

A PRACTICAL INSTRUMENT TO DOCUMENT THE PROCESS OF MOTIVATIONAL INTERVIEWING

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Abstract. Motivational interviewing is a client centred behavioural therapy for addictive behaviours. It is an intervention designed to help all addicts, not just those ready to change. It is therefore suitable for use as an opportunistic intervention for clients whose main reason for contact may not be their addiction. A pilot randomized controlled trial of home-based motivational interviewing by a specially trained midwife to help pregnant smokers reduce their habit was performed in Glasgow from February 1997

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to January 1998. Did motivational interviewing take place? All 171 counselling interviews from 48 intervention clients were audio-taped. Forty-nine interviews from 13 randomly selected clients were transcribed for content analysis. A rating scale established for feedback to trainee psychologists was used by three experienced analysts. Thirty-two interviews were scored independently to validate the rating scale in this setting. More than 75% of interviews showed satisfactory motivational interviewing. Therapist utterances were motivational, and client responses included many self-motivational statements. Few episodes of client resistance were recorded. Rating took 160 mins per half hour interview. This instrument provided a valid measure of intervention quality for a randomized controlled trial. It would not be practical to document process outside a research environment.

Keywords: Process assessment, intervention studies, behaviour therapy, motivational interviewing, pregnancy, smoking cessation.

Introduction

Rationale

Smoking must be tackled to improve health in the U.K. (Bartecchi, MacKenzie, & Schrier, 1994). Most smokers never ask for help (DiClemente & Prochaska, 1998). A proactive therapeutic approach is required. Opportunistic intervention during routine consultation can be cost effective (Russell, Wilson, Taylor, & Baker, 1979). Community midwives provide home-based maternity care. This is an opportunity to provide an effective sustainable intervention.

How smokers quit

A “cycle of change” has been described (Prochaska & DiClemente, 1983). Forty percent of smokers are in *precontemplation* – not thinking of making a change in the next 6 months, 40% *contemplation* – seriously thinking of making a change in the next 6 months but not in the next month, and 20% *preparation* – considering change in the next month and have made a change attempt lasting at least 24 hours during the last year (DiClemente & Prochaska, 1998). *Action*, making the change, is followed by *maintenance*. If this lasts for 6 months the change is said to be permanent. More often *relapse* takes place when the cycle begins again. At least two attempts are usually made before a smoker finally quits (DiClemente & Prochaska, 1982).

How to help

Interventions during pregnancy can reduce smoking and increase birthweight (Lumley, Oliver, & Waters, 1998), but a cost-effective strength or style has not been established. Style is important to protect the patient-health care worker relationship (Butler, Pill, & Stott, 1998). Authoritarian “active-passive” (parent-infant) style, typical of doctors and nurses (Rollnick, Butler, & Stott, 1997), evokes resistance, which is counterproductive (Miller & Sovereign, 1989). Working class women are more receptive to information sharing than being told what to do (Stott & Pill, 1990). Cognitive behaviour therapy (skills training) is designed only for those in *preparation*, 20% of smokers.

Motivational interviewing

Motivational interviewing is widely advocated as an interview style building on Prochaska and DiClemente's cycle of change (Miller & Rollnick, 1991). It is more effective than authoritarian styles (Miller, Benefield, & Tonigan, 1993). It is client-centred with "mutual participation" (Szczepanski & Hollender, 1956) where the client's decisions about behaviour change are supported and guided by the therapist. Motivational interviewing has been effective in previous randomized controlled trials (Noonan & Moyers, 1997), which focused on alcohol addiction (Handmaker, Miller, & Manicke, 1999), with a psychologist as therapist. A motivational approach may be less difficult for a psychologist trained to use a number of interview styles. Doctors and nurses traditionally use an authoritarian style with little patient participation, which limits the length of consultation. Changing interview style may be difficult. Primary training in medicine and nursing may foster a different style of counselling to negotiate behaviour change. Motivational interviewing must first prove effective as a proactive opportunistic counselling style in various health care settings (Stephenson & Imrie, 1998). Behavioural interventions are expensive and need randomized controlled trials to be sure they work (Stephenson & Imrie, 1998). The only trial of motivational interviewing with pregnant smokers was not completed (Gleeson, Memon, Milner, & Baines, 1997) due to administrative problems with funding.

Documenting intervention process

Many smoking cessation studies have failed to document the process (Lumley et al., 1998), so poor implementation may explain why the same intervention worked in some studies and not others. A primary care smoking cessation study in Aberdeen (Scott Lennox et al., 1998) showed no effect from motivational interviewing. Process was not documented, but lack of efficacy was blamed on poor implementation. The same intervention is being disseminated in Glasgow. Does it work? Finally, documenting process helps other workers to copy the intervention by providing tools for implementation. Documenting process is particularly challenging for complex behavioural interventions. It is simple to measure the number and length of visits, but describing the content is difficult. Field notes can be used, but bias is less likely by analysing the content of audio-taped interviews. Only one pregnancy smoking cessation trial audio-taped interviews (Walsh, Redman, Brinsmead, Byrne, & Melmeth, 1997), but content analysis was not reported.

