Published in final edited form as:
Psychol Violence. 2012 October 1; 2(4): 368–684. doi:10.1037/a0027501.

Evaluation of a Stage-Based, Computer-Tailored Adjunct to Usual Care for Domestic Violence Offenders

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Abstract

Objective—Research assessing the efficacy of court-mandated domestic violence treatment continues to yield inconsistent results. The current study examined whether *Journey to Change*, a Transtheoretical Model of Behavior Change-based treatment adjunct that consists of three computer-administered sessions and a print guide, could improve outcomes.

Method—492 male domestic violence offenders attending court-mandated batterer treatment were assigned to Usual Care (UC) or Usual Care + *Journey to Change* (UC + Journey).

Results—Compared to UC, participants receiving UC + Journey were significantly more likely to be in the Action stage at the end of treatment, and to seek help and services outside of group. Based on victim reports, the UC + Journey group was significantly less likely than UC to engage in physical violence during the 12-month follow-up. Both groups were equally likely to drop out of court-mandated treatment and to have further domestic violence-related police involvement. However, among participants with police involvement, the UC + Journey group had lower rates of documented violence and physical injury.

Conclusions—The pattern of findings across the multiple outcomes suggests that the *Journey to Change* program holds promise for improving some outcomes for domestic violence offenders in treatment, and warrants further investigation.

Keywords

domestic violence offenders; batterer treatment; stages of change; Transtheoretical Model of Behavior Change; computer-tailored intervention

Forty-five states in the U.S. have established standards or regulations governing the treatment of domestic violence offenders (Maiuro & Eberle, 2008). However, meta-analyses of controlled outcome studies have found small effects for batterer treatment. One meta-analysis found a mean effect of d=.26 for studies relying on official reports of recidivism, and d=.01 for studies relying on partner reports (Feder & Wilson, 2005); and two meta-

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analyses found effects in the d=.10 range (Babcock et al., 2004; Smedslund et al., 2007). Given flaws in our methods for evaluating programs, it is impossible to say conclusively whether or not batterer treatment works (Gondolf, 2009c; Saunders, 2008; Smedslund et al., 2007). However, most researchers and practitioners would agree that there is a need—and significant room—for improvement in interventions and outcomes for domestic violence offenders (Feder & Wilson, 2005; Murphy & Ting, 2010). The current study examined whether a low-cost computer-administered intervention, designed as an adjunct to traditional batterer treatment, could improve outcomes.

Meta-analyses identifying "what works" to increase the efficacy of correctional programs may offer some guidance on how to increase the impact of interventions for domestic violence offenders. Two decades of research have found that correctional program outcomes are moderated by whether programs address offender risk (did the program provide the most intensive services to the highest risk offenders?); needs (did the program target needs, such as alcohol abuse, associated with increased likelihood of reoffending?); and responsivity (did the program adapt the intervention to individual characteristics, such as strengths, motivations, preferences, personality, age, gender, and culture?) (Andrews et al., 1990; Antonowicz & Ross, 1994; Lipsey, 2009). Of these three principles, responsivity has received the least attention (Birgden, 2004). There have been calls for increased attention and sensitivity to responsivity—and in particular to offender motivation or readiness to make positive changes (McMurran, 2009; Prochaska & Levesque, 2002; Serin & Kennedy, 1997). Given the costs of crime and a sense of urgency, offenders are often mandated to treatment with the expectation that they will benefit from it, ready or not. Recognizing that many batterers are not ready to change, domestic violence researchers and practitioners have turned to Motivational Interviewing (Kistenmacher & Weiss, 2008; Musser et al., 2008) and the Transtheoretical Model of Behavior Change (TTM, Prochaska et al., 1992) to understand and intervene on readiness.

The TTM understands change as progress, over time, through a series of stages: Precontemplation, Contemplation, Preparation, Action, and Maintenance (Prochaska & DiClemente, 1983). The model posits that interventions are more likely to reduce resistance, facilitate treatment engagement and progress, and produce behavior change when interventions are individualized and matched to variables like stage of change, rather than one-size-fits-all. Along with stage, the TTM includes additional dimensions central to change: decisional balance—the relative weighting of the pros and cons associated with a behavior's consequences (Janis & Mann, 1977; Velicer et al., 1985); self-efficacy—confidence to make and sustain changes in difficult situations, and temptation to slip back into old patterns (Bandura, 1977; Velicer et al., 1990); processes of change—10 cognitive, affective, and behavioral activities that facilitate progress through the stages (Prochaska et al., 1988); and, more recently, processes of resistance—activities that inhibit progress and increase the risk of relapse or regression (Levesque et al., 2008b).

Research on the TTM over the past 30 years has identified the principles and processes of change that work best in each stage to facilitate progress. Effective outcomes have been found with stage-matched interventions across a range of health behaviors and populations, including smoking cessation (Velicer et al., 2006), stress management (Evers et al., 2006), depression management (Levesque et al., 2011), bullying prevention (Evers et al., 2007), and teen dating violence prevention (Levesque, 2011). A meta-analysis of 57 tailored health interventions found that interventions tailored to stage and other TTM variables produced significantly greater effects than interventions not tailored those variables (Noar et al., 2007). More recent TTM research has begun to examine multiple behavior change and the "coaction effect"—i.e., whether progressing to Action on one behavior increases the likelihood of progressing to Action on a second behavior, and whether TTM-based

interventions can increase the magnitude of the coaction effect (Johnson et al., 2008; Mauriello et al., 2010; Paiva et al., 2011), perhaps by teaching people “how to change.”

