Integrating peer support and mental health services:

A quasi-experimental study of recovery orientation, confidence and empowerment

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Abstract

Objective: Peer provided mental health services have become increasingly prominent in recent years, despite a lack of evidence of beneficial impact. The current study compares the effectiveness of the Vet-to-Vet program, a peer education and support program, and standard care without peer support on measures of recovery orientation, confidence, and empowerment.

Method: Participants were recruited in two consecutive cohorts between 2002 and 2006, one prior to the implementation to Vet-to-Vet (n = 78) and one after (n = 218). There were few baseline differences between the cohorts. Intention-to-treat analyses compared cohorts on changes over time on measures of recovery orientation, confidence, and empowerment. A third cohort was constructed that consisted of the subset of participants from the second cohort who directly participated in Vet-to-Vet. Comparisons between this cohort and the first cohort constitute "as-treated" analyses.

Results: In the intention to treat analyses, the Vet-to-Vet cohort scored significantly higher on measures of empowerment. In the as-treated analyses, significant differences favoring the Vet-to-Vet cohort were observed on both empowerment and confidence. Secondary analyses of clinical measures showed significant differences favoring the Vet-to-Vet cohort on measures of functioning and on alcohol use.

Conclusion: These data suggest that participation in peer support may enhance personal well-being as measured by both recovery-oriented and more traditional clinical measures.

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Introduction

Peer-run services, broadly defined as mental health services provided by individuals who are themselves recipients of mental health services, have received increasing emphasis in the development of mental health service systems in recent years (1). Despite this trend, the research on the benefits of such services is both limited and often poorly controlled. The published literature largely consists of descriptive studies, often with small samples and cross-sectional designs, or with longitudinal designs without comparison groups (2, 3). One reason for the lack of rigor is that traditional randomized clinical trial methodologies, widely considered the gold standard in determining effectiveness, can be difficult to implement in studies of peer-run services, which are consumer-driven and voluntary. The use of random assignment limits the availability of an intervention, and for peer services built from a philosophy of inclusion, randomization may fundamentally alter the peer service under investigation.

A further complication in the literature is the great variability of services provided by peers and the programmatic structures within which they operate. Additionally, definitions of terms used to describe peer-provided services have not been standardized, and include consumer operated services, peer support, mutual support, and self-help .

Despite the variability in models and terminology, there are some commonalities among peer support models (4, 5). Most peer-provided mental health services believe that consumers can benefit from interacting with people who have themselves experienced similar difficulties, and who have learned to cope with them and found reasons for hope for the future. Peer services are founded on core values such as empowerment, taking responsibility for one's own recovery, the need to have opportunities for meaningful life choices and the valuation of lives of disabled people as equal to those of people without disabilities (6).

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In 2002, the Errera Community Care Center of the VA Connecticut Healthcare system, in partnership with Moe Armstrong, a combat veteran with schizophrenia, developed and implemented the Vet-to-Vet program, a partnership model of peer education and support that has been described previously (7). The current study is a quasi-experimental cohort study of 296 veterans that compares outcomes of those treated prior to implementation of Vet-to-Vet with those treated after implementation. In the spirit of participatory action research (8), the study was designed in close collaboration with both Mr. Armstrong and staff of the Errera Community Care Center, and all aspects of the study were negotiated and agreed upon prior to study initiation.

After comparing the cohorts on diverse baseline measures, we report on changes over time on four recovery-oriented primary outcome measures: recovery orientation, self-confidence, general empowerment, and empowerment with respect to mental illness, hypothesizing that after the analyses adjusted for baseline differences, those in the Vet-to-Vet cohort would have more positive outcomes on primary outcome measures than those in the control cohort. We also conduct exploratory analyses to examine changes in a series of secondary measures that address symptom severity and community functioning.

Methods

Vet-to-Vet

Vet-to-Vet is as a peer-professional partnership model of peer education services. Although meetings are entirely peer-led, Vet-to-Vet programs are affiliated and co-located with VA mental health services, and VA mental health staff serve as consultants to peer facilitators, provide initial training, and weekly supervision, and help to obtain additional resources. Meetings occur five days per week on VA premises, follow a “read and discuss” format using an

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established curriculum of recovery-oriented publications, and attendance is voluntary. Details about the program and its development have been published previously (7, 9).

Participants and procedures

Participants became eligible for enrollment in the study at least one week after admission to the Community Reintegration Program at the Errera Community Care Center, a VA program for veterans with severe mental illnesses, many of whom are also homeless. The one week delay was adopted in order to avoid recruiting individuals who would not return for treatment after screening.

