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Land of 10,000 Lakes and 2.3 Million Anglers: Problems and Coping Response Among Minnesota Anglers

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Abstract

We used a survey of Minnesota anglers to examine coping response to problems encountered while fishing, extending the transactional stress coping model beyond applications with wilderness and park visitors. Environmental/situational problems and intergroup conflict predicted behavioral and cognitive coping. Intragroup conflict predicted only cognitive coping. Cognitive coping was associated with lower satisfaction. Avid anglers experienced more problems and reported more coping but expressed greater satisfaction. They responded to intragroup conflict through cognitive coping and environmental problems through behavioral coping. Among less-avid anglers, intragroup conflict was not related to coping, but intergroup conflict was related to cognitive coping and environmental problems were strongly related to behavioral coping. Overt problems—especially with the fishing environment—may trigger displacement, particularly among less-involved anglers.

KEYWORDS: Anglers, conflict, coping, problems, structural equation modeling

Introduction

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Research has documented conflicts and hassles experienced by recreation participants and examined actions people take to cope with these problems. Researchers have also modeled the relationship between coping and detraction from the recreation experience. This study expands on previous work to model: (a) how level of involvement relates to perceived problems encountered in fishing, (b) how different types of problems experienced by anglers relate to coping response, and (c) how coping relates to satisfaction with the fishing experience.

Researchers have intensively studied conflict, stress, and coping in outdoor recreation (Carothers, Vaske, & Donnelly, 2001; Jacob & Schreyer, 1980; Kuentzel & Heberlein, 1992, 2003; Manning & Valliere, 2001; Miller & McCool, 2003; Schneider & Hammitt, 1995a, 1995b; Schuster, Hammitt, & Moore, 2003, 2006; Schuster, Hammitt, Moore, & Schneider, 2006; Shelby & Vaske, 1991; Vaske & Donnelly, 2002). Recent studies have applied the transactional stress model—which relates situational and personal factors, stress, coping, and short- and long-term outcomes for the individual—to wilderness and national park visitors (Miller & McCool, 2003; Schneider & Hammitt, 1995; Schuster, Hammitt, & Moore, 2003, 2006; Schuster, Hammitt, Moore, & Schneider, 2006). Researchers have documented relationships between frequency and intensity of stress and coping response (Miller & McCool, 2003; Schuster, Hammitt, & Moore, 2006). They have found that increased problem-focused coping relates to detraction from the recreation experience (Schuster, Hammitt, & Moore, 2006; Schuster, Hammitt, Moore, & Schneider, 2006). Research needs to: (a) clarify how different types of stressors relate to the type of coping response, (b) study how participants evaluate problems and recall coping response upon reflecting on an experience as a whole, (c) examine how coping activity affects the recreation experience, and (d) apply recent advances in coping theory to recreational activities beyond wilderness and national park visitation.

Recreation Conflicts, Hassles, Problems, and Stress

Previous research has addressed recreation conflicts, hassles, problems, and stress. Earlier research emphasized recreation *conflicts*, particularly in response to crowding (Schneider, 2000; Schneider & Hammitt, 1995a, 1995b). Schneider and colleagues conceptualized conflict "more as a process than an event" (Schneider & Hammitt, 1995b, p. 223) in order to examine visitor response to conflict. This research emphasized interpersonal conflicts (i.e., "whether any visitor behaviour or presence interfered with [the] recreation experience") (Schneider & Hammit, 1995b, p. 258). Recent research has documented *hassles* encountered by recreationists, which range from minor annoyances to major problems (Schuster, Hammitt, & Moore, 2003, 2006). The hassles checklist employed by Schuster and colleagues (2006) incorporated interpersonal, intrapersonal, and environmental factors. Both conflicts and hassles have been related to stress in the transactional stress model (Schneider, 2000; Schneider & Hammitt, 1995a, 1995b; Schuster, Hammitt, & Moore, 2003, 2006). Our study conceptualizes precursors to stress among anglers as *problems,* which incorporate situational and interpersonal, but not personal, factors that influence the person-environment transaction.

