and alcohol use disorders. *Community Ment. Health J.* 39:189–202
- Heather N, Rollnick S, Bell A, Richmond R. 1996. Effects of brief counseling among heavy drinkers identified on general hospital wards. *Drug Alcohol Rev.* 15:29–38
- Hedges LV, Olkin I. 1985. *Statistical Methods for Meta-Analysis*. San Diego, CA: Academic
- Hodgins DC, Currie SR, el-Guebaly N. 2001. Motivational enhancement and self-help treatments for problem gambling. *J. Consult. Clin. Psychol.* 69:50–57
- Hosford RE, Moss CS, Morrell G. 1995. The self-as-model technique: helping prison inmates change. In *Counseling Methods*, ed. JD Krumboltz, CE Thoresen, pp. 487–95. New York: Holt, Rinehart & Winston
- Kelly AB, Halford WK, Young RM. 2000. Maritally distressed women with alcohol problems: the impact of a short-term alcohol-focused intervention on drinking behaviour and marital satisfaction. *Addiction* 95:1537–49
- Kuchipudi V, Hobein K, Flickinger A. 1990. Failure of a 2-hour motivational interview to alter recurrent drinking behavior in alcoholics with gastrointestinal disease. *J. Stud. Alcohol* 51:356–60
- Miller WR. 1983. Motivational interviewing with problem drinkers. *Behav. Psychother.* 11:147–72
- Miller WR. 1994. Motivational interviewing: III. On the ethics of motivational intervention. *Behav. Cogn. Psychother.* 22:111–23
- Miller WR. 2004. Motivational interviewing in the service of health promotion. *Am. J. Health Promot.* 18:1–10
- Miller WR, Baca LM. 1983. Two-year follow-up of bibliotherapy and therapist-directed controlled drinking training for problem drinkers. *Behav. Ther.* 14:441–48
- Miller WR, Benefield RG, Tonigan JS. 1993. Enhancing motivation for change in problem drinking: a controlled comparison of two therapist styles. *J. Consult. Clin. Psychol.* 61:455–61
- Miller WR, Mount KA. 2001. A small study of training in motivational interviewing: Does one workshop change clinician and client behavior? *Behav. Cogn. Psychother.* 29:457–71
- Miller WR, Rollnick S. 1991. *Motivational Interviewing: Preparing People to Change Addictive Behavior*. New York: Guilford
- Miller WR, Rollnick S. 2002. *Motivational Interviewing: Preparing People for Change*, Vol. 2. New York: Guilford
- Miller WR, Rollnick S, Moyers TB. 1998. *Motivational interviewing (7-videotape ser.)*. Albuquerque: Univ. New Mexico
- Miller WR, Taylor CA, West JC. 1980. Focused versus broad-spectrum behavior therapy for problem drinkers. *J. Consult. Clin. Psychol.* 48:590–601
- Miller WR, Wilbourne PL. 2003. Mesa grande: a methodological analysis of clinical trials of treatments for alcohol use disorders. *Addiction* 97:265–77
- Miller WR, Yahne CE, Moyers TB, Martinez J, Pirritano M. 2005. A randomized trial of methods to help clinicians learn motivational interviewing. *J. Consult. Clin. Psychol.* In press
- Miller WR, Yahne CE, Tonigan JS. 2003. Motivational interviewing in drug abuse services: a randomized trial. *J. Consult. Clin. Psychol.* 71:754–63
- Miller WR, Zweben A, DiClemente CC, Rychtarik C. 1992. *Motivational Enhancement Therapy manual: a clinical research guide for therapists treating individuals with alcohol abuse and dependence*. Vol. 2, Proj. MATCH Monogr. Ser. Rockville, MD: Natl. Inst. Alcohol Abuse Alcohol.