TTM research on domestic violence offenders has consistently found that stage of change is associated, in a manner predicted by the TTM, with: help-seeking outside of group and other behavioral indicators of change, the relative weighting of the pros and cons of ending the violence, the use of the processes of change and processes of resistance, with acceptance of responsibility, and with the establishment of a positive working alliance in group (Babcock et al., 2005; Eckhardt et al., 2008; Levesque et al., 2000; Levesque et al., 2008b; Murphy & Ting, 2010; Taft et al., 2004). An unexpected finding from our research and others research is that batterers in the early stages of change can exhibit lower levels of violence than batterers in the later stages (Alexander & Morris, 2008; Eckhardt et al., 2008; Levesque et al., 2000). In the natural course of change in some populations, a certain level of emotional distress or loss may be required to move an individual to finally make a commitment to change and take action. TTM-based interventions are designed to accelerate stage progression among early stage individuals, allowing them to bypass the additional suffering their behavior might otherwise cause to self and others. And among individuals in the later stages, TTM interventions seek to provide the support and skills required to help them follow through on commitments to change and maintain positive behaviors. Further, a certain percentage of high risk domestic violence offenders (i.e., those with antisocial personality, substance abuse, or mental illness) who are actively engaged in change will also require additional services and supports to be successful—i.e., Andrew et al.'s (1990) principles of risk and need.

Tailoring to Stage of Change

While the principle of responsivity would require that interventions be matched to individual stage of change, tailoring to stage can be difficult in a group treatment setting (Alexander et al., 2010, p. 583). To date, TTM interventions have not been tailored to stage. A randomized trial comparing Usual Care to a one-size-fits-all group-based TTM-MI intervention (counselors focused on early-stage processes of change in the first 12 sessions, and late-stage processes of change in the final 14 sessions in a one-size-fits-all fashion) found that the TTM-MI intervention produced more benefits for those in the early stages, and that Usual Care produced more benefits for batterers in the later stages (Alexander et al., 2010).

To meet the challenge of tailoring to individual stage of change, some experts have recommended that the field rely more on individual counseling (Murphy & Meis, 2008). Computer-administered interventions offer another alternative, with some benefits over one-on-one counseling: 1) they are low-cost; 2) they require little staff time or training to administer; 3) they allow a high degree of tailoring; 4) they can be delivered with high fidelity, following complex, pre-programmed decision rules; and 5) they can be administered as an adjunct to traditional court-mandated batterer treatment that adheres to state standards.

Journey to Change

The *Journey to Change* program, a three-session TTM-based computer-tailored intervention and print guide, was developed as a low-cost adjunct to traditional group-based interventions for domestic violence offenders. Intervention development identified the most common practices for intervention with domestic violence offenders, matching those practices to the TTM processes and principles of change, and organizing them within the stage framework provided by data-based decision rules (Levesque, 2001). To identify common practices, we conducted interviews with five experts on domestic violence offenders and treatment, and content-analyzed (Levesque et al., 2001) a range of published program guides (Gondolf,

1985; Neidig & Friedman, 1984; Pence & Paymar, 1993; Sonkin & Durphy, 1997; Wexler, 1999). Those common practices (e.g., identifying types of abuse, safety planning, how to take a time-out), organized around the stages of change, is the basis of *Journey to Change*, and helped to ensure that the intervention content would resonate with curriculum content presented in traditional group treatment.

Goal of the Current Study and Hypotheses

The primary goal of the current study was to assess the effectiveness of the *Journey to Change* program, delivered as an adjunct to Usual Care (UC) for domestic violence offenders. We hypothesized that, compared to domestic violence offenders assigned to UC, those assigned to Usual Care + *Journey to Change* (UC + Journey):

1. At the end of court-mandated treatment, would be more likely to be in the Action stage for staying violence free.
2. At the end of mandated treatment, would be more likely to be engaging in a range of behaviors that could help them stay violence-free (e.g., seeking help outside of group, managing stress).
3. At the end of court-mandated treatment, would be more likely to be in the Action stage for using condoms—a test of the coaction effect in multiple behavior change.
4. Would be more likely to complete court-mandated group treatment.
5. At 6 and 12 months follow-up, based on victim reports, would be less likely to engage in physical and emotional abuse against the victim of their most recent offense.
6. At 12 months follow-up, based on victim reports and official records, would be less likely to have had additional police involvement as a result of their behavior toward an intimate partner.

Finally, we hypothesized that because *Journey to Change* was stage-matched, early- and late-stage participants would benefit equally from the intervention (i.e., there would be no stage × group assignment interaction effects).

Method

Study protocols and materials were approved by an Institutional Review Board (IRB) that included a Prisoners' Advocate to ensure the protection of the rights of the male offenders. To maximize victim safety, study protocols and materials for the victim assessments were also reviewed by the Rhode Island Coalition Against Domestic Violence and two focus groups with victims, and were informed by best practices (Gondolf, 2000). For example, survey interviewers were provided with decision rules and scripts on when and how to make referrals to toll-free help lines.

Participants

Study participants were 492 male domestic violence offenders recruited from four Rhode Island agencies certified by the state's Batterers Intervention Program Standards Oversight Committee (2007) to provide batterer treatment (UC). In Rhode Island, state standards require that: batterer intervention programs be conducted in psycho-educational groups; they include a minimum of 40 contact hours over a minimum of 20 weeks; and batterers pay fees. (While it was beyond the scope of this study to conduct a detailed examination and comparison of curriculum content for participating agencies, the programs were considered

typical of batterer programs available today, focusing on sex role and gender issues, anger management, and coping and communication skills).

Individuals were eligible to participate in the research if they were at least 18 years of age and had been referred or court-mandated to treatment to address the problem of intimate partner violence or abuse. Within the first three weeks of treatment, agency staff or a research assistant provided eligible participants with an overview of the study and reviewed the informed consent document. Participants were also asked to provide the name and contact information of the victim involved in the most recent domestic violence incident leading to referral to treatment. Participants received a $10 gift card to a local store or a $10 voucher toward their program fee each time they completed a study session on the computer. Agencies received $40 for each session administered by their staff, and $10 for each session administered by a project research assistant.