Research on recreation conflict has emphasized interpersonal (or goal interference) conflict, but some has explored social values (or social acceptability) conflict (Carothers et al., 2001). The Jacob and Schreyer (1980) conflict model, which proposed activity style, resource specificity, mode of experience, and lifestyle tolerance as determinants of recreation conflict, remains dominant in the recreation conflict literature. Research has documented substantial conflict in outdoor recreation. Much conflict arises between participants in different recreation activities (e.g., between cross-country skiers and snowmobilers, or between anglers and water skiers), and often this conflict is asymmetric (i.e., cross-country skiers object to snowmobilers but not vice versa) (Gramann & Burdge, 1981; Jackson & Wong, 1982; Knopp & Tyger, 1973; Vittersø et al., 2004). Asymmetric conflict has been found between traditional users (e.g., alpine skiers) and new users (e.g., snow boarders) (Vaske, Dyar, & Timmons, 2004) and between non-motorized users (e.g., canoers) and motorized users (e.g., motor boaters) (Gramann & Burdge, 1981; Jackson & Wong, 1982; Knopp & Tyger, 1973; Vittersø, Chipeniuk, Skår, & Vistad, 2004). Intragroup conflict, among participants in the same activity, has also been documented. Across a variety of activities, more experienced recreation participants have been found to perceive greater conflict than novice participants (Jacob & Schreyer, 1980; Vaske et al., 2004). Consistent with previous research, our study measures intergroup, intragroup, and indirect interpersonal conflicts, along with situational problems anglers may face.

Coping

Coping behaviors are actions people take, deliberate or not, to reduce stress and address conditions that they find dissatisfying (Johnson & Dawson, 2004; Manning & Valliere, 2001; Schneider, 2000; Schneider & Hammitt, 1995; Schuster, Hammitt, & Moore, 2003, 2006). Leisure activities, such as fishing, can be both stress reducing and stress provoking. Recreation provides a unique freedom of choice and sense of control to allow people to cope with the stresses in their personal lives (Iwasaki, 2003; Schuster, Hammitt, & Moore, 2003). However, people must also cope with stressors in recreational settings.

Coping is described as "an adaptive reaction to a perceived is-ought discrepancy" (Greve & Strobl, 2004, p. 194). In other words, people engage in coping actions when the situation that *is* occurring conflicts with what they feel *ought* to be happening. Coping has been categorized in the psychological literature as: (a) problem-centered, which is the modification of the "*is* state" that causes the problem, (b) reaction-centered, which is the modification of the "*ought* state" or the internal perception of the problem, and (c) avoidance of the problem (Greve & Strobl, 2004). Recent applications of the transactional stress/coping model have employed emotion-focused coping, which parallels reaction-centered coping, and problem-focused coping, which includes reaction-centered coping and avoidance of the problem (Schuster, Hammitt, & Moore, 2003, 2006; Schuster, Hammitt, Moore, & Schneider, 2006). Recreation research has emphasized behavioral and cognitive coping strategies. Cognitive coping corresponds to reaction-centered and emotion-focused coping. Measures of behavioral coping have generally emphasized displacement while excluding other problem-focused strategies like confrontive coping.

Displacement, rationalization, and product shift are three primary coping strategies employed by recreationists who maintain participation in an activity (Manning & Valliere, 2001). Displacement is a behavioral coping strategy (Kuentzel & Heberlein, 1992; Manning & Valliere, 2001) and can be divided into (a) temporal/intrasite displacement and (b) spatial/intersite/resource displacement (Johnson & Dawson, 2004; Manning & Valliere, 2001; Miller & McCool, 2003). Product shift and rationalization are cognitive coping strategies (Kuentzel & Heberlein, 1992; Manning & Valliere, 2001; Miller & McCool, 2003). Product shift occurs when a participant redefines a recreation area or experience (Kuentzel & Heberlein, 1992; Manning & Valliere, 2001; Miller & McCool, 2003). Rationalization occurs when recreationists reevaluate undesirable situations in a more favorable light (Manning & Valliere, 2001; Miller & McCool, 2003). In other words, they say they had a good time regardless of conditions in order to minimize cognitive dissonance and related stress (Miller & McCool, 2003).

