Motivational Interviewing support for a behavioral health internet intervention for drivers with type 1 diabetes ☆

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ABSTRACT

While Internet interventions can improve health behaviors, their impact is limited by program adherence. Supporting program adherence through telephone counseling may be useful, but there have been few direct tests of the impact of support. We describe a Telephone Motivational Interviewing (MI) intervention targeting adherence to an Internet intervention for drivers with Type 1 Diabetes, DD.com, and compare completion of intervention benchmarks by those randomized to *DD.com plus MI* vs. *DD.com only*. The goal of the pre-intervention MI session was to increase the participant's motivation to complete the Internet intervention and all its assignments, while the goal of the post-treatment MI session was to plan for maintaining changes made during the intervention. Sessions were semi-structured and partially scripted to maximize consistency. MI Fidelity was coded using a standard coding system, the MITI. We examined the effects of MI support vs. no support on number of days from enrollment to program benchmarks. Results show that MI sessions were provided with good fidelity. Users who received MI support completed some program benchmarks such as Core 4 ($t_{176\ df} = -2.25$; p < .03) and 11 of 12 monthly driving diaries significantly sooner, but support did not significantly affect time to intervention completion ($t_{177\ df} = -1.69$; p < .10) or rates of completion. These data suggest that there is little benefit to therapist guidance for Internet interventions including automated email prompts and other automated minimal supports, but that a booster MI session may enhance collection of follow-up data.

1. Introduction

Internet interventions are increasingly used to improve health behaviors to manage chronic illness, but their efficacy is limited by patient adherence to the program. Many participants never complete a health-behavior focused Internet intervention, limiting the potential impact (Blankers et al., 2009; Christensen et al., 2009,2009; Ritterband et al., 2008). Characteristics of Internet interventions that seem to foster more program adherence include highly relevant content, tailored interactivity, and personalization of feedback and user assignments (Ritterband et al., 2009). A systematic review of the technology features of web-based programs in health revealed that the presence of specific technology strategies, including primary task support, dialog support, more frequent intended usage, and more frequent contact with a counselor and more frequent reminders explain more than half of the variance in adherence to the program (Kelders et al., 2012). However, even with such features, users may require additional strategies to increase their motivation to engage in, and fully utilize, Internet interventions.

Some developers of Internet interventions assert that therapist support such as weekly email or telephone calls providing guidance might be required to improve patient outcomes via better usage and completion of the Internet intervention, while unguided self-help interventions are appropriate as population-level preventive interventions (Andersson et al., 2011). In contrast to this view, meta-analyses have found that some unguided Internet interventions are efficacious, even in the areas of mental health (Christensen et al., 2009) and alcohol problems (Riper et al., 2014). However, there have been just a few direct tests of the impact of therapist support or guidance on program use, completion, or provision of follow-up data. In an Internet intervention for social anxiety, researchers found that the impact of therapist guided vs. unguided interventions varied by a set of patient characteristics and that some patients benefitted from Internet interventions without therapist support (Nordgreen et al., 2012). Currently, investigators are

comparing a therapist guided vs. unguided mobile and Internet combination Cognitive Behavioral Therapy (CBT) intervention for social anxiety and panic disorder; this trial is ongoing and results are not yet available (Lindner et al., 2013). Unfortunately, we could not find any tests of therapist support to enhance program adherence in the area of diabetes. Therefore, it is unknown whether the emerging information about unguided mental health interventions applies to diabetes interventions.

When therapist support is provided, it is often based on CBT, but in general, focuses on the behavioral target, such as depression. When targeting program completion however, there is a need to increase motivation to use programs and persist until completion. In these cases, it may be appropriate to use the counseling style of Motivational Interviewing (MI). MI facilitates behavior change for many health behaviors beyond its foundation in treating drinking problems, including alcohol and drug use, medication adherence, uptake of exercise, and others when delivered as 1–4 sessions of 15 min or more (Hettema et al., 2005; Lundahl et al., 2010; Rubak et al., 2005). MI sessions include processes of Engaging, Focusing, Evoking, and Planning, culminating in behavior change that is freely chosen by the patient (Miller and Rollnick, 2012). MI has a large evidence base, and several meta-analyses have shown that it has a small to moderate effect size, similar to other psychotherapies (Burke et al., 2003; Heckman et al., 2010; Hettema et al., 2005; Hettema and Hendricks, 2010; Lundahl et al., 2010; Rubak et al., 2005; Smedslund et al., 2011; Vasilaki et al., 2006). MI has been tested in a number of studies as a prelude to enhance adherence to a primary intervention, and has been found to improve session attendance and outcomes (Carroll et al., 2006; Coyne and Correnti, 2014; Martino, 2011; Miller and Rollnick, 2012).