Procedure

All study participants attended their mandated group treatment as usual, except that they were excused from their group sessions for 25 to 40 minutes on two or three occasions to participate in study activities. After obtaining informed consent, the agency staff or research assistant instructed the participant on how to use the computer, provided headphones to increase privacy, and then left him to complete the computerized session on his own. However, staff remained nearby to help with questions or problems that arose during the session. The computer alternately assigned consecutive participants to UC (n=248) or UC + Journey (n=244) after login. For both groups, self-report data were collected via computerized assessments at baseline and 5 months follow-up, near the end of the 20-week batterer program. Written text for all assessment questions appeared on the computer screen and audio files read all text verbatim, making the assessment more accessible to participants with low literacy. All assessment and intervention materials were also available in Spanish. Individuals who dropped or were terminated from their batterer program and then returned were re-enrolled in the study and continued where they left off.

Usual Care + *Journey to Change* Condition

Participants assigned to UC + Journey attended their batterer intervention program. In addition, at baseline, they completed an online assessment and then an interactive, multimedia *Journey to Change* intervention session. Altogether, the baseline assessment and intervention session took 30 to 40 minutes to complete. The intervention portion of the session began with a description of the *Journey to Change* program, instructions on how to use the program, and operational definitions of “violence” and “ending the violence” (i.e., “Using healthy strategies to improve your relationship and stay violence-free”). Participants were then assessed and given individualized feedback on the following TTM constructs:

1. Stage. A description of the participant's current stage of change for using healthy strategies to improve their relationship and stay violence-free.
2. Decisional balance. The participant's pros and cons of staying violence-free and how his scores compare to those of peers who have changed successfully; strategies for increasing the pros and decreasing cons.
3. Processes of change. Feedback on how frequently the participant is using up to six stage-matched processes and how he compares with others who were most successful in progressing to the next stage of change.
4. Self-efficacy. Situations in which the participant is most tempted to use violence, and ideas for coping with those situations.
5. Strategies. Small steps for progressing to the next stage of change.

In a pilot test (Levesque et al., 2008a), responses to the intervention were very positive, with 87% of participants finding the program to be easy to use, and 98% saying it could probably or definitely help them change their attitudes or behaviors. To view a brief demonstration of the program, go to http://prochange.com/domesticviolencedemo.

After the intervention session, staff returned to give the participant a 90-page *Journey to Change* guide, and to help him print his personal report, which contained the feedback received during the session and referred participants to specific activities in the guide. The first 66 pages of the guide, organized around the stages of change, presented information and activities designed to reinforce and elaborate on ideas presented during the online session. Stage-matched activities included: listing the benefits of using healthy strategies to stay violence-free; examining the triggers and consequences of behavior; examining self-image and expectations for the future; examining the influence of culture on behavior; developing a plan for action; getting support; substituting healthy thoughts and behaviors; avoiding people, places, and things that tempt the participant to use violence; and identifying intrinsic and extrinsic rewards for staying violence-free. The final 24 pages of the guide were designed to help participants apply TTM stage-matched principles to other behaviors, including the use of latex condoms to prevent HIV infection.

In follow-up intervention sessions administered at 2 and 5 months (the month 5 session followed seamlessly from the 5-month follow-up assessment), the UC + Journey group received additional TTM assessments and updated feedback. The program tracked and gave feedback on stage transitions and changes in stage-matched principles and processes most likely to facilitate progress or prevent relapse. At the end of each session, participants once again received a printed report. Counselors in the court-mandated programs were asked not to discuss the *Journey to Change* intervention sessions, printed reports, or the guide during group sessions, to avoid cross-condition contamination to UC participants.

Usual Care Condition

UC participants attended their batterer program. In addition, at baseline and 5 months follow-up, they completed the computerized assessment, as well as additional measures—e.g., subscales from the Personality Diagnosis Questionnaire-Revised (Hyler et al., 1990)—to make the computer sessions more comparable in length to the intervention group's sessions. Sessions lasted 25 to 30 minutes. At the end of each assessment, the UC group received a one-size-fits-all printed report addressing a common batterer intervention curriculum topic (e.g., family communication).

Outcome Measures

Stage of Change for Staying Violence-Free—At baseline and 5 months follow-up, stage of change was assessed using the URICA-DV-R (Levesque et al., 2008b), a revised version of the URICA-DV (Levesque et al., 2000). The URICA-DV-R begins by defining “violence” and “ending the violence,” and then continues, “Please tell us how much you DISAGREE or AGREE with each of the following statements. Base your answers on how you're feeling and acting NOW.” The 20 statements that follow represent four correlated but distinct constructs—Precontemplation, Contemplation, Action, and Risk of Relapse—in males with a history of partner violence. Response options are 1= Strongly disagree to 5=Strongly agree. Across three samples of domestic violence offenders, the average Cronbach's Alphas for the four scales were .70, .77, .83, and .75, respectively. The program computed standardized scale scores, then used a least squares approach to calculate the distance between a participant's profile and established stage profiles. The participant was assigned the profile with the closest distance from his own, and then classified into one of

five stages based on his profile: Precontemplation, Contemplation, Preparation, Action High Relapse, and Action Low Relapse (Levesque et al., 2008b).

Behavioral Engagement in Change—To assess level of engagement in the change process, a series of questions in the 5-month assessment asked how often, since beginning batterer treatment, participants used each of the following 13 strategies to stay violence-free : 1) talking to the partner, 2) talking to friends or family, 3) talking to a priest, pastor, or rabbi, 4) talking to a medical health professional, 5) one-on-one counseling, 6) couple's counseling, 7) other group counseling, 8) self-help books, 9) leaving the relationship for a short while, 10) leaving the relationship permanently, 11) reducing stress, 12) managing anger, and 13) any other strategies. Responses were dichotomized (yes/no) in analyses.

