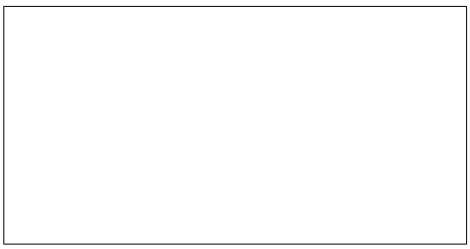

Running Head: Brief Motivational Interviewing Training

Building Skills, Knowledge and Confidence in Eating and Exercise Behavior Change: Brief Motivational Interviewing Training for Healthcare Providers

Elizabeth J. Edwards[1], Peta Stapleton[2], Kelly Williams[3], & Lauren Ball[4]

[1]School of Medicine, Bond University

[2]School of Psychology, Bond University

[3]Gold Coast Medicare Local

[4]School of Allied Health Sciences, Griffith University

Author for Correspondence:

Elizabeth J. Edwards (nee Scott)

School of Medicine

Faculty of Health Sciences and Medicine

Bond University

GOLD COAST Q 4229

AUSTRALIA

Phone: +61 409966169

Fax: +61 7 5595 2540

Email: eedwards@bond.edu.au

Abstract

Objective: Obesity related health problems affect individuals, families, communities and the broader health care system, however few healthcare providers (e.g., doctors, nurses, social workers, psychologists, counselors) receive formal training in obesity prevention interventions. We examined the effectiveness of training healthcare providers in brief motivational interviewing (brief MI) targeting eating and exercise behaviour change.

Methods: 163 healthcare providers participated. 128 participants completed a one-day experiential brief MI training workshop followed by electronic peer-support and a further 35 matched controls did not receive the training.

Results: Participant's knowledge of brief MI and confidence in their ability to counsel patients using brief MI significantly improved following training ($p < .05$) and remained at 3 and 6-month follow-up ($p < .05$). Brief MI skills assessed during the simulated patient interactions indicated a significant improvement across two practical training blocks ($p < .05$).

Conclusion: Healthcare providers can learn brief MI skills and knowledge quickly and confidence in their counseling abilities improves and is sustained.

Practice implications: Healthcare providers may consider brief MI as an obesity prevention intervention.

Keywords: brief motivational interviewing, obesity

Running Head: Brief Motivational Interviewing Training

1. Introduction

The prevalence of obesity in Australia is rising at an alarming rate, more than doubling in the last two decades of the 20th century [1]. Lifestyle factors such as poor dietary habits and lack of exercise have been implicated in the obesity epidemic [2]. Health implications are serious and can lead to premature death and disability from conditions such as cardiovascular disease, type 2 diabetes, osteoarthritis and some cancers [3]. Preventive practice strategies are of increasing priority for health promotion agencies.

Results of one community survey on Australia's Gold Coast revealed exercise as a major factor influencing health and wellbeing in all age groups; specifically 57.3% of adults were classified as overweight or obese and 43.4% undertook insufficient physical activity for health benefit [4]. These data prompted the implementation of a preventative practice plan including a capacity building initiative for local healthcare providers to address patient's daily health behaviors (specifically, eating and exercise) [4].

Studies have shown that interactions based on education or advice-giving do not necessarily translate into improved health behavior [5]. Alternatively, motivational interviewing (MI; [6]), a directive, patient-centered approach to health behavior change has shown success when applied to lifestyle issues, including excessive alcohol consumption, smoking, management of chronic diseases, and dietary changes [7,8]. The demand for MI training in the health sector is growing and the results of studies that have examined the efficacy of teaching MI and brief MI (designed to be carried out in 5-15 minutes; [9]) have been promising [10]. A review of MI training investigations revealed differences in trainees, training formats, and training curriculums, however many studies have methodological limitations including no pre-intervention data [11], no control group, no behavioral skills assessment [12], limited follow-up data [13] and lack of post-training support [14].

The present study evaluated whether brief MI training improved healthcare providers' (e.g., doctors, nurses, social workers, psychologists, counselors) knowledge, skills and confidence, in relation to eating and exercise behavior change. Brief MI was selected (versus MI) because it is designed to promote health behavior changes within the time constraints imposed by busy health care environments [9]. It was hypothesized that participants who received the brief MI training would demonstrate pre-post improvements in knowledge, skills and confidence relative to an untrained control group.

2. **Methods**

2.1 Design

A quasi-experimental design was used. The independent variables were Group (*Untrained* vs. *Trained*) and Time (*Pre* vs. *Post* vs. *3-Month Follow-up* vs. *6-Month Follow-up*). The dependent variables were knowledge, skills and confidence in brief MI.

2.2 Participants

Participants were 163 healthcare providers aged 18-58 years (M = 27.18). Of these 128 received training (females = 104; nurses = 25.7%, psychologists = 4.8%, counsellors = 18.1%, community workers = 43.8%, other = 7.6%), whereas 35 did not (females = 31; nurses = 9.1%, psychologists = 9.1%, counsellors = 27.3%, community workers = 40.9%, other = 13.6%). Funding commitments stipulated that three-quarters of participants receive training. The groups were matched on age, $t < 1$, and sex was proportionately distributed across groups.