The Community Reintegration Program is adjunctive to psychiatric treatment, and referrals come from veterans' primary mental health clinician. There are two "tracks": one addressing acute psychiatric crises, and the other focusing on longer term rehabilitation goals for veterans with severe mental illness. Each veteran's treatment is individualized, but includes access to an array of therapeutic and psychoeducational groups, and individual attention from a primary clinician/coordinator. There are no time limits to participation.

All individuals admitted to the program were informed about the study by their clinician and it was also presented at program-wide community meetings. Interested individuals were referred to an independent study coordinator, who verified eligibility, completed the informed consent process, and conducted the baseline interview.

There were two study cohorts. Recruitment for cohort 1, the control group, began in February 2002, prior to the implementation of Vet-to-Vet and continued for approximately six months, as was agreed upon by Mr. Armstrong and Community Reintegration Program staff. At this point, 75 participants had been enrolled. Vet-to-Vet was initiated at this time. Cohort 2 recruitment began in January 2003, approximately three months after recruitment of the first

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cohort was completed. Recruitment continued for three years at which time 218 veterans had entered cohort 2. Cohort 2 is, thus, considered the treatment-exposed group. Neither interest in attending Vet-to-Vet nor actual attendance was required for study participation.

Follow-up interviews were conducted at one month, three months and nine months after the baseline assessment by an experienced independent rater trained in the administration of all study instruments. The one month interview was brief and served primarily to continue to engage participants and to document Vet-to-Vet attendance (cohort 2, only) while the other two follow-up interviews included all assessments administered at baseline. Participants were interviewed regardless of attendance at Vet-to-Vet or any other VA service.

The protocol was approved by both Institutional Review Boards affiliated with VA Connecticut Healthcare System.

Measures

Background Characteristics

Background variables are based on self-report data obtained during interviews conducted at the time of study entry and included age, gender, education level, race and ethnicity, marital status, the number of days worked for pay in the 30 days prior to the baseline interview, and total monthly income.

Primary outcome measures

Recovery attitudes. Recovery orientation was measured with 9 items from the Recovery Attitudes Questionnaire (RAQ) (10, 11). All seven items from the short version were included (RAQ-7) and two additional items from the long version that addressed issues not included in the other primary outcome measures. Item responses range from 1 to 5, and are recoded such that higher scores indicate stronger agreement with recovery attitudes. Scale scores were created by

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averaging all items, and thus the total score ranges from 1 to 5 with higher scores representative of greater recovery attitudes. Coefficient alpha was .57 (baseline) and .60 (3 and 9 months).

Confidence. The Mental Health Confidence Scale is a measure of general confidence and self-efficacy (12). Item responses range from 1 to 6. The total score is that average of all items, and thus ranges from 1 to 6, with higher scores indicating greater levels of confidence. Alphas were .92, .94, and .95 at baseline, 3 and 9 months, respectively.

General empowerment. The 28-item Making Decisions scale was used as a measure of general empowerment (13). Responses range from 1 to 4 with items recoded such that higher scores indicate stronger agreement with statements reflecting empowerment. The total score is that average of all items, and thus ranges from 1 to 4, with higher scores indicating greater levels of empowerment. Coefficient alpha was .75 at baseline, .81 at 3 months, and .79 at 9 months..

Empowerment over illness. Symptom-related items were selected from the Recovery Assessment Scale (14) to specifically measure mastery and empowerment over symptoms of mental illness. Items are scored from 1 to 4 and are all recoded such that higher scores indicate greater empowerment, and averaged to create a total score that ranges from 1 to 4. Coefficient alpha was .76 (baseline), .80 (3 months) and .81 (9 months).

Secondary Measures

Functional status. The Activities of Daily Living Scale is a 12-item scale measuring areas of daily functioning, such as bathing, shopping for necessary items, and laundry (15). Respondents endorse the frequency in which they perform each activity during a typical week on a 5-point scale, from “almost never” to “nearly always.” Total score is the average of all items, and thus ranges from 1 to 5 with higher scores indicating higher functional ability. Internal consistency was .84 (baseline), .85 (3 months), .88 (9 months).

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Overall functional status was also assessed with the Global Assessment of Functioning (GAF,16), a standardized assessment of several functional dimensions consisting of a single item ranging from a low of 1 to a high of 99, with higher scores indicating greater functioning. This item is based on a rater assessment, i.e. not on self report data.

Substance use. Alcohol and drug use was measured with two self-report questions from the Addiction Severity Index (ASI,17), specifically the amount of money spent on drugs or alcohol in the prior 30 days, and the number of days of the past 30 in which the participant reported using drugs or alcohol. Total score ranges from 0 to 30 with higher scores representing higher levels of alcohol and substance use.