This study forms part of a programme to establish whether home-based motivational interviewing by specially trained midwives will help pregnant smokers reduce their habit. So far, a pilot study has established randomized controlled trial methods. This paper describes validation of a rating scale used with audio-taped intervention visits from the pilot study. This rating scale will be used in a full randomized controlled trial to answer the question, "Did motivational interviewing take place as planned?"

Subjects and methods

Ethics approval was given by the Ethics Committee of the Yorkhill NHS Trust. The study design was a pilot randomized controlled trial of motivational interviewing techniques, delivered in the client's home by a specially trained midwife. Funding was by

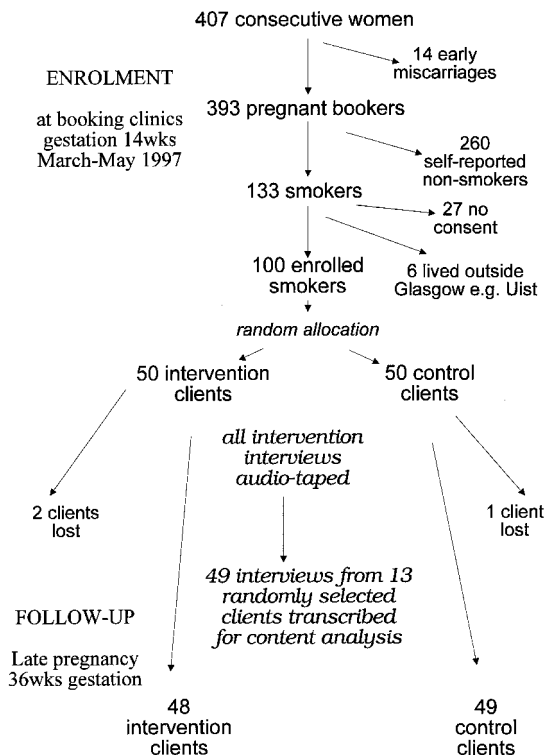


Figure 1. Enrolment and follow-up of pregnant smokers
All intervention interviews were audio-taped. Thirteen of 50 intervention clients were selected at random. Their interviews ($n = 49$) were transcribed for content analysis.

research grants from the Scottish Cot Death Trust and from the Chief Scientist at the Scottish Office.

Midwife training

The research midwife spent 3 weeks in Christchurch, New Zealand working with Stephanie Cowan and two lay workers. For 5 years, they have provided counselling for pregnant smokers referred by GPs, using a motivational interviewing style during home visits (Cowan & Ford, 1996). The research midwife was observed and coached using video-taped recordings of her own interactions with both acting and real clients. She will complete a trainers course in motivational interviewing run by Miller and Rollnick prior to coaching other midwives in Glasgow.

Subjects

The client population were 100 smokers who booked at antenatal clinics of the Queen Mother's Hospital, Yorkhill NHS Trust from March to May 1997 (Figure 1). A pregnant smoker was defined as a woman who ticked "yes" to being a smoker on the study

information sheet given to all women at booking. The research midwife explained the study to all smokers and asked for written consent.

The intervention

A median of four home-based motivational interviewing visits were made by one research midwife who used a menu of strategies to match the client's readiness to change. Five general principles underlie the motivational interviewing style: 1) expression of empathy; 2) development of discrepancy; 3) avoiding argumentation; 4) rolling with resistance; and 5) supporting self-efficacy. This helps smokers to move around the "cycle of change". The goal negotiated could be to change smoking rate e.g., 20 to 10/day, or to quit. The client decided the goal. The control group received normal antenatal care, which included advice about the dangers of smoking during pregnancy, at the booking antenatal visit.

All home-based interviews were audio-taped using a Standard hand-held Grundig Stenocassette 30 recorder. Twenty-five percent of intervention clients ($n = 13$) were randomly selected. Their interviews ($n = 49$) were transcribed for content analysis. Transcriptions were read to assess conversation directed at smoking cessation.

Rating scale

The rating scale was provided by Dr W. Miller (Miller & Rollnick, 1991) with extensive explanatory notes and examples. This scale had been developed to assess the skills of psychologists being trained to provide motivational interviewing. The scale required the rater to listen to audio-tapes three times (three passes).

First pass, termed global assessment, was scored after listening to the whole interview without interruption. The therapist, the client, and the interaction were given scores on 7-point Likert scales. Therapist scales were: Acceptance, Egalitarianism, Empathy/Understanding, Genuineness/Congruence, Warmth, and Spirit. Clients scales were: Affect, Cooperation, Disclosure, and Engagement. Interaction scales were: Collaboration, and Benefit. Most interviews were not longer than half an hour. Rating took one hour, reducing to half an hour when familiar with terms. Ratings 5, 6 and 7 on the Likert scale were defined as consistent with motivational interviewing, ratings 1, 2, 3, 4 were not.