MI is promising when delivered over the telephone for 1–2 sessions (Aharonovich et al., 2012; Bennett et al., 2008; Cook et al., 2009; Farrell-Carnahan et al., 2013; Walker et al., 2007). Telephone delivery is important in Internet-delivered interventions, because participants from wide geographic areas may enroll, making face to face sessions impractical if not impossible. We hypothesized that MI might improve usage of an Internet program, and could lead to improved completion of the program, or of follow-up assessments.

The purposes of this paper are 1) to describe a Telephone Motivational Interviewing (MI) therapist support intervention targeting completion of an Internet intervention for drivers with Type 1 Diabetes, *DD.com*, and 2) to compare program utilization by those randomized to Internet intervention plus MI vs. those randomized to the Internet intervention alone.

2. Methods

2.1. Internet intervention

DiabetesDriving.com (*DD.com*) is an interactive Internet intervention program for high risk drivers with Type 1 diabetes mellitus (T1DM) targeting behaviors related to the risk of future collisions. Specifically, *DD.com* guides users to improve the prevention, detection, and treatment of hypoglycemia while driving. *DD.com* can be completed in 5 weeks, and has automated prompting to complete various tasks sent by email to users. The initial two Cores explain how to use the program (Core 0) and how to use a driver's toolkit that was mailed to participants (Core 1). The subsequent Cores (Cores 2–5) are content-based and are metered out at a rate of one per week. All cores took approximately 30 min to complete, and were organized in a similar manner: Participants reviewed the previous week's homework; then interacted with new Core content, including reviewing videos and case reports and completing checklists and questionnaires. Participants then completed a "self-test" on new content, which was a multiple choice quiz that provided feedback on the correct answer following answering each item. Each Core concluded with users identifying activities they wanted to complete. Beginning after Core 2, users completed daily progress

Table 1
DD.com core contents.

Core 0 Introduction
How to Use the Internet Intervention

Core 1 Tool kit
Orientation to study tool kit for car
Tool kit included:
- BG meter and strips
- rapid acting glucose tablets
- cheese crackers (long acting carbohydrates) for sustained BG elevation
- pre-drive checklists help anticipate, prevent, and treat extreme BG
- key chain and stickers to encourage drivers to consider their BG level before and during driving
- diabetes identification stickers to put on car in case they are found incapacitated
Self-test and closing

Core 2 Driving risks
Review of general and diabetes-specific driving risk factors
Develop a plan to reduce risk of future driving mishaps
Learn what to expect in upcoming Cores
Preliminary driving contract

Core 3 Preventing hypoglycemia
Anticipating and preventing extreme BG while driving
Review of tool kit
Daily progress notes
Learn to anticipate low BG
Learn to prevent hypoglycemia during a drive
Revised driving contract
Daily automated e-mails asking them to record findings from their diary

Core 4 Detecting and treating hypoglycemia while driving
Improving detection and management of extreme BG while driving
Using tool kit
Using driving diaries
Review Core 3 driving contract
Learn to detect hypoglycemia
Learn to manage hypoglycemia for immediate and long term benefits
Revise contract to detect and manage hypoglycemia while driving
Completion of personally relevant diaries after each drive
Daily e-mail reminders to upload driving data

Core 5 Review, reflect, and relapse prevention
Review and summarize progress
Maintaining safe long-term driving habits.
Anticipating barriers and designing solutions for barriers

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notes to monitor new behaviors introduced in the Cores. The program tracked when users started and completed each Core, along with their utilization and completion of interactive elements. Specific contents of each Core, and required tasks associated with each Core are shown in Table 1. A U.S. randomized clinical trial tested *DD.com* alone compared to *DD.com* plus 2 MI sessions, and to treatment as usual, and found that the intervention reduced driving mishaps significantly (Cox et al., 2014). In this report, we focus only on the two conditions receiving *DD.com*.