Symptom severity. Severity of general psychiatric symptoms was measured with the Brief Psychiatric Rating Scale (BPRS), a 19-item scale commonly used in research with heterogeneous groups of people with SMI (18). The BPRS is interviewer-rated scale (i.e. not self-report) which measures general psychiatric symptoms (e.g., depression, anxiety), and symptoms more directly associated with a severe mental illness (e.g., hallucinations, self-neglect, unusual thought content). Each item is rated on a scale from 0 (not present) to 6 (severe), and the total score is based on the average of individual items, and thus ranges from 0 to 6 with higher scores indicating greater severity. Internal consistency was .69 (baseline), .77 (3 and 9 months).

Severity of posttraumatic stress disorder (PTSD) symptoms was measured with the PTSD Check List-S (PCL-S), a 17-item scale with items ranging from 1 to 5, with higher scores indicating greater severity. The total score is the sum of all items, and thus ranges from 17 to 85 with higher scores representing greater severity of specific PTSD symptoms and general indicators of subjective distress. A variety of cutoff points have been suggested as indicating a

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diagnosis of PTSD; two commonly cited are 44 and 50 (19). Internal consistency was .93 at baseline, and .95 at both the three and nine month follow-up points.

Trauma history. History of traumatic events was measured at baseline only with a checklist adapted from the Traumatic Life Events questionnaire (20). Each item assesses if a type of traumatic event has happened in the participant's lifetime. A score of 1 is given if the event happened once, and 2 points are given for any event type that occurred more than once. Total score is the sum of the number of types of traumatic events that have been endorsed and can range from 0 to 26 with higher scores indicating a more severe trauma history. Internal consistency was .72.

General Life Satisfaction. General life satisfaction was measured with a single item from the Lehman Quality of Life scale (21), rated from terrible to delighted on a 1 to 7 scale, with higher scores indicating greater satisfaction.

Participation in Vet-to-Vet

Participants were asked to report the number of Vet-to-Vet sessions they had attended since their prior research interview, using the following response choices: none, 1-2; 3-10; 10-20 and more than 20.

Data Analysis

Three analytic groups were constructed. Cohort 1 consisted of participants enrolled prior to the initiation of Vet-to-Vet, cohort 2 included all participants enrolled after Vet-to-Vet began, and cohort 2-V *Vet-to-Vet Only* consisted of those who enrolled after Vet-to-Vet began and who reported having participated in more than 10 Vet-to-Vet groups on at least one follow-up interview. Comparisons between cohort 1 and cohort 2 thus constitute the intention-to-treat

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analysis, and comparisons between cohort 1 and cohort 2-V Vet-to-Vet Only represent an "as-treated" analysis.

Frequencies and means of study variables were generated. Bivariate comparisons between groups using t-tests and chi-square tests addressed both baseline study variables and study completion rates for both the intention-to-treat and as-treated study groups.

To compare differences between groups on longitudinal outcomes, two sets of mixed effects models (using SAS PROC MIXED, 22) were conducted. The first compared cohort 1 with cohort 2, and the second compared cohort 1 with cohort 2-V, the subgroup of cohort 2 that had actually participated in Vet-to-Vet. Because treatment assignment was not randomized, all baseline measures were included as covariates in each longitudinal analysis to adjust for potential confounding. Group by time interactions were also examined.

All four recovery measures were used as primary outcome measures with an alpha of $p<.05$. Secondary outcome measures were examined for descriptive purposes, also with an alpha of $p<.05$ and included measures of functioning, drug and alcohol measures, and both symptom measures.

Results

Baseline Characteristics and Follow-Up Rates

The total sample consisted of 296 participants, 78 in cohort 1, and 218 in cohort 2. Of those in cohort 2, 102 reported at one of three time points (1, 3, and 9 months) that they had participated in 10 or more Vet-to-Vet groups during the period since the last research interview, and thus make up the cohort 2-V Vet-to-Vet Only group. Table 1 contains descriptive information about participants. Overall, the sample was predominantly male (95%), White (66%), and was either currently married or had been married in the past (72%). About one-third

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had been homeless during the 30 days prior to the baseline assessment, and the average number of days worked in paid employment was close to zero, indicating low levels of employment. The severity of overall psychiatric symptoms on the BPRS was mild (M = 1.3, SD = 0.5) but mean scores on the PTSD Symptom Checklist (M=46, SD=17) indicate significant PTSD symptomology. Only 18% of participants were receiving VA service-connected disability benefits for either medical or psychiatric reasons.

There were several significant differences between groups on baseline measures (Table 1). As compared to cohort 1, cohort 2 had significantly higher scores in functioning (the GAF and Activities of Daily Living Scale) and on General Empowerment; reported less money spent on alcohol and fewer days using drugs, but were also more likely to be homeless. There were no statistically significant differences between groups on baseline values of Recovery Attitudes, Empowerment Over Illness, or Confidence, nor were there differences on gender, marital status, race, homeless status, VA service connection, age, education, days worked in the last month, total income in the prior 30 days, general life satisfaction, days used alcohol, money spent on drugs in the prior month, and on both symptom severity scores.