Second pass defined each utterance for the therapist and client by stopping the tape to allow classification. This took 2 hours, reducing to one hour with practice. For therapist utterances two tentative measures were developed by Miller:

Motivational interviewing consistent:	Advice with permission
	Total affirm
	Emphasize control
	Total reflect
Motivational interviewing inconsistent:	Advice without permission
	Confront
	Direct
	Warn

Client responses were summarized into self-motivational statements versus counter-motivational statements or resistance.

Third pass measured time spent talking by therapist and client (% therapist talk time). DMT listened twice to the client and therapist separately, taking one hour for a half hour interview. This can be achieved listening once with two timer switches. “% therapist word count” was assessed from transcriptions using a word processor.

Three analysts were employed on a part-time basis: a psychiatric nurse (FCu) trained in cognitive-behavioural therapy, and two Senior Health Promotion Officers (DM, FCr) who teach motivational interviewing to health care workers. Dr S. Rollnick (Miller & Rollnick, 1991) was a consultant to oversee the application of Miller’s rating scale. DM formally scored 41 of 49 interviews using the scale, FCr 44 and FCu 43.

Learning Miller’s rating scale. Prior to using Miller’s scale, DM listened to eight interviews extensively. FCr and FCu used some of these eight interviews to familiarize themselves with listening and rating using Miller’s scale. The three analysts then worked as a group, rating nine interviews and transcripts, using Miller’s rating scale.

Consultation with Dr Rollnick. The three analysts (DM, FCr, FCu), and the research midwife met with Dr Rollnick to discuss Miller’s rating scale. Dr Rollnick felt that up to a 2 Likert point difference on any item was acceptable for pass 1. He advised use of Miller’s tentative measures (above) for pass 2. Few episodes of client resistance and many self-motivational statements indicated good motivational interviewing.

Assessing validity of Miller’s scale between analysts. The analysts then independently rated 32 interviews and transcripts using the first and second pass of Miller’s scale. The aim was to assess agreement between analysts. Dr Rollnick spent a further day in Glasgow to arbitrate on large differences.

Statistical analysis was performed by Harper Gilmour, Senior Lecturer in Statistics, Glasgow University. Agreement between raters was measured using the intraclass correlation coefficient (Everitt, 1994). For any rating scale this measures the proportion of the total variability in the scores that is due to between-client variability. A value of 1.0 represents perfect agreement between raters.

Results

A median of 4 home-visits were made to each intervention client and the time spent was recorded: 4 clients had no visits (2 were lost (a late miscarriage and left Glasgow) and 2 were never in), 8 had 1 visit, 5 had 2, 7 had 3, 13 had 4, 6 had 5, 2 had 6, 3 had 7, 1 had 8 and 1 had 9, making a total of 171 visits. The period available for intervention between booking and the late pregnancy telephone interview was a mean of 21 weeks (range 7 to 29). Nearly all transcribed interview text was on the subject of smoking cessation, with a lower quartile of 97.5% among transcribed interviews.

Did motivational interviewing take place as planned?

Global first pass analysis. Table 1 shows the percentage of individual analyst scores consistent with motivational interviewing (5 or greater) for 49 interviews.

Table 1. Percentage of first pass global rating scores consistent with motivational interviewing

	Percentage of interview scores 5 or above on Likert scales (<i>n</i> = 128)
Global therapist rating	%
Acceptance	100
Egalitarianism	97
Empathy	87
Genuineness	97
Warmth	100
Spirit	91
Global client rating	
Affect	77
Co-operation	87
Disclosure	89
Engagement	78
Global interaction rating	
Collaboration	87
Benefit	80

These scores were made by three analysts using 49 interviews. Analyst DM scored 41 interviews, analyst FCr scored 44 interviews and analyst FCu scored 43 interviews.

Second pass analysis. Table 2 shows that therapist utterances were generally consistent with motivational interviewing although “emphasizing control” and “advice with permission” were rarely documented. Common therapist utterances inconsistent with motivational interviewing were limited to “advice without permission”. Client utterances were generally consistent with motivational interviewing, there being three times as many self motivational statements as episodes of resistance.

Pass 3. The % therapist talk time was normally distributed with a median of 54% (lower quartile 42, upper quartile 64) and a wide range of 30–84%. Significant negative correlation was found with: age of client (−0.47 95%CI −0.67, −0.22) and interview number (1st, 2nd, 3rd, etc.). (−0.32 95%CI −0.55, −0.04). Overall, 37% of the variation in % therapist talk time could be explained by these two variables. Other variables that did not show a significant correlation with % therapist talk time included: number of children at home, living with partner, parents or alone, Carstairs deprivation category (Carstairs, 1991), month of study. The % therapist word count was strongly correlated with % therapist talk time (Correlation Coefficient 0.96, 95%CI 0.93, 0.98). If transcription of audio-tapes is performed, % therapist word count is a much easier method to assess the proportion of therapist to client talking.