- Prochaska JO, DiClemente CC. 1984. *The Transtheoretical Approach: Crossing Traditional Boundaries of Therapy*. Homewood, IL: Dow/Jones Irwin
- Proj. MATCH Res. Group. 1997. Project MATCH secondary a priori hypotheses. *Addiction* 92:1671-98
- Proj. MATCH Res. Group. 1998. Therapist effects in three treatments for alcohol problems. *Psychother. Res.* 8:455-74
- Rogers CR. 1959. A theory of therapy, personality, and interpersonal relationships as developed in the client-centered framework. In *Psychology: The Study of a Science*, ed. P Koch, 3:184-256. New York: McGraw-Hill
- Rollnick S, Miller WR. 1995. What is motivational interviewing? *Behav. Cogn. Psychother.* 23:325-34
- Rosenthal R. 1991. *Meta-Analytic Procedures for Social Research*. Newbury Park, CA: Sage
- Rubel EC, Sobell LC, Miller WR. 2000. Do continuing education workshops improve participants' skills? Effects of a motivational interviewing workshop on substance abuse counselors' skills and knowledge. *Behav. Ther.* 23:73-77
- Thevos AK, Olsen SJ, Rangel JM, Kaona FAD, Tembo M, et al. 2002/2003. Social marketing and motivational interviewing as community interventions for safe water behaviors: follow-up surveys in Zambia. *Int. Q. Community Health Educ.* 21:51-65
- Thevos AK, Quick RE, Yanjuli V. 2000. Motivational interviewing enhances the adoption of water disinfection practices in Zambia. *Health Promot. Int.* 15:207-14
- Tonigan JS, Miller WR, Daugherty M, Carroll RL. 2003. Project MATCH treatment participation and outcome by race: a retrospective analysis of African American treatment response. *Alcohol. Clin. Exp. Res.* 27(Suppl.):A159
- Truax CB. 1966. Reinforcement and non-reinforcement in Rogerian psychotherapy. *J. Abnorm. Psychol.* 71:1-9
- Truax CB, Carkhuff RR. 1967. *Toward Effective Counseling and Psychotherapy*. Chicago: Aldine
- Valle SK. 1981. Interpersonal functioning of alcoholism counselors and treatment outcome. *J. Stud. Alcohol* 42:783-90
- Villanueva M, Tonigan JS, Miller WR. 2003. A retrospective study of client-treatment matching: differential treatment response of Native American alcoholics in Project MATCH. *Alcohol. Clin. Exp. Res.* 26(Suppl.):A83

CONTENTS

A HISTORY OF CLINICAL PSYCHOLOGY AS A PROFESSION IN AMERICA (AND A GLIMPSE AT ITS FUTURE), <i>Ludy T. Benjamin, Jr.</i>	1
STRUCTURAL EQUATION MODELING: STRENGTHS, LIMITATIONS, AND MISCONCEPTIONS, <i>Andrew J. Tomarken and Niels G. Waller</i>	31
CLINICAL JUDGMENT AND DECISION MAKING, <i>Howard N. Garb</i>	67
MOTIVATIONAL INTERVIEWING, <i>Jennifer Hettema, Julie Steele, and William R. Miller</i>	91
STATE OF THE SCIENCE ON PSYCHOSOCIAL INTERVENTIONS FOR ETHNIC MINORITIES, <i>Jeanne Miranda, Guillermo Bernal, Anna Lau, Laura Kohn, Wei-Chin Hwang, and Teresa La Fromboise</i>	113
CULTURAL DIFFERENCES IN ACCESS TO CARE, <i>Lonnie R. Snowden and Ann-Marie Yamada</i>	143
COGNITIVE VULNERABILITY TO EMOTIONAL DISORDERS, <i>Andrew Mathews and Colin MacLeod</i>	167
PANIC DISORDER, PHOBIAS, AND GENERALIZED ANXIETY DISORDER, <i>Michelle G. Craske and Allison M. Waters</i>	197
DISSOCIATIVE DISORDERS, <i>John F. Kihlstrom</i>	227
THE PSYCHOBIOLOGY OF DEPRESSION AND RESILIENCE TO STRESS: IMPLICATIONS FOR PREVENTION AND TREATMENT, <i>Steven M. Southwick, Meena Vythilingam, and Dennis S. Charney</i>	255
STRESS AND DEPRESSION, <i>Constance Hammen</i>	293
THE COGNITIVE NEUROSCIENCE OF SCHIZOPHRENIA, <i>Deanna M. Barch</i>	321
CATEGORICAL AND DIMENSIONAL MODELS OF PERSONALITY DISORDER, <i>Timothy J. Trull and Christine A. Durrett</i>	355
THE DEVELOPMENT OF PSYCHOPATHY, <i>Donald R. Lynam and Lauren Gudonis</i>	381
CHILD MALTREATMENT, <i>Dante Cicchetti and Sheree L. Toth</i>	409
PSYCHOLOGICAL TREATMENT OF EATING DISORDERS, <i>G. Terence Wilson</i>	439
GENDER IDENTITY DISORDER IN CHILDREN AND ADOLESCENTS, <i>Kenneth J. Zucker</i>	467

THE DEVELOPMENT OF ALCOHOL USE DISORDERS, <i>Kenneth J. Sher, Emily R. Grekin, and Natalie A. Williams</i>	493
DECISION MAKING IN MEDICINE AND HEALTH CARE, <i>Robert M. Kaplan and Dominick L. Frosch</i>	525
PSYCHOLOGY, PSYCHOLOGISTS, AND PUBLIC POLICY, <i>Katherine M. McKnight, Lee Sechrest, and Patrick E. McKnight</i>	557
COGNITIVE APPROACHES TO SCHIZOPHRENIA: THEORY AND THERAPY, <i>Aaron T. Beck and Neil A. Rector</i>	577
STRESS AND HEALTH: PSYCHOLOGICAL, BEHAVIORAL, AND BIOLOGICAL DETERMINANTS, <i>Neil Schneiderman, Gail Ironson, and Scott D. Siegel</i>	607
POSITIVE PSYCHOLOGY IN CLINICAL PRACTICE, <i>Angela Lee Duckworth, Tracy A. Steen, and Martin E. P. Seligman</i>	629
INDEX	
Subject Index	653

Bijlage VI - Tabel Verandertaal

Taal die betrokkenheid aangeeft (commitment-taal)

Uitspraken over betrokkenheid impliceren een overeenstemming, bereidheid of verplichting met betrekking tot toekomstig gedrag. Deze betrokkenheid kan direct via een **werkwoord** tot uitdrukking gebracht worden.