In comparison to cohort 1, The cohort 2-V Vet-to-Vet Only group also had significantly higher GAF and General Empowerment scores, and spent less money on alcohol during the prior 30 days. There were no significant differences between groups on the other primary outcome measures or on gender, marital status, race, homeless status, VA service connection, age, education, days worked in the last month, total income in the prior 30 days, general life satisfaction, days used alcohol, money spent on drugs in the prior month, days used drugs in the past 30, and on both symptom severity scores.

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The groups also differed on follow-up rates. Compared to cohort 1, cohort 2 had a significantly higher 3 month follow-up rate, and cohort 2-V had significantly higher follow-up rates at both 3 and 9 months. To identify baseline predictors of successful follow-up rate, correlations between the number of follow-up interviews collected (either 0, 1, or 2) and all baseline variables showed that within cohort 1, greater age (r = .37, p = .001) and lower severity of trauma history (r = -.27, p = .02) were both significant predictors of successful completion of future follow-up interviews. There were no significant correlations between entry characteristics and completion of follow-up assessments within either cohort 2 or cohort 2-V.

Primary Outcomes

Of the four recovery-oriented primary outcome measures, only General Empowerment had significant group differences on both intention-to-treat (p = .03) and as-treated (p = .02) and models, with an effect size between small and moderate in magnitude (d = .33 and d = .31, respectively) favoring the Vet-to-Vet cohort (Table 2). Although the mixed model analyses use all three time points in the analysis, in Table 2 we present only the mean of the scores from the 3 and 9 month follow-up time points combined for ease of presentation. The intent to treat comparison on General Empowerment is graphically depicted in Figure 1, which shows that the two groups are similar at baseline and at time 2. At time 3, Empowerment scores diverge, with an increase in cohort 2, and a decline in cohort 1. There were no significant interactions between cohort and time.

In the as-treated models, there was, in addition to General Empowerment, also a significant treatment group with greater Confidence in the vet-to-Vet cohort ($p<.01$), with a similar effect size (d = .30). No cohort by time interactions were significant. As seen in Figure

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2, Confidence scores increase for both groups from time 1 to time 2. At time 3 they sharply decline in cohort 1, while the scores for the cohort 2-V Vet-to-Vet Only remain steady.

Secondary Outcomes

The largest group effect across all outcomes was for the GAF, with a moderate to large effect for both the intent to treat (d = .69) and as treated (d = .71) analyses. The other measure of functioning, the Activities of Daily Living Scale, also had significant group differences in both analyses, but the effect size was small in magnitude, at d = .13 for the intent to treat analysis and d = .08 for the as treated analysis. Group differences for both measures of alcohol use were also significant in both models as well, but also had small effects. No other significant differences were observed.

Discussion

In both the intent-to-treat analyses as well as the as-treated analyses, veterans in the cohort enrolled after Vet-to-Vet was implemented showed superior outcomes on several measures, including a measure of General Empowerment and the GAF. As would be expected, the relationships were slightly stronger in the as-treated comparisons, which were limited to veterans in the second cohort who actually attended a substantial number of Vet-to-Vet meetings. The as-treated analysis revealed significantly higher scores for participants in Vet-to-Vet as compared to those in cohort 1 on the measure of Confidence in addition to the measure of General Empowerment and the GAF. For those variables in which significant differences between cohorts emerged, outcomes followed a pattern in which the average score for the intervention-exposed cohorts either increased or remained steady, while outcomes for veterans in the control cohort decreased below baseline levels (Figures 1 and 2), suggesting deterioration over time.

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Existing studies suggest that consumers can be effective providers of mental health services in "professional" settings (e.g.23, 24-26), and the employment of peers as service providers is an increasingly common in practice (27). A feasibility study of a "Peer-to-Peer Psychoeducation" program found that individuals with schizophrenia participating in the program showed an increase of knowledge of illness and trust in psychiatric treatment (28). However, to our knowledge, this is the first study of an education-based mutual support group in the literature, and thus there are few studies to which it can be compared.

Studies of other types of group-based models of consumer-provided services and self-help provide some context for our findings. For example, a multi-site randomized trial of peer provided services compared outcomes of individuals randomized to consumer-operated service programs to those randomized to standard mental health services. Those in the experimental group reported higher levels of empowerment than those randomized to standard mental health services (5). Consistent with these findings, one of the significant benefits of Vet-to-Vet was on general empowerment, although like the study by Rogers et al., these effects were generally small to moderate in magnitude. Dumont and Jones (29) also report improvements in empowerment for a group randomized to a peer-designed and run crisis hostel when compared to those randomized to treatment as usual. Finally, a cross-sectional comparison of individuals receiving services from a community mental health center found that those who chose to receive consumer-operated services had decreased rates of admission to inpatient treatment and shorter inpatient stays with those who did not use these services (30).