Time taken for first, second and third passes of a 30-minute audio-tape was mean 38 mins (first pass), 66 mins (second pass), 60 mins (third pass), total 164 mins. Calculations were made averaging time taken by three raters for a single interview and then standardizing to a 30-minute interview length.

Table 2. Second pass scores categorizing individual therapist and client utterances

Therapist behaviour	Analyst scores (<i>n</i> = 128)		
	Median	Lower quartile	Upper quartile
MI consistent			
Advice with permission	0	0	1
Affirm	6	3	9
Emphasize control	1	0	2
Total reflections	15	8	20
MI inconsistent			
Advice without permission	2	1	4
Confront	0	0	1
Direct	1	0	1
Warn	0	0	0
Client behaviour			
MI consistent			
Self-motivational statements	17	13	23
MI inconsistent			
Resistant statements	6	3	11

These scores were made by three analysts using 49 interviews. Analyst DM scored 41 interviews, analyst FCr scored 44 interviews and analyst FCu scored 43 interviews.

Was Miller's rating scale valid in our hands?

To assess agreement, 32 interviews were scored independently by the three analysts.

(a) Pass 1: global rating scales.

Global Therapist Rating Scale – Mean composite of 6 items. One analyst (DM) scored significantly higher indicating bias. Another (FCu) gave scores that showed little variability between clients and tended to be in the middle of the range. Despite bias and relatively low intraclass correlation ($r = 0.39$), all analysts rated the therapist highly. Mean composite scores for all interviews were 6 from rater DM, 5.7 from rater FCr, and 5.7 from rater FCu. Only 2 of 32 interviews showed a mean composite difference in Likert score for the therapist of greater than 1 unit, when DM rated higher than FCr and FCu.

Global Client Rating Scale – Mean composite of 4 items. There was no significant bias between analysts. The intraclass correlation was moderate ($r = 0.53$). Mean composite scores for all interviews were 5.3 from rater DM, 5.2 from rater FCr, and 5.2 from FCu. Six of 32 interviews showed a mean composite difference in Likert score for the client of greater than 1 Likert point between raters, one greater than 2 Likert points.

Global Interaction Rating Scale – Composite (2 items). No significant bias was present. Intraclass correlation was moderate ($r = 0.51$). Mean composite scores for all interviews were 5.2 from rater DM, 5.1 from rater FCr, and 5.5 from rater FCu. Eight of 32 interviews showed a mean composite difference in Likert score for the interaction between therapist and client of greater than 1 Likert point, none greater than 2 Likert points.

(b) *Pass 2: individual utterance behaviour counts.*

Therapist behaviour counts consistent with motivational interviewing. Composite of: Advice with Permission, Affirm, Emphasize Control, Total Reflections. There was significant bias between analysts, with only moderate intraclass correlation ($r = 0.45$), and quite a few large disagreements (see Figure 2). Mean behaviour counts were 21 per interview for rater DM, 26 for FCr, and 19 for FCu. A significant difference was seen between the means ($p = .02$). “Affirmations” (27%) and “total reflections” (68%, Table 2) made up 95% of therapist behaviour consistent with motivational interviewing. Intraclass correlation for “affirmation” alone was 0.8, and “total reflection” 0.48.

Therapist behaviour counts inconsistent with motivational interviewing. Composite of: Advice without Permission, Direct, Confront, Warn. There was no significant bias between analysts. Intraclass correlation was higher ($r = 0.67$) than for “Composite MI Consistent”, with few large disagreements (see Figure 3). Mean behaviour counts were 3 for rater DM, 4 for FCr and 4 for FCu. The difference between means was not significant ($p = .08$). Advise without permission made up 66% (Table 2) of all therapist utterances inconsistent with motivational interviewing, intraclass correlation 0.49.

Client behaviour counts consistent with motivational interviewing. Self-motivational statements. Despite a significant bias and a few large disagreements (see Figure 4), the intraclass correlation was quite high ($r = 0.77$). Mean counts for rater DM were 20 per interview, 17 for FCr, and 16 for FCu. A significant difference was seen between the mean values ($p < .02$).

Client behaviour counts inconsistent with motivational interviewing. Resistant statements. There was no significant bias, and despite a few large disagreements (see Figure 5) the intraclass correlation was quite high ($r = 0.76$). Mean counts per interview were 7 for rater DM, 5 for FCr, and 5 for FCu. No significant difference was seen between the means ($p = .07$).