5

1

meest sterke betrokkenheid-----minst sterke betrokkenheid

5	4	3	2	1
Ik garandeer	Ik ben van plan om	Ik kijk er naar uit om	Ik geef de voorkeur aan	Ik stel me voor
Ik zal	Ik ben klaar om	Ik ben het eens met	Ik geloof	Ik wed
Ik beloof	Ik stem toe om	Ik ga besluiten om	Ik denk	Ik hoop te
Ik ga	Ik ben bereid om	Ik geef toe dat	Ik stel voor	Ik wil het risico nemen
Ik geef mijn woord	Ik ben er aan toe om	Ik verwacht dat	Ik ben geneigd om	Ik wil het wel proberen
Ik wijd mij zelf aan		Ik ga een plan maken om	Ik voorspel	Ik denk dat ik zal
Ik weet			Ik neem aan	Ik veronderstel dat ik zal
				Ik verwacht dat ik zal
				Ik overweeg om
				Ik zie wel

Bijlage VII - Observatiebladen

Vechten of Dansen

Als je het gesprek volgt, waar denk je dat de interactie is op een continuüm van 1 (totaal Worstelen, strijden om controle) tot 6 (totaal Dansen: soepel samen bewegen, samenwerkend reageren op elkaar)?

Als je een verandering in de interactie opmerkt, schrijf op wat er gebeurde op het moment van de verandering.

Worstelen

Dansen

Wat gebeurde er op het moment van de verandering?

1	2	3	4	5	6	Interactieniveau aan het begin van het gesprek
1	2	3	4	5	6	
1	2	3	4	5	6	
1	2	3	4	5	6	
1	2	3	4	5	6	
1	2	3	4	5	6	
1	2	3	4	5	6	

- Motivational Interviewing -

1	2	3	4	5	6	
1	2	3	4	5	6	
1	2	3	4	5	6	

Observatieblad : Gereedheid van de cliënt

Als je het gesprek volgt, bepaal waar de cliënt in welke mate gereed is om te veranderen in de richting van het doelgedrag, van 1 (helemaal niet gereed) tot 7 (helemaal gereed voor de verandering). Als je een verandering in het niveau van gereedheid bemerkt, schrijf dan op wat de hulpverlener deed, vlak voor dat je de verandering opmerkte.

Wat deed de hulpverlener vlak voor de verandering?

Helemaal niet gereed

helemaal gereed

1	2	3	4	5	6	7	← Niveau van gereedheid aan het begin van het gesprek
1	2	3	4	5	6	7	
1	2	3	4	5	6	7	
1	2	3	4	5	6	7	
1	2	3	4	5	6	7	
1	2	3	4	5	6	7	

- Motivational Interviewing -

1	2	3	4	5	6	7	
1	2	3	4	5	6	7	
1	2	3	4	5	6	7	

Observatieblad: Reflecties

Luister naar de reflecties van de hulpverlener, tel ze (/) en geef aan welk type reflectie je hoorde.

- A. Eenvoudige reflectie – in essentie een herhaling van de client, bijna letterlijk
- B. Complexe reflectie – de hulpverlener verwoord hetgeen de client bedoelde maar niet letterlijk zei.
- C. Versterkte reflectie – de hulpverlener verwoord hetgeen de client bedoelde enigsinds versterkt.

Noteer de reflectie (quote), als je een heel goede reflectie hoort.

Type	Aantal	Goed(e) voorbeeld(en)
A. Eenvoudig		
B. Complex		
C. Versterkt		

Observatieblad: Verandertaal van de cliënt

Luister naar voorbeelden van de 5 soorten verandertaal bij de cliënt. Als je er een hoort, zet een streepje (/) in het bijpassende vak. Noteer voorbeelden van de verschillende soorten verandertaal die je gehoord hebt.

Type verandertaal	Aantal (/)	Voorbeeld(en)
Wens om te veranderen		
Vermogen om te veranderen		
Redenen om te veranderen		
Behoefte om te veranderen		
Bereidheid om te veranderen		

Observatieblad: ORBSI

Luister naar voorbeelden van het gebruik van de hulpverlener van ORBSI skills. Zet een streep (/) in het betreffende vak, als je ze hoort. Noteer voorbeelden van de verschillende ORBSI - reacties die je hebt gehoord.

Reactie van de hulpverlener	Aantal (/)	Voorbeeld
O pen vraag		
R eflectie		
B evestiging		
S amenvatting		
I nformatie delen		

Bijlage VIII

Presentatie – Handout