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Solution-Focused Therapy and Psychosocial Adjustment to Orthopedic Rehabilitation in a Work Hardening Program

Jack T. Cockburn,[1,4] Frank N. Thomas,[2] and Orbie J. Cockburn[3]

Orthopedic rehabilitation programs utilizing a multidisciplinary approach invite a greater appreciation for the factors which influence the recovery process. This study evaluated variables associated with the psychosocial adjustment of work hardening program participants when exposed to Solution-Focused psychotherapy. Orthopedic patients receiving workers' compensation were engaged in a work hardening program in which they received either Solution-Focused therapy or the standard rehabilitation protocol. Patients and spouses completed questionnaires designed to evaluate psychosocial coping and adjustment to a medical condition. Patients across all investigated orthopedic categories demonstrated enhanced adjustment to their condition when treatment groups were compared with control groups. It is proposed that Solution-Focused therapy, in conjunction with work hardening protocols, is effective for patients when developing effective coping responses to the stressors associated with orthopedic rehabilitation.

KEY WORDS: orthopedic rehabilitation; psychosocial adjustment; work hardening; workers' compensation; solution-focused psychotherapy.

INTRODUCTION

The problem of delayed recovery among injured workers and the achievement of promoting timely outcomes within an occupational rehabilitation program appear to favor those models which, in conjunction with addressing those features salient to biomedical domains, acknowledge the vital influence of psychosocial factors and their contribution in return to work outcomes (1–3). Workers' compensation recipients involved in rehabilitation appear especially susceptible to counterproductive measures involving patient–provider relationships (2,4), greater psychological reactivity to pain and perceived psychosocial disability associated with job stress and

[1]Lewisville Rehabilitation Center, 475 W. Elm, Suite 200, Lewisville, Texas 75057.
[2]Department of Family Therapy, Texas Woman's University, Denton, Texas 76024.
[3]Orthopedic Associates, 500 W. Elm, Lewisville, Texas 75057.
[4]Correspondence should be directed to Jack Cockburn, P.O. Box 294306, Lewisville, Texas 75029.

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work re-entry (5,6). It is proposed that Solution-Focused psychotherapy as delineated by de Shazer (7,8) offers a systematic, goal-oriented approach for assisting rehabilitation patients with psychosocial adjustment issues during the work hardening process.

The contribution of psychosocial factors in successful rehabilitation treatment and work re-entry for compensation patients has received attention in the clinical literature (1–3,9,10–12). How these factors may be further explicated promotes questions involving what aspects of coping and support enhance psychosocial adjustment associated with rehabilitation and work re-entry and what role health providers might play in the integration of these factors. While attention has been given to the avoidance of expectancy-driven behavioral interactions (2), understanding the potential influence of compensation status (4), and predicting return to work (13), these exists a paucity of research investigating those psychological interventions which specifically address psychosocial adjustment.

Because of the complexity involved in psychosocial adjustment, it is posited that models of psychological intervention should avoid deterministic characteristics which act to strengthen a sense of the permanence and pervasiveness of problems or marginalize the patient's goals (7). Conversely, rather than close or restrict options, an approach that empowers patients invites cooperation, positive expectations with respect to resources and goals, in addition to locating tools and negotiating methods to overcome obstacles (14). Solution-Focused therapy acknowledges the necessity of utilizing the patient's frame of reference when identifying those goals described as important, meaningful or useful to the patient and their rehabilitation context. The operative framework of Solution-Focused goal setting involves interactional and situational formulations which typically resemble a "who, what, where, when, and how" set of descriptions as opposed to simple "single target" behaviorist outcomes. Indications of workable goals will fit the following criteria: (1) small rather than large, (2) perceived as realistic within the patient's life, (3) conveyed as involving "hard work" or creativity, (4) incorporation of new behaviors rather than the absence of existing behaviors, and (5) the curtailing of previous "attempted solutions" which contribute to a particular problem's maintenance (7). In addition to remaining sensitive to any ongoing obstacles or "coping tests" continued therapeutic collaboration seeks to draw attention to and highlight those areas which are thought of as "on-track" with a given goal activity.