2.2. Procedures

The study was approved by the University of Virginia Institutional Review Board for Health Sciences Research. Individuals came to the *DiabetesDriving.com* website and read about the study, described as a trial of an Internet intervention designed to reduce driving mishaps among those with T1DM, versus usual care, or versus the Internet intervention plus 2 telephone counseling sessions. Interested individuals signed an online consent form agreeing to provide screening information over the Internet, and completed a screening questionnaire between March 2012 and June, 2013. We contacted those who met the inclusion criteria and scheduled a telephone appointment, during which we reviewed their inclusion/exclusion criteria and provided further details about the study. After this telephone interview, interested eligible participants signed a second consent form to participate in the

randomized trial. Participants were randomized to one of the three conditions, routine care (RC), DiabetesDriving.com (DD.com only) or DD.com plus Motivational Interview (DD.com plus MI). Routine care participants served as the control group and did not receive any intervention content. All study participants continued with their routine diabetes care throughout the study.

Those assigned to the DD.com plus MI group were scheduled for an MI session on the telephone during the enrollment call, and MI appointments were scheduled to occur within a week of enrollment. Consenting individuals were sent a URL by email that gave them access to a baseline questionnaire. After completing this questionnaire, DD.com only participants received access to the program immediately, while DD.com + MI participants received access after completing the questionnaire and the telephone MI session. Participants were told that they had 10 weeks (70 days) to complete DD.com. After 70 days, whether or not they had completed DD.com, those assigned to DD.com

plus MI completed a second MI telephone session. At 70 days, all participants completed an online post-treatment questionnaire, and subsequently completed monthly driving diaries prompted by automated emails for the following year. Monthly driving diaries provided the information on driving mishaps that will serve as primary outcomes in the RCT. Fig. 1 depicts the flow of the study, reported in accordance with Consort guidelines (The Consort Group, 2015).