Discussion

This present study aimed to establish a randomized control trial method for midwife home-based motivational interviewing as an intervention to help pregnant smokers. The most important aspect was to develop a method to document the process. Then if adequate intervention takes place in a full trial, with no change in outcome, motivational interviewing can be abandoned in this setting.

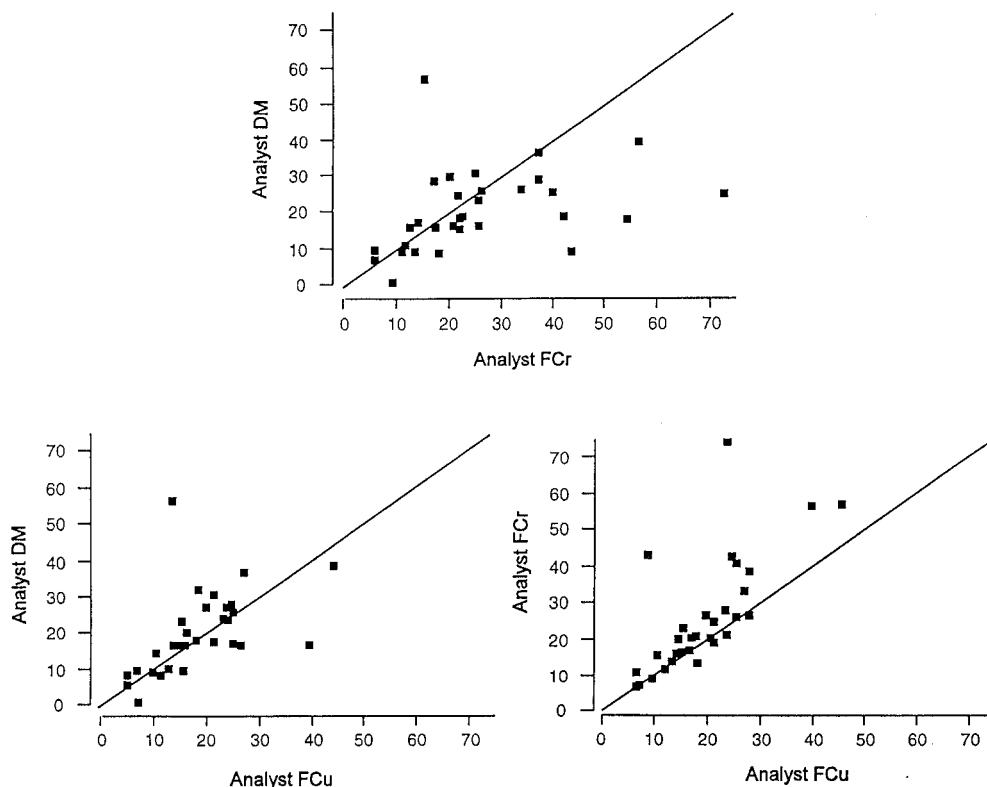


Figure 2. Therapist statements consistent with motivational interviewing within individual interviews scored by three analysts independently

Behaviour counts of both therapist (Figures 2 & 3) and client (Figures 4 & 5) are taken from the second pass of the audio tape in conjunction with the transcription. Miller put forward therapist behaviour counts consistent with motivational interviewing (advice with permission, total affirm, emphasize control, and total reflect). These counts, for each separate interview, were added together. The totals for each interview comparing the three analysts (DM, FCr, & FCu) are shown in Figure 2. Intraclass correlation was 0.45. Similarly, analyst total behaviour counts inconsistent with motivational interviewing (advice without permission, confront, direct, warn) are compared in Figure 3. Intraclass correlation was 0.67.

Client utterances consistent with motivational interviewing are "self-motivational statements". Counts made by each analyst for individual interviews are compared in Figure 4. Intraclass correlation was 0.77. Similarly, client utterances inconsistent with motivational interviewing are episodes of "resistance". Analyst counts are compared in Figure 5. Intraclass correlation was 0.76.

Did motivational interviewing take place?

The number of visits per client, and the time taken at each visit, were documented. To describe what took place all sessions were audio-taped. A random sample of intervention clients were selected whose identity remained unknown to the therapist. This helped ensure that the content of interviews from these 13 clients was representative of interviews from all 50 intervention clients. After transcribing these interviews it was easy to assess the proportion of time spent discussing smoking (lower quartile 97.5%) as opposed to passing the time of day, by reading through the transcripts. Finally,