Developing applications of Solution-Focused therapy in both inpatient and outpatient settings (15–17) are encouraging. This approach is thought to be relevant to those rehabilitation programs wishing to integrate multidisciplinary approaches when addressing issues related to psychosocial coping and adjustment.

METHODS

Subjects

The population assessed for this study was composed of 48 work hardening participants and their spouses who had been referred to the program by an ortho-

pedic surgeon. All potential participants were screened for eligibility in the initial inquiry for prescription medications or other factors which were thought to potentially compromise the study. In addition, all participants were to be first time recipients of a workers' compensation claim and married to a spouse who was employed on a full-time basis. It should be noted that roughly 30% of all potential participants were initially dropped from the study secondary to these screening criteria with the majority of exclusions due to voluntary refusal, spousal employment status, or as a result of being deemed an inappropriate candidate for work hardening by providers.

Procedure

All participants, upon consenting to the research guidelines, were assigned randomly to one of four groups at the time of their initial functional capacity examination. Treatment Group 1 was administered a Family Crisis Oriented Personal Evaluation Scales (F-COPES) treatment (Solution-Focused therapy once a week for one hour during a 6-week period), Control Group 2 a F-COPES pretest and posttest, Treatment Group 3 F-COPES posttest and treatment, and Control Group 4 F-COPES posttest only. All participants and spouses in Groups 1–4 received the Psychosocial Adjustment to Illness Scale-Self Report (PAIS-SR) at the time of the F-COPES posttest. The experimental design conforms to the Solomon Four group arrangement (18) and is depicted in Table I.

All pretests were administered after the participant had completed an initial functional capacity examination. All posttests were completed at the time of discharge from the work hardening program in which the patient had been involved for a period of not less than 6 weeks.

Measures

Family Crisis Oriented Personal Evaluation Scales

The Family Crisis Oriented Personal Evaluation Scales as developed by McCubbin, Olson, and Larsen (19) seeks to delineate problem solving and behavioral strategies utilized by individuals in difficult contexts and integrate such variables as family resources and the various meanings associated with stressful circumstances. Of particular interest to this study were the following subscales: *acquiring social support*, an ability to engage active emotional support from relatives, friends, extended family; *reframing*, a

Table I. Solomon Four Group Design

	F-COPES	Solution-focused	F-COPES/PAIS-SR
Treatment group 1[a]	pretest	treatment	posttest
Control group 2[a]	pretest		posttest
Treatment group 3[a]		treatment	posttest
Control group 4[a]			posttest

[a]Random assignment of subjects.

capacity to redefine stressful events; and *mobilizing family to acquire and accept help*, an orientation to resources or assistance outside family. The remaining two subscales, *seek spiritual support* and *passive appraisal* were completed by participants but were not of initial clinical interest. The F-COPES test–retest reliability for the total scale is in the 80's with validity ranging from above .40 to .84 (19).

Psychosocial Adjustment to Illness Scale-Self Report

All patients and their spouses were administered the Psychosocial Adjustment to Illness Scale-Self Report (20) by Derogatis, at the termination phase of the work hardening program. The PAIS-SR was utilized to assist the identification of specific domains of adjustment with respect to a medical condition. The subscales of concern here included the couple's *health care orientation*, attitudes and expectancies about treatment; *vocational environment*, impact of a medical condition on employment adjustment; *domestic environment*, assessment of problems in the adjustment process experienced by the patient and spouse; *social environment*, status of current social or leisure activity; and *psychological distress*, evaluation of dysphoric thoughts and feelings that the accompany a medical condition.