2.3. Sample

The program screened 1739 drivers with T1DM from across the country, with potential participants coming from all 50 states. We recruited potential participants through several diabetes websites (MyGlu.com, dLife.com, Dex4.com) and through professional organizations (American Diabetes Association, American Association of Diabetes Educators), and through referral from clinicians specializing in diabetes
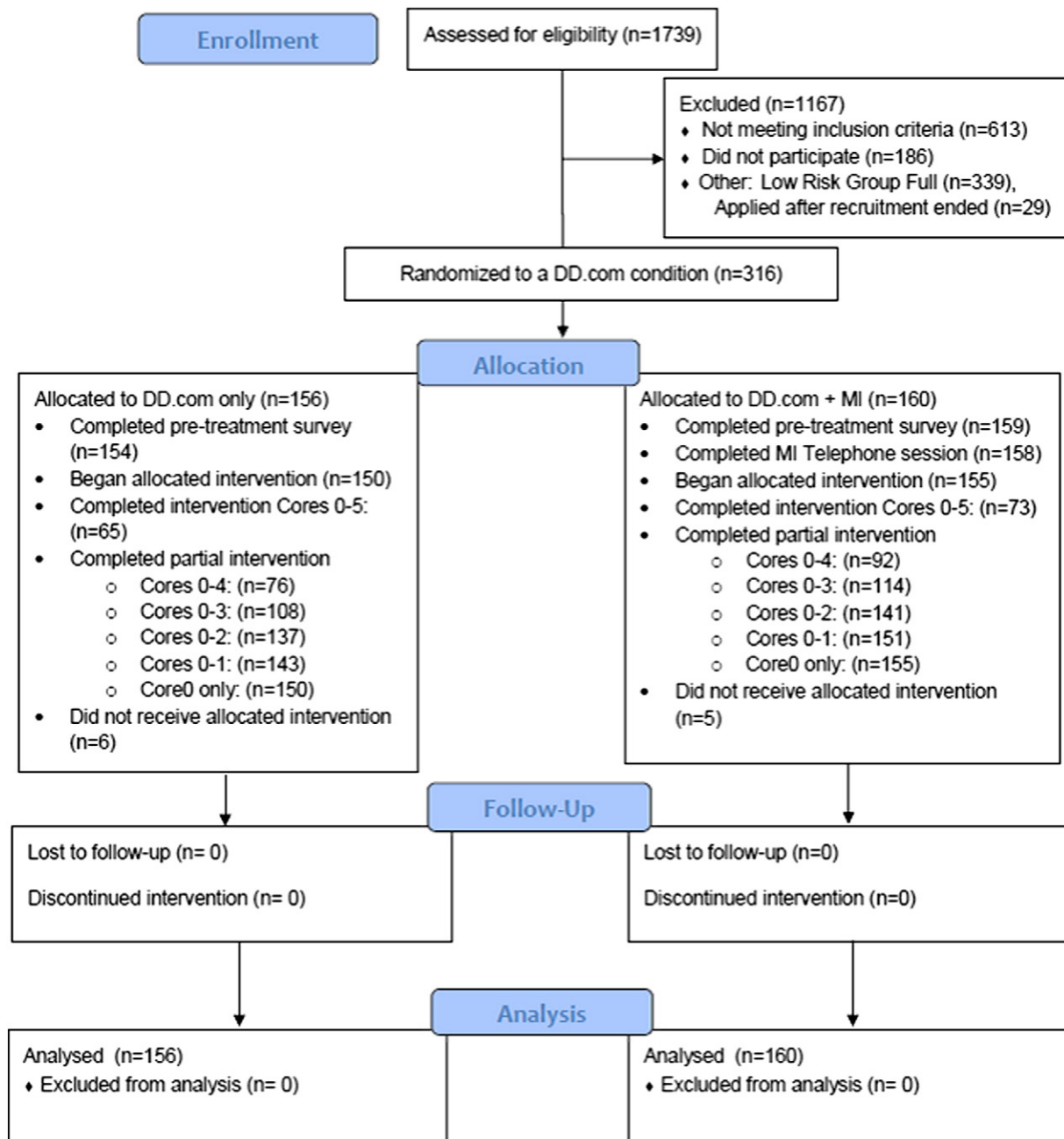

Fig. 1. Study consort flow chart.

care. Inclusion criteria for randomization to either *DD.com* condition were: 1) between ages 18 and 70, 2) had T1D, 3) had diabetes for at least 12 months, 4) had a valid driver's license, and 5) met criteria for T1D drivers at risk for future driving mishaps based on the Risk Assessment for Diabetic Drivers (RADD), which accurately discriminated drivers at high vs. low risk of future driving mishaps within 12 months (Cox et al., 2014). After excluding 613 participants (who may have had more than one reason for exclusion), the final sample size classified in the High Risk group was 449 adults. 444 participated.

2.4. Telephone Motivational Interviewing

The goal of the initial MI session was to increase the participant's motivation to complete the Internet intervention and all its assignments. Therefore the impact of the first MI session should be measured in terms of completion of program benchmarks. The goal of the second MI session was to solidify commitment to maintain changes users had made and lessons learned during *DD.com*. Therefore, the impact of the second MI session should be measured in terms of subsequent maintenance of changed behaviors related to driving safety. Sessions were semi-structured and partially scripted to enhance fidelity to MI and maximize consistency across counselors. Each 20–30 minute MI session progresses through 4 processes (Engaging, Focusing, Evoking, and Planning, which is optional and depends on the participant's interest). Table 2 presents the contents of the MI session. The first MI session focused on eliciting participants' own reasons for planning to complete the Internet program and its assignments. In brief, Motivational

Table 2
Telephone Motivational Interviewing session 1 outline.