One of the strengths of this study was in the diversity of measures. Although we used traditional measures of symptom severity and functioning, our primary outcome measures addressed domains we thought would be most likely to be influenced by peer-support services,

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such as recovery orientation, empowerment, and confidence. While those in the Vet-to-Vet cohort did report significantly higher levels of General Empowerment and Confidence, the strongest effect size was for the GAF. Since this was the only global interviewer-rated measure in the assessment battery, it may also have been most influenced to bias, since the interviewer was not blind to cohort or to Vet-to-Vet participation; and in fact, participation in Vet-to-Vet could have been considered, in itself, to represent a higher level of functioning.

The most important limitation of the study is that in the absence of random assignment, we can not be sure that the increase in empowerment and confidence did not reflect general trends in attitudes of VA consumers or in VA service delivery, as well as the possibility that differences on other unmeasured variables existed between groups. Randomized clinical trials are the standard for tests of efficacy because they reduce the risk of such biases, but they also require an extensive infrastructure and, to some extent, a restriction on choice of services, albeit within the context of informed consent. Because Vet-to-Vet, like other peer provided services, is run by consumers, we believed that the imposition of a randomized controlled design might have fundamentally altered the experience of the program from a voluntary gathering of peers to an "assigned" treatment program, or might completely discourage some from participating at all. We thus made every effort to insure that Vet-to-Vet was implemented as intended as a program run by and for consumers with professional assistance only as requested by participants.

Conclusion

These data suggest that participation in peer support can be associated with enhanced personal well-being as measured by both recovery-oriented and more traditional clinical measures.

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Table 1. Baseline Values and Study Participation by Cohort

	Cohort 1 $n = 78$		Cohort 1 $n = 78$		Cohort 1 vs. Cohort 2		Cohort 2-V, Vet-to-Vet Only $n = 102$		Cohort 1 vs. Cohort 2-V, Vet-to-Vet Only		Total $N = 296$	
	n	%	*n*	%	χ^2	*p*	*n*	%	χ^2	*p*	*n*	%
Male	75	96	206	95	.57	ns	95	93	.38	*ns*	281	95
Never married	19	25	63	29	.43	ns	35	34	1.79	*ns*	82	28
White	50	66	144	66	.00	ns	69	68	.07	*ns*	194	66
VA service connection	22	28	71	33	.51	ns	32	31	.21	*ns*	56	19
Homeless last 30 days	18	23	82	38	5.43	.02	36	35	3/14	*ns*	100	34
Completed interview at 3 months	55	71	177	81	3.87	.05	90	88	8.86	.003	232	78
Completed interview at 9 months	46	60	153	70	3.28	ns	82	80	9.87	.002	199	67
					t	*p*						
Age	48.2 ± 8.2		47.5 ± 8.9		-.42	*ns*	48.8 ± 8.7		-.51	*ns*	48.5 ± 8.7	
Education (years)	12.5 ± 1.9		12.7 ± 2.1		-.79	*ns*	12.9 ± 2.4		-1.33	*ns*	12.6 ± 2.1	
GAF score[a]	34.4 ± 5.9		38.0 ± 5.0		-5.14	.0001	37.1 ± 4.3		-3.33	.001	37.1 ± 5.5	
Days worked last 30	0.2 ± 0.4		0.2 ± 0.4		-.59	*ns*	0.2 ± 0.4		0.0	*ns*	0.2 ± 0.4	

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Table 1 (cont.)