Condom use—A single question assessed condom use in the 5-month assessment: “Do you use a latex condom every time you have sex?” Response options were yes, no, and I do not have sex.

Batterer Program Completion—Agency staff provided information on program completion.

Victim Reports of Violence and Abuse—The goal was to follow-up with the victim of each participant's most recent offense to assess the intervention's effect on re-victimization. Victim contact information was provided by study participants at recruitment, by the batterer treatment agencies that collected and were willing to share that information, and by the Rhode Island Supreme Court Domestic Violence Training and Monitoring Unit (DVT&M Unit), with the permission of the Rhode Island Attorney General's Office. The DVT&M Unit oversees police officers’ legislatively mandated use of standardized reporting forms for all domestic violence incidents, arrests, and non-arrests in Rhode Island, and compiles and manages the data.

At baseline, 6, and 12 months, surveys were mailed to victims, with telephone follow-up to non-respondents. Senior interviewers at the University of Rhode Island Survey Research Center conducted the telephone surveys and did state- and nation-wide directory assistance searches when contact information was found to be outdated or incomplete. At the end of each mail and telephone survey, victims were asked to provide collateral contact information in case they moved or their telephone number changed. Victims received a $10 gift card for each completed survey.

At baseline, victims were asked to participate in the study and to provide basic background information. At 6 and 12 months follow-up, victims were asked if they had any contact with the participant during the preceding 6 months, or if there was “ANY trouble involving him with you or your children.” For victims reporting any contact or any trouble, partner violence was assessed using 18 items from the Revised Conflict Tactics Scales (Straus et al., 1996) and the Modified Conflict Tactics Scales (Pan et al., 1994). Calculation of scale scores followed the conventions used in classic partner violence assessments and their derivatives (Pan et al., 1994; Straus, 1979; Straus et al., 1996). Factor analysis of the 6-month CTS data showed three factors. The first factor, named “Violence,” contained seven items representing relatively low frequency physical violence likely to cause injury (e.g., “kick, bite, or hit you with a fist,” “choke or strangle you”). The second factor, named “Threats,” contained six items representing verbal threats and higher frequency physical responses (e.g., “threaten to harm you, someone, something you care about,” “push, grab, or shove you”). The final factor, named “Emotional Abuse” contained five items representing emotionally abusive responses to conflict (e.g., “insult or swear at you” “threaten to leave

the relationship"). Cronbach's Alphas for the three scales were .84, .85, and .71, respectively.

Police Involvement—Police involvement was operationally defined as further criminal justice system involvement as a result of behavior toward an intimate partner. Two measures of police involvement were collected. The first was from victims, who were asked at 6- and 12-months whether the police had become involved as a result of the participant's behavior toward her during the period in question. A "yes" response at either timepoint was coded as police involvement. The second measure was based on official records. Police involvement was coded for participants for whom a new domestic violence-related charge appeared on the Rhode Island Judiciary's Adult Criminal Information Database website, or for whom a DVT&M Unit reporting form was filed for a domestic violence incident, arrest, or non-arrest. In the Judiciary's Database, charges were identified as domestic violence-related if they were accompanied by the word "domestic" (e.g., "simple assault/domestic"; "crank/obscene calls/domestic") and/or if they involved the violation of a restraining order. Data from the DVT&M Unit included more detailed information on the nature of the perpetrator-victim relationship, whether the victim had visible injuries, and whether the perpetrator had engaged in 24 specific CTS-type behaviors during the incident (e.g., "verbal argument"; "threat of physical violence"; "kicking"; "biting"; "slapping").

Nonresponse Analysis

Offenders—In the UC + Journey group, 100% of participants completed the baseline assessment and at least one computerized session; 79.5% (n=194) completed at least two intervention sessions; and 50.0% (n=122) completed the 5-month assessment and all three intervention sessions. In the UC group, 100% of participants completed the baseline assessment, and 58.1% (n=144) completed the 5-month assessment. The missed follow-up sessions in both groups were due to the real-world conditions under which this trial was conducted: 27.5% of the UC + Journey group and 27.4% of the UC group missed the final session because they left their batterer program prematurely, and 21.4% of the UC + Journey group and 14.5% of the UC group missed the final session because of staff short-handedness or other logistical issues. Only 3 participants refused to participate in a follow-up session or assessment. In an examination of demographic and other predictors of participation in the 5-month assessment, batterer program completion emerged as the overwhelming predictor: only 10.6% of batterer program non-completers participated in the 5-month assessment, compared to 73.1% of program completers (χ^2(N=474)=161.3, p<.001).

Victims—Even with multiple information sources, and the intensive efforts of an established survey research center, identifying and reaching victims was challenging. Names and/or contact information were unavailable for the victims of 82 study participants (16.7%), and all available contact information was confirmed to be incorrect or outdated for another 198 (42.0%). The survey center was unable to contact and/or complete a survey within 20 attempts and within the project timeline for 34 victims (6.9%); 39 (7.9%) refused to complete a survey; 1 (0.2%) was deceased; and 3 (0.6%) were unable to participate because of language barriers or medical problems. Thus, we were able to reach 135 victims, representing 27.4% of the sample of 492 offenders. In all, 120 victims participated in the 6-month survey, which asked about batterer behavior during months 0-6; 94 participated in the 12-month assessment, which asked about months 7-12; and another 15, who participated for the first time around the 12-month mark, completed a survey assessing batterer behavior during the entire 12-month period. Victim participation was associated with higher batterer age—batterers whose victims did and did not participate were 36.1 (sd = 10.4) and 32.8 (sd = 9.7) years old, respectively (t(490)=3.3, p=.001)—and marginally associated with batterer

program completion—30.0% vs. 21.9% (χ^2(N=474)=3.5, p=.077). Participation was unrelated to other batterer demographics, stage of change, or group assignment.