Engaging
Introductions, reminder about recording the call, and confidentiality
Agenda setting
Reflect and summarize agenda
Open questions followed by reflections of answers, selected from samples below:
• *What made you interested in Diabetes Driving.com?*
• *What do you hope to get out of Diabetes Driving.com?*
• *How has your driving been going?*
• *What made your doctor (other) refer you to this program?*
• *What driving incidents have you had that you are concerned about?*
Summary of diabetes factors that have a link to driving.

Guiding
Open questions followed by reflections
• *Tell me, what's hardest for you about having diabetes?*
• *What's going well for you with your diabetes now?*
• (For patients with good control): *What's your experience of highs and lows when driving?*
• *What are some of your challenges in driving with your diabetes?*
Summary of main ideas

Evoking
Key questions followed by reflection of answers:
• *Given what you've said so far (provide highlights in summary), what would you like to be different with your driving and diabetes?*
• *What are you hoping to learn from diabetes driving.com?*
Listen and reflect.
Provide information about *DD.com*.
Ask scaling questions about importance and confidence to complete *DD.com*.
Summary of change talk

Planning (Skip if not part of logical flow of conversation)
Key questions followed by reflection of answers:
• *What new things do you want to try or do differently?*
• *How do you want to get there? What's the first step?*
Summarize

Ending session
Orient participant and ask final open question
What else would you like to talk about today, before we stop? Reflect.
Briefly summarize entire conversation, focusing on change talk.
Ask: *What did I miss?* Reflect.
Thank participant and end conversation with plan for future.

Interviewers introduced themselves, reviewed a session agenda, and asked a short series of open questions that elicited the participant's experiences of driving with diabetes and their interests in participating in the study. Interviewers summarized key points several times across the session. They evoked and reflected participant's concerns about diabetes and driving and potential interests in changing. They asked key questions and summarized participants' statements about change.

2.5. MI therapist selection and training

Interviewers were psychology students and postdoctoral clinical and research fellows. Interviewers in the training phase were 2 postdoctoral fellows, 1 graduate student, and 2 undergraduate research assistants experienced in working with patients and research participants with type 1 diabetes. Training included 4 2-hour sessions on MI skills, and 2-hour sessions to practice the full MI session. One undergraduate student was not utilized after the training period due to failing to master MI skills in practice sessions.

2.6. MI fidelity assessment

Interviews were digitally recorded using a telephone pickup device in the ear of the interviewer. MI practice was supervised weekly for the group of interviewers by an experienced MINT trainer who also coded 10% of the sessions using the widely-used, reliable *Motivational Interviewing Treatment Integrity* code (*MITI* 3.1.1; Moyers et al., 2009). Coding of MI was used to provide feedback for counselors, to detect and correct drift from the MI protocol, and to determine MI fidelity for the study.

2.7. Data analyses

The primary analysis of the RCT found that the *DD.com* intervention significantly reduced subsequent driving mishaps as reported in monthly driving diaries (Cox et al., 2014). In the current analyses, we examined the impact of the first MI session on completion of program benchmarks. Specifically, we examined whether the *DD.com plus MI* condition providing therapist support differed from the *DD.com only* condition that provided no therapist support in usage and completion of the Internet intervention. The outcome variable indicating engagement was number of days from enrollment to completion of tasks such as Cores, daily progress notes, and monthly driving diaries following the active intervention period. Adherence to the program was indicated by completing at least 4 Cores in the 70 day period, because by Core 4, participants would have learned the most important aspects of preventing hypoglycemia while driving. Finally, the outcome variable indicating program completion was the number of Cores completed within the allotted 70 days. We used Chi Square-tests or t-tests to determine whether there were differences in means or proportions in outcome variables between the *DD.com only* vs. *DD.com plus MI* conditions.

3. Results

3.1. Participants

As shown in Fig. 1, a group of 449 adults with T1DM at high risk for future driving mishaps enrolled in the study. Of those rated as high risk for future driving mishaps, 156 were randomized to *DD.com only* and 160 were randomized to the *DD.com + MI* condition. Those drivers assigned to routine care are not included in the present analysis. In brief, participants' mean age was 40.50 (SD = 12.50), with 64 between the age of 18–25 and 6 being older than age 65. Mean duration of diabetes was 25.0 years (SD = 13.62). 71% of the sample was female and 95% were White, 2.2% were Black, and 3.8% were Hispanic. Table 3 shows the participants' characteristics.