	Cohort 1 n = 78	Cohort 1 n = 78	Cohort 1 vs. Cohort 2		Cohort 2-V, Vet-to-Vet Only n = 102	Cohort 1 vs. Cohort 2-V, Vet-to-Vet Only		Total N = 296
Total income last month	$876.76 ± 884.67	$888.56 ± 1208.10	-.09	*ns*	$893.78 ± 964.91	-.12	*ns*	$885.50 ± 1131.68
Activities of daily living[b]	3.9 ± 0.7	4.1 ± 0.7	-2.05	.04	4.0 ± 0.8	-.79	*ns*	4.1 ± 0.7
General life satisfaction[c]	4.2 ± 1.2	4.3 ± 1.1	-.73	*ns*	4.3 ± 1.2	-.74	*ns*	4.2 ± 1.1
Money spent on alcohol last 30 days	$29.33 ± 68.47	$9.36 ± 32.64	2.43	.02	$9.40 ± 31.20	2.34	.02	$14.50 ± 45.40
Days used alcohol last 30	3.8 ± 8.6	2.1 ± 6.0	1.57	*ns*	2.1 ± 5.9	1.52	*ns*	2.6 ± 6.8
Money spent on drugs last 30 days	$48.96 ± 184.26	$29.70 ± 155.88	.88	*ns*	$35.88 ± 184.38	.47	*ns*	$34.70 ± 163.50
Days used drugs last 30	3.80 ± 9.0	1.5 ± 5.5	2.65	.01	1.8 ± 6.6	1.57	*ns*	2.1 ± 6.7
BPRS total score[d]	1.3 ± 0.6	1.3 ± 0.5	.20		1.3 ± 0.5	.27	*ns*	1.3 ± 0.5
PSTD symptom severity[e]	44.8 ± 15.6	46.9 ± 17.5	-.93	*ns*	46.2 ± 18.4	-.55	*ns*	46.4 ± 17.0
Trauma history[f]	8.7 ± 5.9	9.6 ± 5.7	-1.20	*ns*	9.4 ± 5.0	-.96	*ns*	9.3 ± 5.4
Recovery Attitudes[g]	4.1 ± 0.4	4.1 ± 0.5	-.15	*ns*	4.1 ± 0.5	.02	*ns*	4.1 ± 0.4
Confidence[h]	3.9 ± 1.2	4.2 ± 0.9	-1.56	*ns*	4.2 ± 0.9	-1.70	*ns*	4.1 ± 1.0
General Empowerment[i]	2.8 ± 0.3	2.9 ± 0.3	-2.66	.01	2.9 ± 0.3	-2.53	*ns*	2.9 ± 0.3
Empowerment over Illness[j]	2.4 ± 0.7	2.5 ± 0.7	-.95	*ns*	2.6 ± 0.7	-1.51	*ns*	2.5 ± 0.7

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Table 1 (cont)

[a]Possible scores range from 1 to 99 with higher scores indicating greater functioning.
[b]Possible scores range from 1 to 5 with higher scores indicating greater functioning.
[c]Possible scores range from 1 to 7 with higher scores indicating greater life satisfaction.
[d]Possible scores range from 0 to 6 with higher scores indicating greater symptom severity.
[e]Possible scores range from 17 to 85 with higher scores indicating greater PTSD symptom severity.
[f]Possible scores range from 0 to 26 with higher scores indicating greater trauma history.
[g]Possible scores range from 1 to 5 with higher scores indicating greater recovery attitudes.
[h]Possible scores range from 1 to 6 with higher scores indicating greater confidence.
[i]Possible scores range from 1 to 4 with higher scores indicating greater general empowerment.
[j]Possible scores range from 1 to 4 with higher scores indicating greater empowerment over illness.

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Table 2. Mixed Model Analysis

Dependent Variable	Cohort 1 3 and 9 months combined *M (SD)*		Cohort 2 3 and 9 months combined *M (SD)*		Diff	*F*	*df*	*p*	*ES*[a]	Cohort 2-V Vet-to-Vet only 3 and 9 months combined *M (SD)*	Diff	*F*	*Df*	*p*	*ES*[a]
Recovery Attitudes[b]	4.05	.43	4.06	.44	0.01	.10	1, 251	ns	.02	4.06 ± .47	0.01	.23	1,148	ns	.02
Confidence[c]	4.18	1.06	4.36	.93	0.18	2.77	1, 220	ns	.19	4.46 ± .84	0.28	6.35	1,133	.01	.30
General empowerment[d]	2.82	.40	2.92	.30	0.10	5.36	1, 246	.02	.31	2.93 ± .29	0.11	4.68	1,159	.03	.33
Empowerment over illness[e]	2.59	.78	2.67	.63	0.08	.13	1, 258	ns	.11	2.75 ± .63	0.16	1.32	1,156	ns	.23
Global assessment of functioning[f]	37.78	8.18	43.39	8.14	5.61	12.34	1, 327	.0005	.69	43.07 ± 6.97	5.29	11.12	1,193	.001	.71
Activities of Daily Living Scale[g]	2.97	.73	3.07	.81	.10	5.98	1, 229	.02	.13	3.03 ± .77	0.06	4.04	1,148	.05	.08
Days worked last 30	0.22	.42	0.39	.49	.17	1.09	1, 316	ns	.36	0.37 ± .49	0.15	.19	1,194	ns	.33
Money spent on alcohol last 30	13.83	72.79	7.40	32.49	-6.43	6.72	1, 223	.01	.14	7.56 ± 37.00	-6.27	9.20	1,198	.003	.12
Days used alcohol last 30	1.02	4.57	.94	3.02	-.08	10.64	1, 205	.001	.02	.67 ± 2.51	-.35	8.45	1,165	.004	.10
Money spent on drugs last 30	8.15	38.37	16.57	127.73	8.42	2.03	1, 296	ns	.07	18.22 ± 158.64	10.07	2.72	1,153	ns	.08
Days used drugs last 30	.59	4.08	.68	3.13	.09	1.89	1, 206	ns	.03	.46 ± 3.23	-.13	.11	1,96	ns	.04
BPRS total score[h]	22.73	12.97	21.94	10.69	-.79	.23	1,318	ns	.07	21.20 ± 10.31	-1.53	.25	1,197	ns	.13
PTSD symptom severity[i]	38.93	18.38	41.44	18.85	2.51	1.25	1,312	ns	.13	40.51 ± 19.93	1.58	.01	1,172	ns	.08