Results

Baseline sample characteristics are reported in Table 1. There were no UC vs. UC + Journey differences on age, education, marital status, employment, stage of change for staying violence-free, or condom use. Group differences in race/ethnicity became statistically significant when the categories were recoded as "White, non-Hispanic" vs. "Other," (χ^2(N=476)=4.9, p<.05), with White, non-Hispanic participants more highly represented in the Intervention group. There were also significant group differences in income, with the Usual Care having more individuals in the lowest and highest income categories.

To evaluate the efficacy of *Journey to Change*, logistic regression analyses compared outcomes among participants assigned to UC vs. UC + Journey. Analyses were then repeated to adjust for potential confounders—variables for which there were group differences at baseline (race, income), variables that predicted victim participation in the survey (batterer age and program completion), and baseline stage of change. Race (Nonwhite/White) and stage (Pre-Action/Action) were dichotomized. Income was converted to a continuous variable to preserve degrees of freedom. For income, missing values were replaced with the sample mean.

Stage of Change for Staying Violence-Free and Behavioral Engagement in Change

Table 2 shows outcomes based on the 5-month assessment. Given the relationship between participation in the assessment and batterer program completion, any inferences drawn from those data must be limited to program completers. At follow-up, UC + Journey participants were significantly more likely than UC to be in the Action stage for using healthy strategies to stay violence free. In addition, UC + Journey participants were significantly more likely to engage in several behaviors indicating engagement in change, especially behaviors related to help-seeking outside of group: talking to clergy, talking to a medical professional, attending couple's counseling, and attending other group counseling. UC + Journey participants were more than twice as likely as the UC group to use self-help books, which may be a function of the intervention group's access to the *Journey to Change* guide. They were also more likely to manage stress.

The direction, magnitude, and level of statistical significance of the findings were similar in the unadjusted logit models and those adjusting for covariates. Given space limitations, we cannot present the full details on the adjusted models. Being in the Action stage at baseline was associated with significantly increased odds of being in the Action stage at follow-up (p<.0001), and with increased odds of talking to one's partner, talking to friends or family, talking to a medical professional, and using other strategies to stay violence-free (p<.05). Age was associated with significantly increased odds of most types of help-seeking and of using self-help books, and decreased odds of leaving the relationship temporarily or permanently, reducing stress, and managing anger. Income was associated with increased odds of couple's counseling (p<.05).

Condom Use

In the 5-month assessment, among participants who reported having sex, UC + Journey participants were significantly more likely than UC to report using a condom every time they have sex (see Table 2). The adjusted logit model showed that age was associated with significantly decreased odds of consistent condom use (p<.05). We also examined the coaction effect between staying violence-free and condom use. For the *Journey to Change*

group, being in the Action stage for staying violence-free at follow-up increased the odds of consistent condom use by a factor of 6.326 (95% CI = 1.727 – 23.168), adjusted OR = 7.521 (95% CI = 1.934 – 29.248), p<.01. For Usual Care, being in the Action stage for staying violence-free at follow-up increased the odds of consistent condom use by a factor of 2.611 (95% CI = 0.744 – 9.168), adjusted OR = 2.904 (95% CI = 0.631 – 13.367), ns.

Batterer Program Completion

Based on data provided by the agencies, there were no significant group differences in batterer program completion (see Table 2). The adjusted logit model showed that higher income (p<.0001) and age (p<.05) were the only variables associated with increased odds of completing treatment.

Victims' Reports of Violence and Abuse

The CTS measures were administered only to victims who had some contact with the participant or had any trouble with him during the period in question—which represented 83.3% of victims in the 6-month survey, 81.9% in the 12-month survey, and 87.4% of victims when the 6-month, 12-month, and year survey data were combined to examine victimization during the entire 12-month period.

Table 3 shows that in months 0-6, victims of UC participants were more than twice as likely as victims of UC + Journey to experience physical violence—37.3% vs. 16.3%, respectively, a statistically significant difference. In months 7-12, rates of violent victimization remained low for the UC + Journey group (13.2%), and dropped to nearly that level for the UC group (15.4%). Combining all available data over the entire 12-month follow-up period, overall rates of violent victimization were statistically different for UC vs. UC + Journey—40.0% vs. 22.4%, respectively.

Significant UC vs. UC + Journey differences in threats and emotional abuse emerged only in months 7-12. For example, rates of threats for UC remained steady at around 60% during months 0-6 and months 7-12. In contrast, rates of threats for UC + Journey were 46.9% in months 0-6, and then dropped to 31.6% during months 7-12, yielding a significant difference in months 7-12.

Compared to unadjusted logit models, those adjusting for baseline stage of change, race, income, age, and program completion found slightly larger effects for the intervention on violence during months 0-6 and during the entire follow-up, and slightly smaller effects on emotional abuse during months 7-12. In the adjusted models, being in the Action stage at baseline significantly increased the odds of victim-reported violence in the combined 0-12 month data (p<.05). There were no other significant relationships between the covariates (including program completion) and victim-reported violence, threats, and emotional abuse.

Police Involvement

Rates of further police involvement for UC vs. UC + Journey during the 12-month follow-up were 43.3% vs. 36.2% based on victim reports, and 23.4% vs. 24.2% based on official records. The direction, magnitude, and level of statistical significance of the findings were similar in the unadjusted and adjusted logit models. In the adjusted models, program completion significantly reduced the odds of further police involvement based on official reports (p<.001). There were no other significant relationships between the covariates and police involvement.

Stage by Group Interaction Effects

Adjusted logistic regressions were repeated including a stage (Pre-Action vs. Action) × group interaction term to assess whether the effects of the intervention differed for early- and late-stage participants. A significant interaction was found only for stage of change in the 5-month assessment ($p<.05$). Among individuals in Pre-Action at baseline, *Journey to Change* increased the odds of progressing to Action by a factor of 7.580 (95% CI = 3.269 – 17.575, $p<.0001$); among individuals in Action at baseline, the intervention increased the odds of remaining in Action by a factor of 1.585 (95% CI = 0.532 – 4.724, ns).