The PAIS-SR has been normed for several patient profiles. This study utilized the cardiac surgery cohort as a comparative illness group based on the nature of acute, episodic illness in general, the population's unresponsiveness to pharmacological regimens, and a median illness time frame of 12 months. The internal consistency reliability coefficients for the PAIS-SR involving patients assessed with cardiac disease ranged from .85 for *psychological distress* to .47 in *health care orientation* (20).

RESULTS

Demographics

As cited above, participants in the study were randomly assigned to treatment or control groups with females constituting 58% and males 42% of the total sample. The mean age of patients were 37.2 years which falls within the national norms as reported by the Bureau of Labor Statistics (21) for industry related orthopedic injuries and illnesses. Occupational titles were categorized into seven groups according to self-report characteristics, as follows: (1) professional, i.e., management of professional degree prerequisite; (2) clerical, i.e., keyboard, word processor; (3) service, i.e., stocker, labor, assembly line; (4) agricultural, i.e., farming, ranching; (5) machine trade, i.e., lathe operators, machinists; (6) structural, i.e., residential construction, industrial fabrication; (7) transport, i.e., truck driving, mass transit pilot, or driver. The occupations in the treatment groups were primarily represented by service (44%), and transport (24%).

The diagnostic categories were predominately composed of orthopedically related disorders involving the spinal region (41%) and upper extremities (32%). Comparisons involving orthopedic diagnosis with occupational title were not performed.

Table II. Treatment Effects on Coping[a]

	Seeking social support			Reframing		Seeking spiritual support		Mobilizing family	
	n	*M*	SD	*M*	SD	*M*	SD	*M*	SD
T1	13	34.4	6.5	36.4	2.5	17.1	3.8	17.8	3.6
C2	11	20.7	6.6	26.7	6.8	12.1	4.2	10.1	2.6
		$F = 30.2$	$p = <.001$	$F = 17.8$	$p < .001$	$F = 8.9$	$p < .01$	$F = 29.8$	$p < .001$
T3	12	32.3	4.3	33.8	5.4	13.3	2.6	14.8	4.0
C4	12	13.4	6.5	19.8	6.8	9.0	5.2	8.1	3.0
		$F = 58.4$	$p < .001$	$F = 37.8$	$p < .001$	$F = 6.5$	$p < .01$	$F = 23.2$	$p < .001$
T3	12	32.3	4.3	33.8	5.4	13.3	2.6	14.8	4.0
C2	11	20.7	6.6	26.7	6.8	12.1	4.2	10.1	2.6
		$F = 21.0$	$p < .001$	$F = 9.3$	$p < .001$	$F = .53$	$p = ns$	$F = 10.8$	$p < .01$

[a]T1 = treatment group 1, C2 = control group 2, T3 = treatment group 3, C4 = control group 4.

Treatment and Control Group F-COPES Posttest Comparisons

The analyses of the F-COPES data indicated that posttest scores were equally influenced by pretesting for Treatment Group 1 and Control Group 2 (see Table I). In addition, treatment effect was greater than measurement alone for posttest scores when compared to control or nontreatment posttest scores. The consistent effects by pretesting and treatment over nontreatment were such that a one-way ANOVA across all group posttest comparisons could be performed. The results demonstrated the effects of patient treatment vs. control group comparisons as markedly enhanced with respect to their reported adjustment associated with their medical condition for the subscales *acquiring social support, reframing,* and *mobilizing family to acquire and accept help.* The F-COPES subscale *seeking spiritual support* was significant in two of the three comparisons. Table II presents the results of the ANOVA tests across F-COPES posttest scores comparisons for treatment and control groups.

Between Subjects Effects by Treatment for PAIS-SR

The results of the PAIS-SR study for couples are depicted in Table III for the ANOVA test involving between-subject effects by treatment. Couples involved in the treatment groups scored significantly for the subscales of *health care orientation, domestic environment, psychological distress,* and *social environment.* A couple's *vocational environment* was not a significant finding.