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[a]*ES* = effect size
[b]Possible scores range from 1 to 5 with higher scores indicating greater recovery attitudes.
[c]Possible scores range from 1 to 6 with higher scores indicating greater confidence.
[d]Possible scores range from 1 to 4 with higher scores indicating greater general empowerment.
[e]Possible scores range from 1 to 4 with higher scores indicating greater empowerment over illness.
[f]Possible scores range from 1 to 99 with higher scores indicating greater functioning.
[g]Possible scores range from 1 to 5 with higher scores indicating greater functioning.
[h]Possible scores range from 0 to 6 with higher scores indicating greater symptom severity.
[i]Possible scores range from 17 to 85 with higher scores indicating greater PTSD symptom severity.

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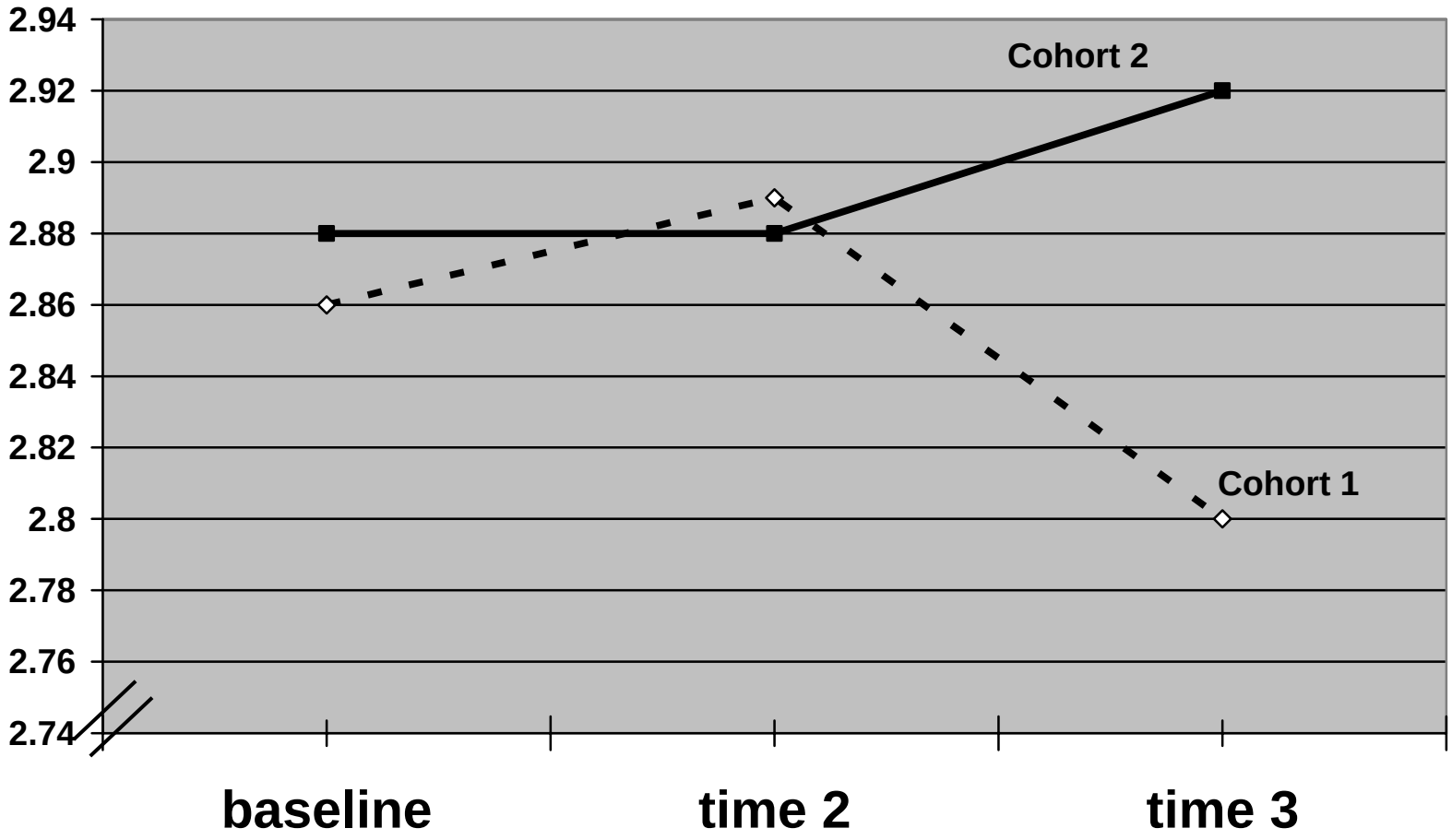
Figure 1. General Empowerment[a]: Cohort 1 vs. Cohort 2



[a]Possible scores range from 1 to 4 with higher scores indicating greater general empowerment.