Table 3
Participant characteristics.

	DD.com sub-sample n = 316 (313 provided data)	DD.com only n = 156 (154 provided data)	DD.com plus MI (n = 160) (159 provided data)
	Mean (SD)	Mean (SD)	Mean (SD)
Age	40.60 (12.84)	40.23 (12.19)	40.96 (13.47)
Miles driven annually			
1001 to 5000	N = 6	N = 2	N = 4
5001 to 10,000	N = 86	N = 44	N = 42
10,001 to 14,000	N = 86	N = 43	N = 43
14,001 to 16,000	N = 135	N = 65	N = 70
Years with T1DM	24.67 (13.81)	23.86 (14.01)	25.46 (13.62)
Risk score*	.451 (.172)	.460 (.176)	.443 (.167)
	n (%)	n (%)	n (%)
Sex			
Male	N = 222	N = 103	N = 119
Female	N = 91	N = 51	N = 40
Race			
White	N = 297	N = 144	N = 153
Black	N = 6	N = 4	N = 2
Asian	N = 4	N = 3	N = 1
Native	N = 2	N = 0	N = 2
Multiracial	N = 4	N = 3	N = 1
Ethnicity			
Hispanic	N = 11	N = 7	N = 4
Non-Hispanic			
Education			
High school graduate	N = 43	N = 26	N = 17
Associate degree	N = 48	N = 20	N = 28
Bachelor's degree	N = 142	N = 66	N = 76
Master's degree	N = 63	N = 33	N = 30
Doctoral degree	N = 17	N = 9	N = 8
Income Group			
Less than $10,000	12	6	6
$10,000–$24,999	18	12	6
$25,000–$49,999	56	31	25
$50,000–$74,999	69	35	34
$75,000–$99,999	53	25	28
$100,000–$149,999	69	31	38
$150,000–$199,999	20	7	13
$200,000 or more	16	7	9

255 of the 316 people randomized to DD.com or to MI plus DD.com had risk scores on the RADD that placed them in the category of high risk for future driving mishaps, while 61 were not in the high risk category.

3.2. MI quality

MI fidelity measured with the MITI 3.1.1 on a sample of 10% of sessions conducted was good to excellent, as shown in Table 4. Interviewers achieved competency in both global MI characteristics and ratios based on behavior counts, although the ratio of reflections to questions was lower than desired. There was little variability in global ratings or in calculated ratios. This indicates that while sessions were not perfect MI, interviewers achieved a consistent and acceptable level of MI practice.

3.3. Outcomes

Table 5 shows the outcomes by condition. Program usage did not vary by condition, based on the rate of completed Cores or the submission of daily progress notes. However, those in the *DD.com plus MI* condition completed Core 4 significantly sooner, on day 61, than did those in the *DD.com only* condition, who completed it on day 81($t_{176\ df} = -2.25$; p < .03). Program completion did not vary by condition, but there were indications of better adherence among those in *DD.com plus MI*. There was a trend for a higher proportion of those randomized to the *DD.com plus MI* condition to complete Cores 0–4 than

Table 4
Motivational Interviewing Treatment Integrity (MITI 3.1.1) scores.

	Mean (SD)	Range	Benchmark
MITI globals			
MI spirit	4.64 (.37)	4.33–5	4
Direction	4.85 (.38)	4–5	4
Empathy	4.62 (.51)	4.33–5	4
MI behavior counts			
Giving information	2.46 (1.66)	1–6	n/a
MI-adherent	3.46 (1.45)	1–6	100%
MI-nonadherent	0	0	0%
Closed question	3.23 (2.77)	1–10	n/a
Open question	6.69 (2.78)	2–11	n/a
Simple reflection	5.77 (2.13)	3–9	n/a
Complex reflection	5.15 (2.51)	2–10	n/a
MI ratios			
Open to closed questions	3.76 (3.18)	.43–10.0	Open > closed
Reflections to questions	1.21 (.44)	.63–2.33	2:1
% MI adherent	100	100	100%

(n = 14 tapes from *DD.com + MI* condition).

those in *DD.com only*. Those in the *DD.com plus MI* condition submitted the same number of monthly driving diaries as those in the *DD.com only* condition, but submitted them significantly sooner for 11 of 12 monthly driving diaries. They remained approximately 20 days ahead of their peers in submitting these diaries through the 12 month post-treatment follow-up. Fig. 2 shows the timing of event completion by condition.