Post Hoc Tests—Given the findings based on victim reports of violence, we explored whether UC and UC + Journey participants who had further police involvement based on official reports differed in rates of physical violence and visible injury documented by police. First, factor analysis of the 24 behavioral items from the DVT&M Unit police reporting forms revealed two factors representing the "Violence" and "Threats" dimensions that emerged in the victim CTS measure described above. In all, 42.2% of participants with police involvement engaged in violence (i.e., the reporting forms documented one or more behaviors on the violence dimension). Visible injuries were noted in 75.5% of cases involving violence, and in only 5.5% of cases not involving violence, providing evidence of the validity of the two measures. Among UC and UC + Journey participants with police involvement, rates of documented violence were 47.5% vs. 34.6%, respectively, and rates of visible physical injury were 42.5% vs. 26.9%. The *Journey to Change* adjunct reduced the odds of violence by a factor of 0.585 (95% CI = 0.252 – 1.360, $p=.213$) and the odds of injury by a factor of 0.498 (95% CI = 0.207 – 1.198, $p=.120$).

Discussion

The purpose of this study was to assess the effectiveness of *Journey to Change*, a TTM-based computer-tailored intervention designed as an adjunct to group treatment for domestic violence offenders. Results show the intervention had a significant, positive effect on self-reported stage of change and behavioral engagement in change—especially help-seeking—by the end of batterer treatment. The *Journey to Change* adjunct to UC doubled the odds of talking to clergy, talking to a medical professional, participating in couples counseling, and participating in other group counseling. This increased help-seeking in the UC + Journey group may represent increased compliance with court-referred treatments (mandated change), which traditionally have had low uptake among batterer program participants (Goldkamp et al., 1996; Gondolf, 2009a; Gondolf, 2009b); alternatively, if support and services were sought voluntarily, increased help-seeking may represent greater movement toward taking personal responsibility (voluntary change).

Journey to Change more than doubled the odds of consistent condom use at 5 months follow-up. In addition, we found support for the "coaction effect"—i.e., that being in the Action stage for staying violence-free increased the odds of being in the Action stage for condom use, and that the coaction effect was greater for UC + Journey (adjusted OR = 7.521, $p<.01$) than for UC (Adjusted OR = 2.904, ns). It is impossible to say whether the coaction effect was greater in the *Journey to Change* group because the intervention explicitly addressed both behaviors, because the intervention taught participants "how to change," or because being in the Action stage for "using healthy strategies to stay violence-free" increased the likelihood of engaging in other behaviors that demonstrate respect for partners and their safety and well-being.

The *Journey to Change* program had an immediate (months 0-6) impact on physical violence based on victim reports. Whether this immediate impact was due to intervention participants' quicker progress through the stages of change, to their increased exposure to

stage-matched principles and processes of change, to increased reliance on outside supports and services, or to a combination of these factors, remains unclear. UC violence dropped to the UC + Journey rate in months 7-12, suggesting that it may have taken the UC group longer to move to effective action. The more immediate progress observed in the UC + Journey group may account for the significantly reduced odds of victim reports of violence during the entire study period (unadjusted OR = 0.433, adjusted OR = 0.305).

The *Journey to Change* program had a delayed (months 7-12) impact on threats and emotional abuse. Naturalistic studies of partner violence desistance (Fritz & O'Leary, 2004; Vickerman & Margolin, 2008) and batterer treatment outcome studies (Alexander et al., 2010; Hamberger & Hastings, 1988) have found that more emotional forms of abuse tend to persist even with reductions in physical abuse. What is interesting here is that reductions in threats and emotional abuse in the UC + Journey group occurred *after* group treatment ended and most participants were no longer receiving group treatment or *Journey to Change*. Around the end of treatment, UC + Journey participants were twice as likely to be in the Action stage for staying violence-free, and twice as likely to be seeking various forms of help outside of group, which might contribute to reductions in threats and emotional abuse post-treatment. Other research on TTM-based computer-tailored interventions has found that treatment-control group differences can continue to increase after the intervention period, as early stage individuals in the treatment group continue their progress through the stages of change (Prochaska et al., 2001).

Lower rates of partner-reported physical violence, threats, and emotional abuse for *Journey to Change* participants did not translate directly into significantly lower rates of police involvement. However, among the subset of participants with police involvement and for whom a DVT&M Unit police reporting form had been completed, UC + Journey participants were less likely than UC to have engaged in physical violence against the victim or to have caused visible injury during the incident, based on police reporting on the forms —findings that did not reach statistical significance because of low statistical power.

Finally, *Journey to Change* did not increase the odds of treatment completion. Among the covariates examined in the adjusted logistic regression analysis, the only predictors of treatment completion were participant income ($p<.0001$) and age ($p<.05$), both of which were identified as significant predictors of treatment completion in a recent meta-analysis (Jewell & Wormith, 2010). The higher completion rates among higher income and older participants may be a function of their greater stake in conformity (Bennett et al., 2007; Feder & Dugan, 2002) or simply their greater ability to pay, as state standards in Rhode Island require that mandated offenders pay for treatment.

Limitations

First, the 5-month self-report data are limited to treatment completers, as the assessments were administered by computer at the batterer agencies. Second, the design involved identifying and contacting a specific partner: the victim of the participant's most recent offense—which may have occurred months or even years earlier. Even with multiple information sources, and the intensive efforts of a well-established survey research center, we were able to identify and contact only 27% of victims. We attempted to address the first two problems by identifying factors associated with participation, and controlling for them in logistic regression analyses. In future research, it may be possible to increase the completeness and generalizability of the findings by reaching out to and surveying batterer treatment drop-outs, and any additional intimate partners with whom the participant has contact during the follow-up period.