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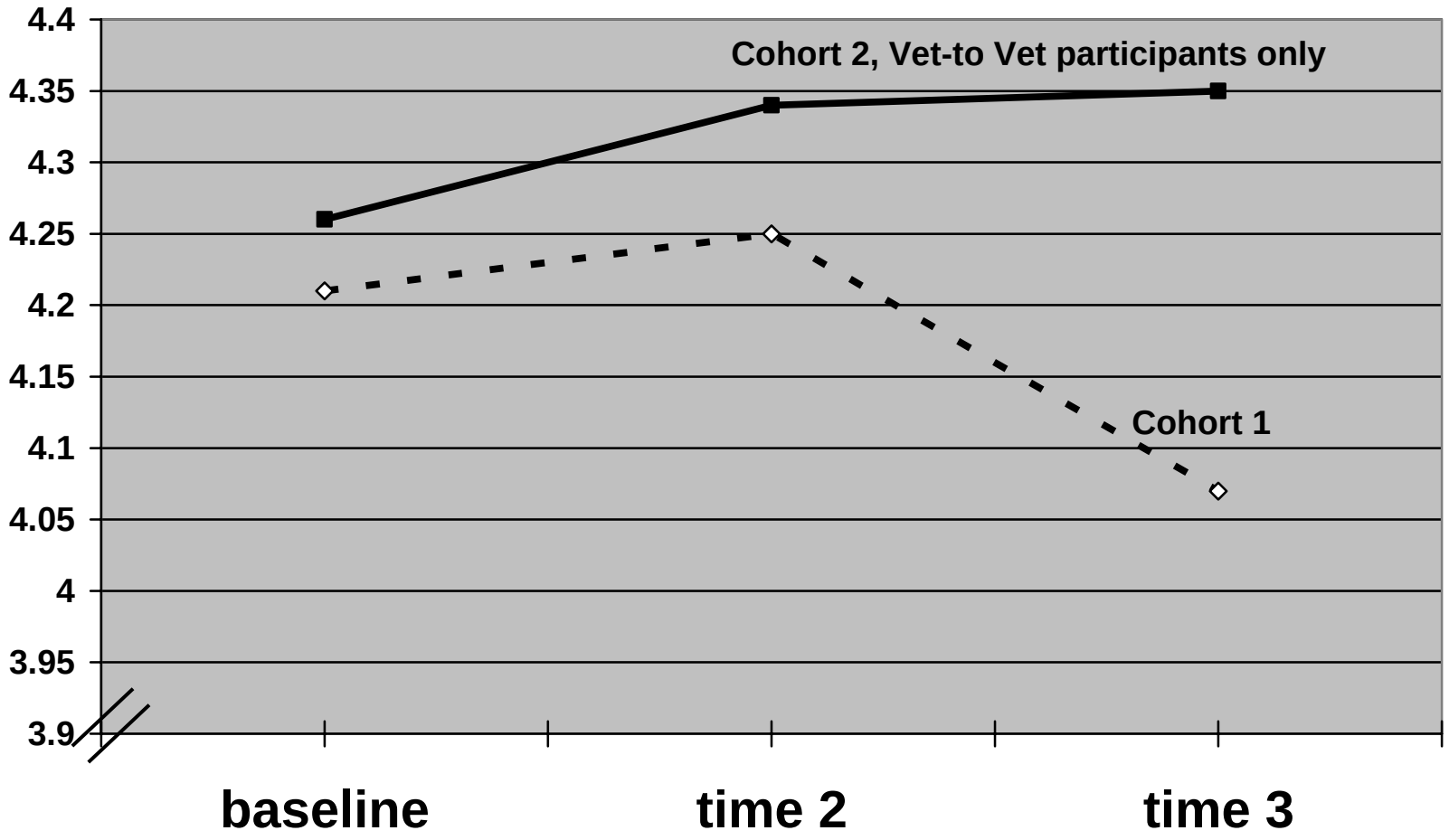
Figure 2. Confidence[a]: Cohort 1 vs. Cohort 2-V Vet-to-Vet Only



[a]Possible scores range from 1 to 6 with higher scores indicating greater confidence.

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