4. Discussion

4.1. Telephone MI support feasibility and fidelity

This report shows that a flexible, semi-scripted Motivational Interviewing session guided by the 4 processes of MI can be delivered consistently in telephone support sessions prior to and immediately following an Internet intervention. Semi-scripted telephone MI can achieve good MI fidelity when delivered by moderately trained interviewers experienced with the patient population.

4.2. Impact of MI telephone support

The primary effect of the initial session of MI support focusing on program adherence appears to be achieving program benchmarks sooner. Specifically, those who received MI support completed Core 4 sooner, and submitted their first 9 follow-up monthly driving diaries sooner, than those who received *DD.com* without MI. While not achieving differences that reached statistical significance, those who received the MI session also reached other benchmarks (such as completion of Cores) sooner. Completion rates favored the *DD.com plus MI* condition. At each point during the intervention period, the proportion of users completing each Core by the *DD.com plus MI* group exceeded that of the *DD.com only* group, although these differences did not attain statistical significance.

4.3. Limitations

In this study, we conducted an initial MI session targeting program adherence, and a second MI session targeting maintenance of changes made during the program. It is possible that a single 20-minute MI session, even skillfully conducted, was not enough to have an impact on achieving program benchmarks, even though the literature on MI outcomes shows an impact of similarly brief interventions. One potential reason is that the target behavior was pre-determined (program adherence) by investigators, rather than selected by participants themselves. It is also possible that some people discontinued once they got what they needed from the program, and our analysis cannot determine

Table 5
Program Benchmarks completed and dates completed by condition.

	DD.com only n = 156	DD.com + MI n = 156[a]	Chi squared test
	n (%)	n (%)	
Completed Cores 0–5	108 (69.2%)	119 (76.3%)	X^2 = .50, ns
Completed Cores 0–4	116 (74.4%)	124 (79.5%)	X^2 = 2.45 (p = .12)
Completed Cores 0–3	128 (82.1%)	136 (87.2%)	X^2 = .15, ns
Completed Cores 0–2	142 (91.0%)	147 (94.2%)	X^2 = .01, ns
Completed Cores 0–1	148 (94.9%)	154 (98.7%)	X^2 = .89, ns
Completed Core 0	152 (97.4%)	154 (98.7%)	X^2 = .12, ns
Completed no Cores	4 (2.6%)	2 (1.3%)	X^2 = .12, ns
	Mean (SD)	Mean (SD)	t-test[b]
#Cores completed	5.1 (1.6)	5.3 (1.3)	ns
Core 4 completion day	80.9 (85.8)	60.6 (47.3)	t = −2.29, p = 0.03
Daily Progress Notes (DPNs) Completed Core 2	4.7 (2.7)	4.7 (3.0)	ns
DPNs Core 3	4.6 (3.2)	4.3 (2.5)	ns
DPNs Core 4	4.0 (3.0)	4.0 (2.7)	ns
DPNs Core 5	2.3 (1.7)	2.6 (1.7)	ns
MDD 1 completion day	148 (93)	124 (41)	t = −2.74, p = 0.01
MDD 2 completion day	180 (89)	157 (54)	t = −2.58, p = 0.02
MDD 3 completion day	210 (87)	190 (59)	t = −2.12, p = 0.04
MDD 4 completion day	238 (82)	220 (53)	t = −2.02, p = 0.05
MDD 5 completion day	268 (79)	248 (46)	t = −2.40, p = 0.02
MDD 6 completion day	298 (75)	278 (43)	t = −2.48, p = 0.02
MDD 7 completion day	323 (66)	308 (42)	t = −2.14, p = 0.04
MDD 8 completion day	353 (58)	336 (34)	t = −2.86, p = 0.005
MDD 9 completion day	377 (47)	365 (28)	t = −2.55, p = 0.02
MDD 10 completion day	404 (37)	392 (22)	t = −2.94, p = 0.004
MDD 11 completion day	428 (27)	424 (20)	t = −1.41, p = 0.16
MDD 12 completion day	454 (18)	450 (14)	t = −1.99, p = 0.05
MDD 15 completion day	468 (7)	467 (5)	t = −0.97, p = 0.33