Recreation participants engage in different coping strategies in response to different levels of stress (Miller & McCool, 2004; Schuster, Hammitt, & Moore, 2006), perceived control of the situation (Schuster, Hammitt, & Moore, 2006), or to different problems (Kuentzel & Heberlein, 1992; Manning & Valliere, 2001). People may cope with lower levels of stress through cognitive coping, but when stress levels increase they may engage in behavioral coping (Miller & McCool, 2004). Manning and Valliere (2001) found that local residents using carriage roads for recreation in Acadia National Park were more likely to engage in cognitive coping in response to increased use levels and behavioral coping in response to problem behaviors. However, coping does not necessarily follow a hierarchical model associated with increased crowding (Kuentzel & Heberlein, 1992).

Coping and Satisfaction

Limited research has examined the relationship between recreation coping and satisfaction with (or detraction from) the experience. Results suggest that use of coping strategies by recreation participants, in particular problem-focused coping, may detract from the recreation experience (Schuster, Hammitt, & Moore, 2006; Schuster, Hammitt, Moore, & Schneider, 2006) and reduce satisfaction (Johnson & Dawson, 2004).

Adapting the Transactional Stress/Coping Model

This study adapts the transactional stress model as shown in Figure 1. Researchers who have applied the transactional stress model have conceptualized the factors influencing stress appraisal in several ways. Schneider and colleagues employed a dichotomous measure of interpersonal conflict (Schneider, 2000; Schneider & Hammitt, 1995). Schuster and colleagues (2003, 2006) used a checklist of potential hassles as primary appraisal of stress. Miller and McCool (2003) employed the Positive Affect, Negative Affect Schedule (PANAS) as an indicator of stress. In this study, anglers evaluated potential problems that might lead to stress. We relate the type and intensity of problems experienced to coping response.

As for the measurement of stress appraisal, previous research has employed different measures of coping response in the transactional stress/coping model.

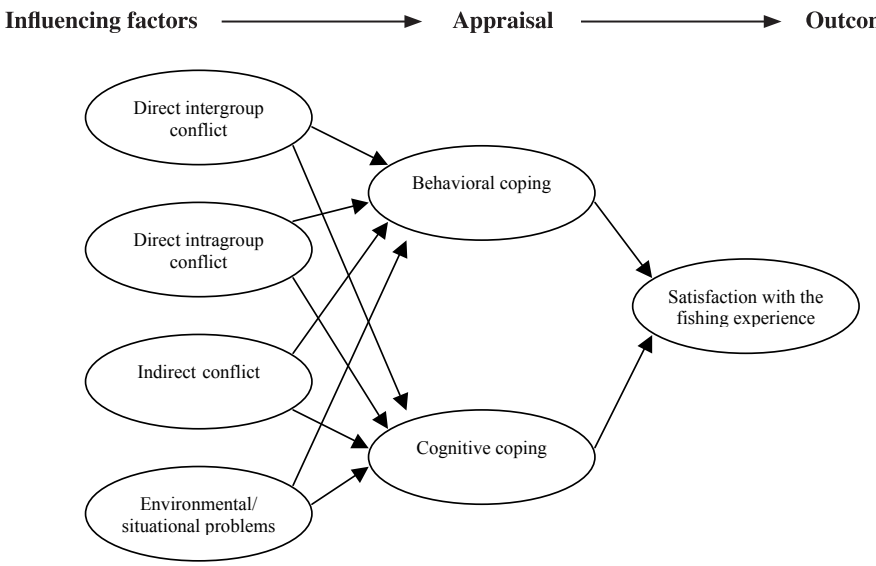

FIGURE 1. HYPOTHESIZED STRUCTURAL EQUATION MODEL, DERIVED FROM TRANSACTIONAL STRESS/COPING MODEL, SHOWING PROBLEMS INFLUENCING PERSON-ENVIRONMENT TRANSACTION, SPECIFIC COPING FACTORS, AND SATISFACTION WITH THE EXPERIENCE.