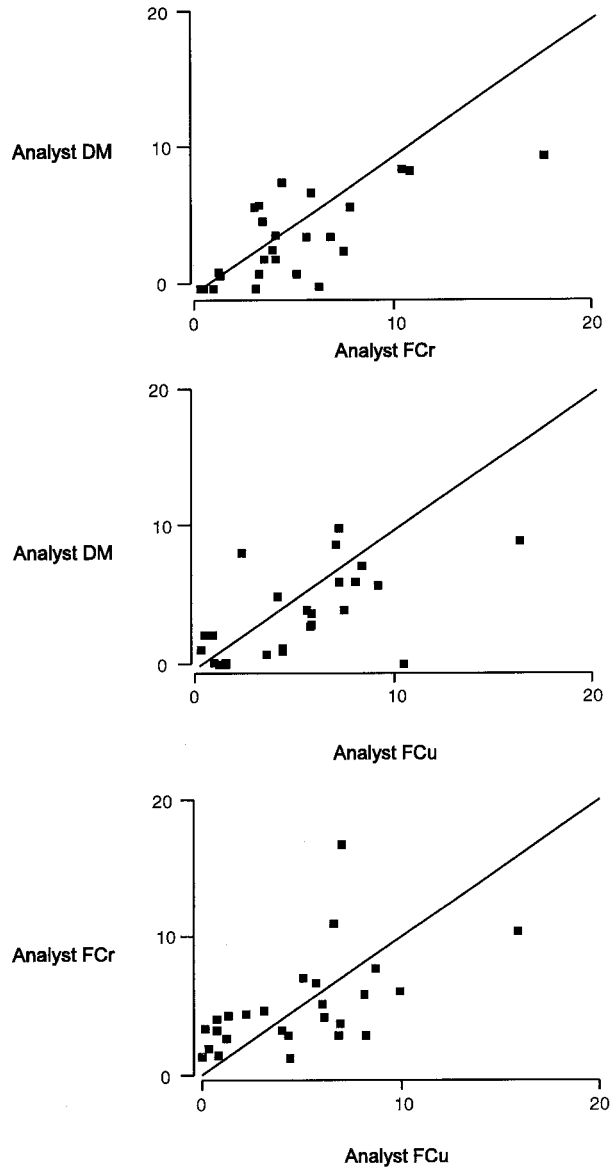


Figure 3. Therapist statements inconsistent with motivational interviewing within individual interviews scored by three analysts independently

assessment was made of the smoking discussions to answer the question, “Was motivational interviewing performed to an acceptable standard?”

The rating tool was constructed by Miller to assess the skills of students learning motivational interviewing. Rollnick oversaw how we used the tool. Miller and Rollnick

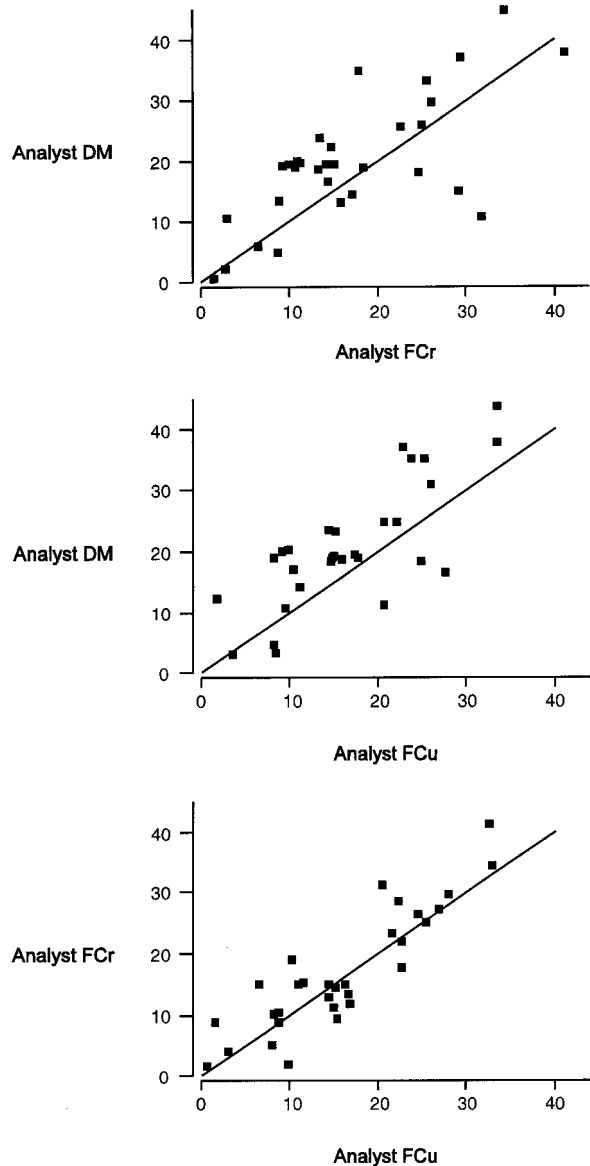


Figure 4. Client “self-motivational” statements within individual interviews scored by three analysts independently

(Miller & Rollnick, 1991) described motivational interviewing as a therapist style and are both active researchers in the field. The first pass showed that more than 75% of interviews were satisfactory, as all global measures of therapist, client and interaction had a lower quartile measure greater than 4. The second pass confirmed these findings. Motivational interviewing inconsistent therapist utterances were rare; in particular