2.3 Materials

Knowledge of brief MI was assessed using the 15-item Motivational Interviewing Knowledge and Attitudes Test (MIKAT; [15]) and a 6-item Multiple Choice Test [13]. Confidence

with health behavior change counseling was assessed using the 8-item MI Confidence Scale [11]. Measures were obtained at *Pre, Post, 3-Month Follow-up* and *6-Month Follow-up.* During training, experienced facilitators assessed skills at two intervals using the 12-item Behavior Change Counselling Index (BECCI; [16]). Facilitators rated 11 counseling skills from 0 = not at all to 4 = a great extent, such that total scores ranged from 0-44 (higher scores indicative of greater skills). The 12th item rated the practitioner speaking time (more than half, about half or less than half the time).

2.4 Procedure

The *Trained* group received 6-hours of brief MI training (1 x 2 hour lecture + 2 x 2 hour blocks of small group simulated patient encounters) and 6-months access to electronic peer-support post-training. Experienced facilitators (3 psychologists and 1 counselor) conducted the six workshops. The *Untrained* participants completed measures online.

2.5 Statistical analyses

Missing data appeared to be random and only cases with completed data were used in the analyses. Analyses were carried out using SPSS version 22 and tests were considered significant at $\alpha = .05$.

3. Results

Independent samples t-tests at *Pre* confirmed the *Trained* and *Untrained* groups were matched on brief MI knowledge at baseline (MIKAT, $t(151) = 1.69$, $p = .093$; Multiple Choice Test, $t(151) = 1.78$, $p = .077$). MI Confidence however were higher for *Untrained* relative to *Trained*, [$t(149) = 2.55$, $p = .012$]. Table 1 shows the means and standard deviations for the knowledge and confidence measures prior to training.

Insert Table 1 about here

Table 2 shows the means and standard deviations for the knowledge and confidence measures across time-points for the *Trained* group. As can be seen, from *Pre* to *Post* there was a significant increase in knowledge on the MIKAT, [$t(102) = 4.07$, $p < .001$] and Multiple Choice Test, [$t(101) = 3.62$, $p < .001$], and MI Confidence ratings [$t(101) = 11.34$, $p < .001$]. Analyses of the BECCI data collected during the simulated patient encounters revealed a significant increase in brief MI skills from Block 1 ($M = 25.43$, $SD = 8.30$) to Block 2 ($M = 35.33$, $SD = 6.73$, $t(125) = 9.77$, $p < .001$). Furthermore, practitioner speaking time reduced, across blocks (Block 1: 15.9% spoke > ½ the time and 20.4% spoke < ½ the time, versus Block 2: 1.8% spoke > ½ the time and 31.9% spoke < ½ the time).

Insert Table 2 about here

To determine if knowledge and confidence scores were sustained over time, *Post* versus *3-Month Follow-up* and *Post* versus *6-Month Follow-up* data comparisons were examined separately (see also Table 2). There were no difference between MIKAT and Multiple Choice Test scores at *Post* relative to *3-Month Follow-up* [both $t(29) < 1$] and *6-Month Follow-up* [both $t(8) < 1$]. Analyses of the MI Confidence scores showed a trend for further increases in confidence from *Post* to *3-Month Follow-up* [$t(29) = 2.00$, $p = .055$], however there were no differences between confidence scores at *Post* and *6-Month Follow-up* [$t(8) = 1.48$, $p = .177$]. Taken together, these findings indicate that the improvements in knowledge and confidence immediately following the training were sustained.

4. Discussion and Conclusion

4.1 Discussion

Our data confirmed brief MI training produces measureable gains in knowledge, skills and confidence in healthcare workers. Behavioral assessment of interactions using simulated patients confirmed improvement in brief MI skills. A comparison of pre-test, post-test and follow-up data for the confirmed brief MI knowledge and confidence increased and remained unchanged over time.

Several limitations should be recognized. First, random assignment to the *Trained* and *Untrained* groups may have been compromised by the staffing needs associated with the participating organizations. We cannot therefore discount a potential selection bias, which may explain between group differences in confidence ratings prior to training. Second, *6-Month Follow-up* response rates were low (i.e., only 9 participants responded) and therefore these data should be interpreted with caution. Finally, although knowledge scores and confidence ratings were sustained over time we were unable to obtain follow-up behavioral measures of brief MI skills.

4.2 Conclusion

Healthcare providers can attain brief MI knowledge, skills and confidence relatively quickly and these can be sustained over time. The training assisted staff to identify opportunities for conversations about healthy eating and exercise. Further research is needed to determine if brief MI skills are long lasting.

4.3 Practice implications

Obesity prevention interventions are fast becoming a priority for health promotion agencies in Australia and worldwide. Our study demonstrated that brief MI skills can be learned effectively by healthcare providers to build healthy eating and exercise conversations into their daily practice.

The results of this study provide a baseline for implementation of brief MI training into the practice of a range of healthcare workers.