Subject Correlation of F-COPES and PAIS-SR Subscales

A Pearson correlational analysis to identify potential relationships between the F-COPES and PAIS-SR subscales reported a negative correlation between the patient's F-COPES *acquiring social support* and the patient's PAIS-SR *psychological distress* and *vocational environment* (see Table IV). In addition, there was reported

Table III. Treatment Effects on Psychosocial Adjustment

	Treatment groups 1, 3 (n = 25)		Control groups 2, 4 (n = 23)	
	M	SD	M	SD
Couple health care	12.0	5.4	16.0	6.5
	F = 5.51	p < .05		
Couple domestic environment	13.7	7.1	18.2	8.0
	F = 4.21	p < .05		
Couple vocation environment	15.44	6.8	15.4	6.4
	F = .004	p = ns		
Couple psychological distress	10.8	5.5	19.7	9.9
	F = 14.87	p = <.001		
Couple social environment	9.68	5.16	15.13	9.36
	F = 6.36	p = <.01		

a negative correlation between the patient's F-COPES *seeking spiritual support* and the PAIS-SR *psychological distress.* However, it should be noted that the above relationship findings could occur based on chance secondary to the large number of comparisons.

Return to Work in Treatment and Control Groups

A chi-square test of independence for return to work status was performed for the treatment and control groups 60 days after the initial study was completed. In this instance, treatment status distinguished cases based upon whether they received Solution-Focused therapy treatment and whether they were pretested. The result was significant and a *post hoc* analysis revealed substantially more treated cases, regardless of pretesting, occupying the category "less than seven days" than untreated cases.

As a result, treatment status categories were collapsed across the pretesting factor, yielding one entire group of treated cases, and one of the control cases. "Return to work status" and "treatment" were then submitted to the chi-square test of independence. The results [$x^2(4) = 29.19, p < .00001$] reflects significantly more treated

Table IV. Relationship Between Coping and Psychosocial Adjustment[a]

	PHCO	PVOC	PDOM	PSEX	PEFAM	PSOC	PPSY
PSOS	-.1621	-.3234*	-.1233	-.0267	-.2103	-.2582	-.2871*
PR	-.1604	-.2069	-.0108	-.0035	-.1757	-.2299	-.2436
PSPS	-.1399	-.0969	-.1152	-.0181	-.1176	-.2461	-.2971*
PMF	-.1703	-.2073	-.0482	-.0709	-.0809	-.2096	-.2183
PPA	-.0021	-.2181	-.1222	-.0118	-.1585	-.2092	-.2238

[a]PSOS = Patient Acquiring Social Support, PR = Patient Reframing, PSPS = Patient Seeking Spiritual Support, PMF = Patient Mobilizing Family to Acquire and Accept Help, PPA = Patient Passive Appraisal, PHCO = Patient Health Care Orientation, PVOC = Patient Vocational Environment, PDOM = Patient Domestic Environment, PSEX = Patient Sexual Relationship, PEFAM = Patient Extended Family, PSOC = Patient Social Environment, PPSY = Patient Psychological Distress.
* ≤ .05 (2-tailed).

Table V. Chi-square Analysis of Return to Work in Treatment and Control Groups

	Treatment groups (n = 25)		Control groups (n = 23)	
Category	n	%	n	%
No work re-entry	0	0	5	21
<7 days	17	68	1	4
7 to 30 days	6	24	10	43
>30 days	0	0	7	30
Revocation[a]	2	8	0	0

[a]Revocation included those patients who voluntarily chose to access an agency or commission for additional training prior to returning to the workforce.

cases occupying the category "less than seven days" than control cases, and significantly fewer treated cases occupying the category "over 30 days" (see Table V).

DISCUSSION

A primary and critical element in the development of work hardening programs is the shifting of an individual patient's perception from passive recipient to that of a working participant, a role associated with more implied control or influence with respect to a patient's rehabilitation environment (22). Likewise, within the Solution-Focused model, as individuals move away from an identity of problematic or perceived lack of options towards more productive interactions, they can orient themselves to being more resourceful and responsible for outcomes. Both work hardening and solution-focused therapy ostensibly share a mutual interest in the promoting and affirming patient's sense of control and strengths, and the setting of negotiated goals that are health oriented.