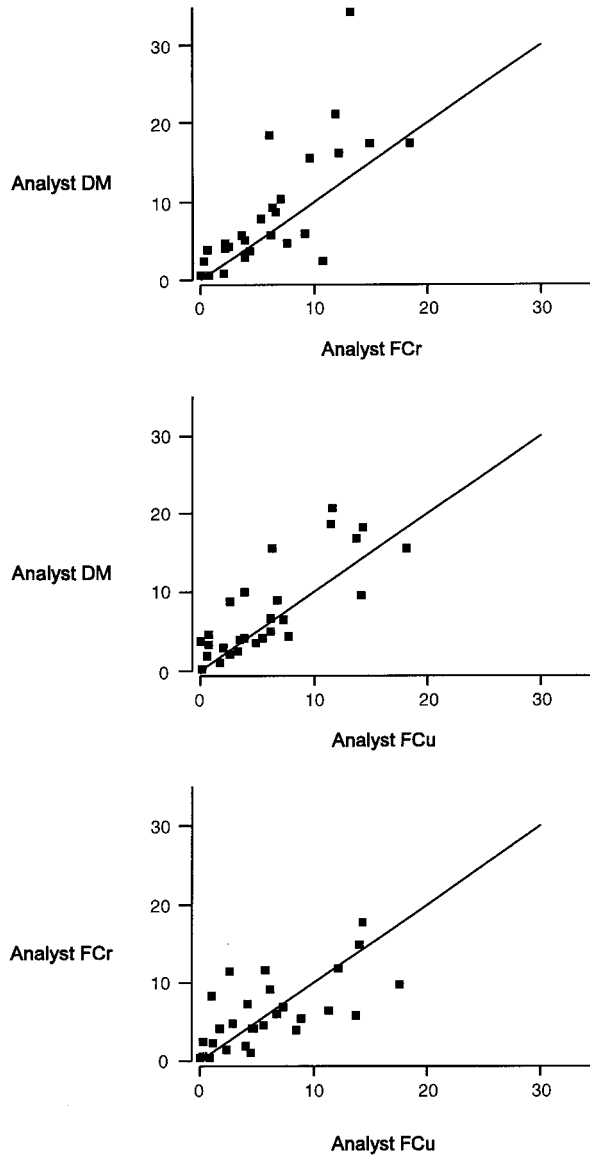


Figure 5. Client “resistant” statements within individual interviews scored by three analysts independently

“confrontation” and “warning” were really not present. Motivational interviewing consistent therapist utterances were common especially “reflection” and “affirmation”. Client behaviour showed three times as many self-motivational statements typical of motivational interviewing compared with resistant statements. The third pass showed that the client talked significantly more if they were older and in later interviews. It

was clear when listening to audio-tapes that most clients did not talk much during the first home-visit. In Glasgow, motivational interviewing would not be client led if multiple home-visits were exchanged for one 15 minute interview at the booking clinic.

Arbitration by Dr Rollnick. One interview of 49 was particularly difficult. The research midwife and analysts listened again with Dr Rollnick to arbitrate. The style of interaction was combative, which is accepted within Glasgow culture. The situation and demeanour of the client were described further by the research midwife. Dr Rollnick described a similar interview he had witnessed. Client demeanour was apparent on video, which emphasizes a limitation of audio-tape process analysis.

Was Miller's rating tool valid and practical?

The first pass was prone to bias and only moderate intraclass correlation. Intraclass correlation depends on therapist variability as well as the variability between analysts. Intraclass correlation may improve with more than one therapist. Differences between analysts for global assessment of individual interviews were generally less than one Likert point. Dr Rollnick felt this agreement to be good.

The second pass was more robust. Figures 2, 3, 4, and 5 indicate substantial agreement between analysts. In general, when one analyst documented many therapist statements consistent with motivational interviewing, so did the others. For the purpose of documenting process, numerical agreement may improve by limiting classification purely to important motivational and counter motivational therapist utterances, and removing subcategories. For instance, one rater coded a therapist response as a single reflection, where another picked out subcategories coding several reflections within a single response. Reflections made up the majority of therapist utterances consistent with motivational interviewing (68%, Table 2). Removing this variability would improve the intraclass correlation without affecting validity. Disagreement between raters was seen for therapist utterances inconsistent with motivational interviewing largely made up of "advise without permission". Clarification of the definition of "advice without permission" between raters may improve agreement in future content analysis. Client responses showed quite good correlation between analysts for both self-motivational statements and episodes of resistance, which may reflect a lack of subcategories.

The third pass is important to discover % therapist talk time, as in general a good counsellor is a listener. Also a client led intervention means the client must talk. If transcription is performed, % therapist word count is easy to measure. However, transcription is time consuming, taking 2 hours for a half hour tape.