[a] For these analyses, only the 156 DD.com plus MI participants who had an MI session were included.
[b] Due to inequality of variances, these t-tests required Satterthwaite corrections (Moser et al., 1989).

this. In this report, we did not address the relationship of MI support to intervention outcomes. It is possible that the second MI session, which was designed to focus participants on maintaining changes, and which evoked target behaviors and goals from participants, could have had an impact on subsequent driving mishaps, or related issues such as specific blood glucose management strategies. We plan to investigate this further once all follow-up data are collected. The design did not provide an opportunity to compare MI support with general telephone
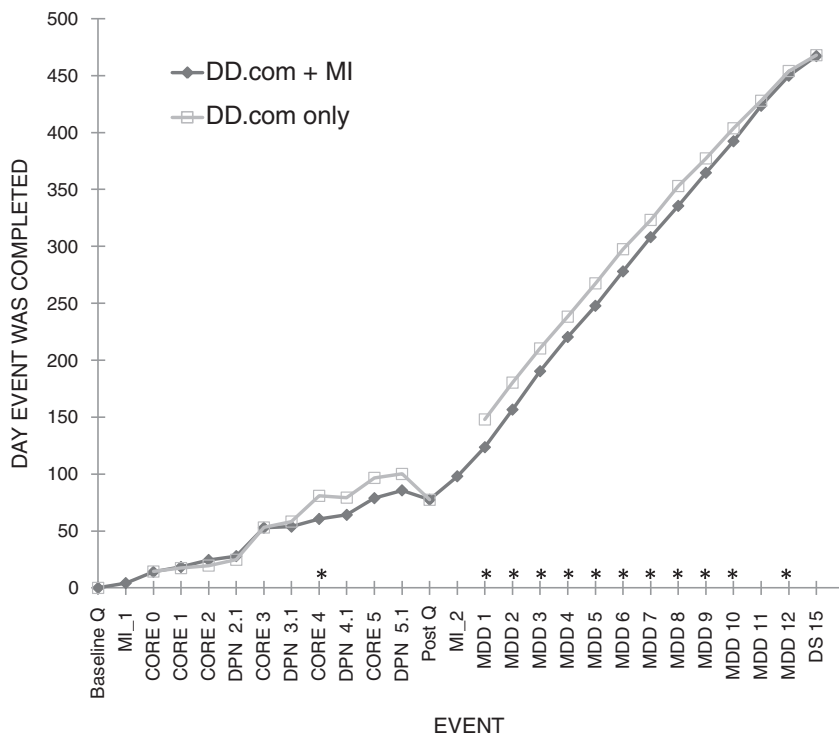

Fig. 2. Timing of event completion by condition.

support, and so we cannot disentangle the MI from telephone support in this analysis. Another challenge to interpreting these findings is that *DD.com* included automated support such as emails that prompt users to complete the next step, affirming messages when Cores are complete, and reminders about assessments. Users get daily and weekly emails prompting them to complete next steps throughout the program, and during the follow-up periods. Therefore, we were unable to test the potential utility of therapist support in an Internet intervention lacking automated prompts.

4.4. Conclusions

These findings suggest that therapist support using a single session of telephone-delivered Motivational Interviewing prior to an Internet intervention had a non-significant effect on adherence to or completion of the intervention, but that it may significantly speed completion of follow-up assessments. Those who received MI support completed some intervention period benchmarks sooner as well. We found no effects on intervention program components completed or study components completed. These findings contribute to a small but growing literature suggesting that therapist support targeting adherence does not improve adherence to an Internet intervention, at least when programs already include automated support such as reminders. However, it also highlights a potential benefit in promoting completion of assessments.

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