Third, it is widely accepted that official records underrepresent rates of domestic violence and abuse. This may be especially true in our study, which relied only on Rhode Island databases. The study could have benefited from a search of criminal databases in nearby states. Official reports of police involvement were found for only 48.6% of cases for which victims reported physical violence at follow-up, and 46.8% of cases for which victims reported police involvement. Finally, sample sizes were small in some analyses, leading to low statistical power to detect meaningful relationships—especially in adjusted logistic regressions involving victim-reported outcomes. With small samples, statistically significant findings are less reliable and require replication.

Clinical and Policy Implications

While most would agree that there is a need—and significant room—for improvement in interventions and outcomes for domestic violence offenders, the delivery and evaluation of new programs or adjuncts must take place under challenging real-world conditions that often include established standards for batterer treatment, limited agency resources, multi-problemed clients, and high program drop-out. Within this environment, the findings of this research suggest that the *Journey to Change* program may help to improve some treatment outcomes for domestic violence offenders, and warrants further investigation.

An important clinical question is whether the *Journey to Change* intervention effect might be enhanced through greater counselor involvement. Other research has shown that human support can increase adherence to e-health interventions (Andersson & Cuijpers, 2009; Mohr et al., 2011). In the current study, counselors were prohibited from discussing the *Journey to Change* intervention or the stage model, to avoid cross-condition contamination. A facilitators' guide (Levesque, 2007) has been developed that provides an overview of the TTM and the *Journey to Change* computer-tailored intervention and print guide, and how the materials might be integrated into ongoing groups. Future iterations of the program might also generate counselor reports that summarize the TTM assessment results, and recommend simple intervention strategies that counselors can use to facilitate use of stage-matched principles and processes of change. The counselor reports would help reduce barriers to adoption of new professional practices.

The strength of the *Journey to Change* program is that it provides a convenient, low-cost approach to addressing offenders responsivity with automatic adherence to the TTM and data-based decision rules. We might also be able to increase the program's impact by also addressing offender risk and needs (Andrews et al., 1990; Antonowicz & Ross, 1994; Lipsey, 2009). Even highly motivated offenders may have trouble making and sustaining changes if they are high-risk (e.g., have a history of antisocial behavior) and have multiple unmet needs (e.g., current substance abuse, mental illness, homelessness). Increased help-seeking from clergy, medical professionals, and counselors among *Journey to Change* participants—presumably to meet important needs—may help to account for group differences on some outcomes. Future iterations of the program might have different intervention tracks for low and high risk offenders, and/or additional modules to help offenders identify specific needs, and establish goals and small steps around those needs.

Finally, we may increase the impact of the *Journey to Change* program—and of batterer programs in general—by intervening on multiple behaviors simultaneously. In this study, we found evidence of the coaction effect—that being in the Action stage for using healthy strategies for staying violence-free increased the likelihood of being in Action for consistent condom use. (In fact, the coaction effect may explain the intervention group's greater likelihood of seeking help outside of group—i.e., being in the Action stage for staying violence-free increased the likelihood of taking action to address a substance abuse or mental health problem). Identifying and working toward multiple behavioral goals can

increase the cost-effectiveness and impact of batterer treatment. These and other efforts to improve batterer treatment and its outcomes will require continued collaboration between researchers, agencies, and batterer treatment oversight committees.

Research Implications

To improve the outcomes of batterer treatment, additional research will be required to replicate and extend the finding of this study, and to examine other promising adjuncts, enhancements, and alternatives to traditional treatment. Additional research will be required to explore the inter-relationships between stage of change, help-seeking outside of group, and violence desistance among domestic violence offenders in court-mandated treatment. Finally, additional research is required to more fully understand the victim- and system-level factors that contribute to the reporting and documentation of domestic violence and abuse in the criminal justice system.

Acknowledgments

Funding for this research was provided by the National Institute of Mental Health (grants no. R43MH062858 and R44MH062858). The funding agency had no role in the design and conduct of the study; the collection, management, analysis, or interpretation of the data; or the preparation of the manuscript.

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Table 1

Baseline Characteristics of Usual Care and Usual Care + *Journey to Change* Participants

Variable	Usual Care (n=248)	Usual Care + *Journey to Change* (n=244)	χ^2 or t *	p
Age, mean (sd)	34.0 (9.9)	33.4 (10.1)	0.7	.470
Education, % (n)				
Less than high school	37.8 (90)	40.7 (94)		
High school graduate	37.4 (89)	36.4 (84)	1.0	.808
Some college	19.7 (47)	19.5 (45)		
College graduate	5.0 (12)	3.5 (8)		
Race/Ethnicity, % (n)				
White, non-Hispanic	65.1 (157)	74.5 (175)		
Black, non-Hispanic	10.0 (24)	6.8 (16)	5.5	.137
Hispanic	15.8 (38)	13.2 (31)		
Other or multiracial	9.1 (22)	5.5 (13)		
Marital Status, % (n)				
Single, never married	53.3 (129)	54.5 (126)		
Married	20.2 (49)	18.2 (42)		
Separated	9.1 (22)	10.4 (24)	0.5	.971
Divorced	16.5 (40)	16.0 (37)		
Widowed	0.8 (2)	0.9 (2)		
Employment, % (n)				
Full time	52.7 (126)	53.6 (125)		
Part time	10.9 (26)	14.6 (34)	2.0	.360
Unemployed	36.4 (87)	31.8 (74)		
Income, % (n)				
Under $10,000	36.8 (85)	27.7 (64)		
$10,000 - $19,999	20.8 (48)	31.2 (72)		
$20,000 - $29,999	19.9 (46)	19.0 (44)	14.2	.014
$30,000 - $39,999	8.2 (19)	12.1 (28)		
$40,000 - $49,999	4.8 (11)	5.6 (13)		
$50,00 or higher	9.5 (22)	4.3 (10)		
First Domestic Violence Program, % (n)				
Yes	67.5 (158)	63.0 (145)	1.0	.330
No	32.5 (76)	37.0 (85)		
Stage of Change, % (n)				
Precontemplation	22.2 (55)	18.4 (45)		
Contemplation	18.5 (46)	20.5 (50)		
Preparation	30.6 (76)	36.1 (88)	3.0	.552
Action High Relapse	18.1 (45)	14.8 (36)		
Action Low Relapse	10.5 (26)	10.2 (25)		
Use Condom Every Time Have Sex, % (n)				
Yes	14.4 (35)	13.2 (31)	0.1	.791