Overall this rating scale is practical and valid to assess the process for a full randomized controlled trial of home-based motivational interviewing by specially trained midwives. Pass 1 will be followed by pass 2 with a greatly reduced number of subcategories. During pass 3, two timer switches will allow client and therapist talk-time to be measured concurrently.

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References

- BARTECCHI, C. E., MACKENZIE, T. D., & SCHRIER, R. W. (1994). The human costs of tobacco use (Part 1). *New England Journal of Medicine*, *330*, 907–912.
- BUTLER, C. C., PILL, R. M., & STOTT, N. C. H. (1998). A qualitative study of patients' perceptions of doctors' advice to quit smoking. Implications for opportunistic health promotion. *British Medical Journal*, *316*, 1878–1881.
- CARSTAIRS, V. (1991). *Deprivation and health in Scotland*. Aberdeen: Aberdeen University Press.
- COWAN, S. F., & FORD, R. P. (1996). *Changing smoking, Changing SIDS: A National training programme to influence smoking in New Zealand families*. Proceedings of the 4th SIDS International Conference, Washington, U.S.A. 3-07-02.
- DI CLEMENTE, C. C., & PROCHASKA, J. O. (1982). Self-change and therapy change of smoking behaviour: A comparison of processes of change in cessation and maintenance. *Addictive Behaviours*, *7*, 133–142.
- DI CLEMENTE, C. C., & PROCHASKA, J. O. (1998). Towards a comprehensive transtheoretical model of change. Stages of change and addictive behaviours. In W. R. Miller & N. Heather (Eds.), *Treating addictive behaviours (2nd ed.)* (pp. 3–28). New York: Plenum Press.
- EVERITT, B. S. (1994). *Statistical methods for medical investigations (2nd ed.)*. London: Edward Arnold.
- GLEESON, C., MEMON, I., MILNER, M., & BAINES, S. (1997). Smoking cessation in pregnancy: A multiple contact approach. *British Journal of Midwifery*, *5*, 551–554.
- HART, J. T. (1971). The inverse care law. *The Lancet*, *1(7696)*, 405–412.
- 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.
- LUMLEY, J., OLIVER, S., & WATERS, E. (1998). Smoking cessation programs implemented during pregnancy (Cochrane Review). In: The Cochrane Library, Issue 3, Oxford: Update Software.
- MILLER, W. R., & SOVEREIGN, R. G. (1989). The check-up: A model for early intervention in addictive behaviors. In T. Loberg, W. R. Miller, P. E. Nathan & G. A. Marlatt (Eds.), *Addictive behaviors: Prevention and early intervention* (pp. 219–231). Amsterdam: Swets & Zeitlinger.
- MILLER, W. R., & ROLLNICK, S. (1991). *Motivational interviewing: Preparing people to change addictive behaviour*. New York: Guilford.
- 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.
- NOONAN, W. C., & MOYERS, T. B. (1997). Motivational interviewing. *Journal of Substance Misuse*, *2*, 8–16.
- PROCHASKA, J. O., & DI CLEMENTE, C. C. (1983). Stages and processes of self-change of smoking: Towards an integrative model of change. *Journal of Consulting and Clinical Psychology*, *51*, 390–395.

- ROLLNICK, S., BUTLER, C. C., & STOTT, N. (1997). Helping smokers make decisions: The enhancement of brief intervention for general medical practice. *Patient Education and Counselling*, 31, 191–203.
- RUSSELL, M. A. H., WILSON, C., TAYLOR, C., & BAKER, C. D. (1979). Effect of general practitioners advice against smoking. *British Medical Journal*, 2, 231–235.
- SCOTT LENNOX, A., BAIN, N., TAYLOR, R. J., MCKIE, L., DONNAN, P. T., & GROVES, J. (1998). Stages of change training for opportunistic smoking intervention by the primary health care team. Part I: Randomized controlled trial of training on patient smoking outcomes and health professional behaviour as recalled by patients. *Health Education Journal*, 57, 140–149.
- STEPHENSON, J., & IMRIE, J. (1998). Why do we need randomised controlled trials to assess behavioural interventions. *British Medical Journal*, 316, 611–613.
- STOTT, N. C. H., & PILL, R. M. (1990). “Advise yes, dictate no”. Patients’ views on health promotion in the consultation. *Family Practice*, 7, 125–131.
- SZARZ, T. S., & HOLLENDER, M. C. (1956). A contribution to the philosophy of medicine: The basic models of the doctor-patient relationship. *Archives of Internal Medicine*, 97, 585–592.
- WALSH, R. A., REDMAN, S., BRINSMEAD, M. B., BYRNE, J. M., & MELMETH, A. (1997). A smoking cessation program at a public antenatal clinic. *American Journal of Public Health*, 87, 1201–1204.