Conflicts of interest

All authors report no conflicts of interest.

Acknowledgements

This research was supported by a grant from Gold Coast Medicare Local, however they had no involvement in the study design, collection, analysis and interpretation of data, or preparation and decision making of the manuscript. We are extremely grateful for this support.

References

[1] Cameron, A. J., Welborn, T. A., Zimmet, P. Z., Dunstan, D. W., Dalton, M., Shaw, J. E., Welborn, T. A., Owen, N., Salmon, J., & Jolley, D. (2003). Overweight and obesity in Australia: the 1999–2000 Australian Diabetes, Obesity and Lifestyle Study (AusDiab). *Medical Journal of Australia, 1*78, 427–432.

[2] Tones, K., & Green, J. (2004). *Health promotion – planning and strategies*. London: Sage Publications.

[3] World Health Organisation. (2000). *Obesity: Preventing and managing the global epidemic*. Geneva: WHO.

[4] Williams, K., Ball, L., Scott, E., & Stapleton, P. (2013, June). Supporting people to make healthy choices: A capacity building initiative for community service organisations. Poster presented at 21st National Australian Health Promotion Association Conference, Sydney, Australia.

[5] Butler, C. C., Rollnick, S., Cohne, D., Bachmann, M., Russell, I., & Stott, N. (1999). Motivational consulting versus brief advice for smokers in hgeneral practice: a randomized trial. British Journal of General Practice, 49(445) 611-616.

[6] Rollnick, S., & Miller, W. R. (1995). What is motivational interviewing? *Behavioural and Cognitive Psychotherapy, 23*(4), 325-334.

[7] Britt, E, Hudson, S. & Blampied, N. (2004). Motivational interviewing in health settings: a systematic review. *Patient Education & Counselling, 53(2),* 147-155.

[8] Knight, K. M., McGowan, L., Dicken, C., & Bundy, C. (2006). A systematic review of motivational interviewing in physical health care settings. *British Journal of Health Psychology, 11*(2) 319-332.

[9] Rollnick, S., Mason, P., & Butler. C. (1999). *Health Behaviour Change: A Guide for Practitioners.* London: Churchill Livingstone.

[10] Madson, M. B., Loignon, B. A., & Lane, C., (2009). Training in Motivational interviewing: a review. *Journal of Substance Abuse Treatment, 36,* 101-9.

[11] Poirier, M. K., Clark, M. M., Cerhan, J. H., Pruthi, S., Geda, Y. E., & Dale, L. C. (2004, March). Teaching motivational interviewing to first-year medical students to improve counseling skills in health behavior change. In Mayo Clinic Proceedings, 79(3) 327-331.

[12] Martino, S., Haeseler, F., Belitsky, R., Pantalon, M., & Fortin IV, A. H. (2007). Teaching brief motivational interviewing to year three medical students. *Medical Education, 41(2)* 160-167.

[13] Spollen, J., Thrush, C. R., Mui, D., Woods, M. B., Tariq, S. G., & Hicks, E. (2010).A randomized controlled trial of behaviour change counselling education for medical students. *Medical Teacher. 32(4)* 170-177.

[14] Walters, S. T., Matson, S. A., Baer, J. S., & Ziedonis, D. M. (2005). Effectiveness of workshop training for psychosocial addiction treatments: a systematic review. *Journal of Substance Abuse and Treatment, 29,* 283-293.

[15] Leffingwell, T. R., (2006) Motivational interviewing knowledge and attitudes test (MIKAT) for evaluation of training outcomes. *MINUET, 13*, 10-11.

[16] Lane, C., Huws-Thomas, M., Hood, K., Rollnick, S., Edwards, K & Robling, M., (2005). Measuring adaptations of motivational interviewing: The development and validation of the behaviour change counselling index (BECCI). *Patient Education & Counselling*, *56*, 166-173.

Table 1

Scores on the Dependent Variables for Trained and Untrained Groups Prior to Training (i.e., Pre)

	Untrained Group *N* = 35		*Trained* Group *N* = 128	
	M	*SD*	*M*	*SD*
MIKAT (Score range 0-19)	12.43	2.57	11.55	3.40
Multiple Choice Test (Score range 0-6)	3.54	1.44	3.07	1.37
MI Confidence Scale (Score range 0-40)	32.94	5.95	30.31	5.00

Table 2

Scores on the Dependent Variables for the Trained Group at Pre, Post, 3-Month Follow-up and 6-Month Follow-up

		Trained Group	
		M	*SD*
MIKAT	*Pre*	11.55	3.40
	Post	12.94	2.77
	3-Month Follow-up	13.00	3.83
	6-Month Follow-up	14.22	3.11
Multiple Choice Test	*Pre*	3.07	1.34
	Post	3.67	1.40
	3-Month Follow-up	3.53	1.17
	6-Month Follow-up	3.67	1.80
MI Confidence Scale	*Pre*	30.31	5.00
	Post	35.24	3.39
	3-Month Follow-up	36.80	3.51
	6-Month Follow-up	37.44	3.21