Variable	Usual Care (n=248)	Usual Care + *Journey to Change* (n=244)	χ^2 or t*	p
No	85.6 (208)	86.8 (204)		

*χ^2 test for categorical variables and t test for continuous variables.

Table 2

Usual Care vs. Usual Care + *Journey to Change* Differences in Stage of Change, Behavioral Engagement in Change, and Condom Use at the End of Batterer Treatment, and Batterer Program Completion

Variable	Usual Care	Usual Care + *Journey to Change*	Odds Ratio (95% CI)	Odds Ratio (95% CI) Adjusted^
	Percent			
In Action at Follow-Up[1]	26.4	52.1	3.030 (1.812 - 5.068)****	4.114 (2.175 - 7.783)****
Behavioral Engagement in Change[1]				
Talked to partner	76.4	79.0	1.165 (0.653 - 2.078)	1.100 (0.594 - 2.039)
Talked to friends or family	70.1	76.6	1.395 (0.806 - 2.412)	1.335 (0.748 - 2.382)
Talked to clergy	9.0	22.6	2.939 (1.447 - 5.969)**	2.999 (1.452 - 6.194)**
Talked to medical professional	25.7	39.5	1.889 (1.124 - 3.175)*	1.947 (1.117 - 3.392)*
One-on-one counseling	34.0	40.3	1.310 (0.796 - 2.155)	1.339 (0.798 - 2.245)
Couples counseling	11.1	20.2	2.020 (1.023 - 3.988)*	2.269 (1.101 - 4.677)*
Other group counseling	18.8	33.9	2.220 (1.268 - 3.885)**	2.301 (1.287 - 4.116)**
Self-help books	27.8	56.5	3.370 (2.026 - 5.607)****	3.921 (2.256 - 6.814)****
Left relationship short while	41.7	41.1	0.978 (0.601 - 1.593)	1.088 (0.649 - 1.825)
Left relationship permanently	34.0	40.7	1.328 (0.807 - 2.186)	1.440 (0.854 - 2.428)
Reduced stress	92.4	98.4	5.045 (1.096 - 23.219)*	4.727 (1.001 - 22.318)*
Managed anger	95.1	96.0	1.216 (0.376 - 3.932)	1.055 (0.307 - 3.622)
Other strategies	79.9	86.3	1.587 (0.825 - 3.053)	1.388 (0.706 - 2.731)
Condom Use[2]	8.1	17.2	2.348 (1.074 - 5.136)*	2.434 (1.079 - 5.493)*
Batterer Program Completion[3]	68.2	68.1	0.995 (0.676 - 1.464)	1.016 (0.676 - 1.527)

*** p<.001

[1] Usual Care n=144, Usual Care + *Journey to Change* n=121

[2] Usual Care n=135, Usual Care + *Journey to Change* n=116

[3] Usual Care n=239, Usual Care + *Journey to Change* n=235

^ Adjusted for stage of change at baseline (pre-action/action), race (nonwhite/white), income, and age.

* p<.05

** p<.01

**** p<.0001

Table 3

Victim Reports of Partner Violence, Threats, and Emotional Abuse, and Recidivism Based on Victim Reports and Official Records

Variable	Usual Care	Usual Care + *Journey to Change*	Odds Ratio (95% CI)	Odds Ratio (95% CI) Adjusted^
Victim Reports of Violence and Abuse				
Violence				
Months 0-6[1]	37.3	16.3	0.329 (0.128 - 0.847)*	0.189 (0.063 - 0.567)**
Months 7-12[2]	15.4	13.2	0.833 (0.231 - 3.001)	0.866 (0.218 - 3.443)
Months 0-12[3]	40.0	22.4	0.433 (0.194 - 0.969)*	0.305 (0.123 - 0.753)**
Threats				
Months 0-6	60.8	46.9	0.571 (0.258 - 1.263)	0.555 (0.233 - 1.322)
Months 7-12	59.0	31.6	0.321 (0.126 - 0.818)*	0.331 (0.120 - 0.913)*
Months 0-12	66.7	55.2	0.615 (0.292 - 1.297)	0.593 (0.268 - 1.313)
Emotional Abuse				
Months 0-6	86.0	77.6	0.562 (0.198 - 1.596)	0.513 (0.168 - 1.567)
Months 7-12	92.1	70.3	0.203 (0.051 - 0.800)*	0.232 (0.054 - 1.005)
Months 0-12	91.7	81.0	0.388 (0.126 - 1.198)	0.304 (0.088 - 1.050)
System Involvement				
Victim reports[3]	43.3	36.2	0.742 (0.354 - 1.555)	0.774 (0.344 - 1.745)
Official records[4]	23.4	24.2	1.045 (0.690 - 1.582)	1.063 (0.683 - 1.655)

[1] Usual Care n=51, Usual Care + *Journey to Change* n=49

[2] Usual Care n=39, Usual Care + *Journey to Change* n=38

[3] Usual Care n=60, Usual Care + *Journey to Change* n=58

[4] Usual Care n=248, Usual Care + *Journey to Change* n=244

^ Adjusted for stage of change at baseline (pre-action/action), race (nonwhite/white), income, age, and program completion.