The presents results indicate significant differences when comparing patients' F-COPES treatment scores vs. those in control groups for the promotion of psychosocial adjustment as measured by the subscales *acquiring social support, reframing,* and *mobilizing the family.* It should be noted that the significance for *reframing* was hypothetically anticipated as this therapeutic activity has a substantial history within the brief psychotherapy movement (23) of which Solution-Focused therapy is a part.

The *social support* and *mobilizing family* subscale comparisons, however, served to underscore the themes reported by patients involved in the work hardening program. These themes included feelings of isolation, hostility, and discouragement from various family members, health providers, co-workers, and friends with regard to appropriate coping and recovery which, in turn, were connected to a variety of stigmatizing ideas concerning their status and perception as a typical "comp case" or disabled employee. This significance of such narratives were especially preponderate with those who were lacking clear-cut medical explanations. It was with these treatment patients that Solution-Focused conversations invited alternative descrip-

tions involving new goals or resources for changing how relationships might be viewed or acted upon.

Couples assigned to the treatment group category reported improved psychosocial adjustment to their spouses current medical condition, most notably with respect to the PAIS-SR subscale dealing with *psychological distress* [$F(1,44) = 14.9, p < .001$]. Couples involved in treatment did not report a significant alteration with respect to their *vocational environment* [$F(1,44) = .004$, ns]. *Post hoc* analyses raised the possibility that patients experiencing uncertainty about their vocational goals or financial viability were as troubled by their current state of affairs as those spouses which held steady employment.

For the examined patient population there resulted a set of negative correlations between the patients' F-COPES *"social support"* and *"seeking spiritual support"* with the PAIS-SR *"psychological distress."* In addition, patient F-COPES *"social support"* correlated with the PAIS-SR *"vocational environment."* This might suggest that facilitating social support dialogues are examples of support which contribute to a patient's lowered level of psychological distress. However, these results and their theoretical mechanisms remain poorly understood and are complicated by other data which indicated that the subscale *"vocational environment,"* while mitigated by *"social support"* for the patient, was not significant for the treatment couple. In addition, questions arise which may highlight the potential role of support processes when negotiating the psychological impact of worklessness (24), and the relative psychological effects of unemployment (25).

The most encouraging outcome was reflected in the work re-entry rates for those patients participating in the treatment group with 68% returning in less than 7 days after discharge as opposed to approximately 4% of the control group. When follow-up was performed, it was noteworthy that of the control group 21% ($n = 5$) had not been back to work and 30% ($n = 7$) had returned to work in excess of 30 days. The work re-entry outcome for the treatment population as a whole appears to fall slightly above the normative range for multidisciplinary approaches to work hardening (1,3) when return to work definitions include vocational training.

Future Research

While the results appear to provide evidence of the interplay of Solution-Focused psychotherapy on adjustment and work re-entry, this study is subject to caution when making generalizations due to the small number of participants involved in the study and the stringent criteria for participation. Detailed examination of the theoretical mechanisms for social support and its corollaries such as coping are needed to assess what specific psychological dimensions correlate to or are associated with such factors as occupational title, injury type, medical history, and identified vocational stressors. In addition, the direction of the effects of psychosocial adjustment on social support or vice versa should be addressed. These data, used in conjunction with initial and discharge evaluations, should be performed with larger populations to ascertain overall outcome profile data in the hopes of more accurately identifying those characteristics that influence successful work re-entry in workers' compensation patients.

The findings further suggest that extensive study be devoted to specific interventions that can be incorporated within a temporally sensitive constraint and the overall goals of multidisciplinary work hardening programs to establish more successful work re-entry rates for a broader group of patients.

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