The majority of recent studies have employed coping checklists derived from Lazarus and Folkman (1984), which measure problem-focused and emotion-focused responses (Schneider, 2000; Schneider & Hammitt, 1995; Schuster, Hammitt, & Moore, 2003, 2006; Schuster, Hammitt, Moore, & Schneider, 2006). Miller and McCool (2003), however, "used items consistent with behavioral and cognitive adjustments suggested by the recreation literature" (p. 263). This study also applies behavioral and cognitive coping measures, which were derived from Manning and Valliere (2001).

Using our conceptualization of the transactional/stress coping model, we examine how different types of problems (i.e., stressors) encountered in fishing predict cognitive and behavioral coping among Minnesota anglers. Our research goals were to: (a) examine how angler experience and involvement related to perceptions of problems and coping response, (b) determine how different types of problems lead to different coping responses, and (c) explore how coping relates to satisfaction with the angling experience.

Methods

The population of interest included Minnesotans, over age 16, who purchased a resident fishing license in 2002. A random sample was drawn from the electronic licensing system (ELS) maintained by the Minnesota Department of Natural Resources (MNDNR). A person must live in Minnesota for 60 consecutive days to qualify for a resident fishing license (Minnesota Department of Natural Resources, 2005).

We administered a mail-back survey following accepted research methodology (Dillman, 2000). We implemented four mailings between April and July 2003. Mailings included (a) an initial survey mailing, including personalized cover letter, survey, and postage-paid reply envelope, (b) a follow-up reminder postcard, (c) a second survey mailing, and (d) a final survey mailing. Response to the third survey mailing was used to explore nonresponse bias.[1]

Variables

Survey questions were developed based on MNDNR interest in resident angler participation, satisfaction, behavior, and perceptions from the previous fishing season. The survey included questions about: (a) fishing participation, (b) satisfaction with fishing experiences during the past season, (c) perceptions of crowding, (d) problems encountered while fishing, (e) coping activity, and (f) demographics.

Respondents rated 25 potential problems experienced while fishing on a scale of 1 (did not experience) to 5 (was a very large problem) (Table 1). Coping responses were measured with eight items—six items measuring behavioral coping (i.e., displacement) and two items measuring cognitive coping (i.e., rationalization, product shift)—derived from Manning and Valliere (2001) (Table 2). Respondents rated coping strategies on a scale of 1 (not at all true) to 4 (very much true). Satisfaction with the overall fishing experience was modeled based on a single item, which was measured on a seven-point scale ranging from 1 (very dissatisfied) to 7 (very satisfied). Angling involvement was calculated as the mean of four items[2] on a five-point scale of importance ranging from 1 (not at all) to 5 (extremely).

Data Analysis

We conducted descriptive statistics, along with t-tests, analysis of variance, and reliability analyses in the Statistical Package for Social Sciences (SPSS 16.0).[3] Confirmatory factor analysis, structural equation modeling, and a test of model invariance based on angler involvement were conducted using LISREL (8.80). We used principal component analysis (PCA) with varimax rotation, reliability analysis, and confirmatory factor analysis (CFA) to identify constructs underlying angling problems. Following the recommendations of Nunnally and Bernstein (1994), variables that loaded heavily (i.e., correlations between an item and factor of greater than 0.5) on one factor without loading heavily on other factors in the PCA were included in the analysis. For the results of the PCA, we report weighted factor-based scales, Cronbach's alpha as a measure of scale reliability for factors with three or more items, and Pearson correlations for factors with two items (Table 1). Results of the PCA were verified through CFA in LISREL. For the CFA, we report factor loadings, composite reliability and average variance extracted as

[1] Dillman (2000) describes how a same-mode, follow-up survey may be an effective method when it is expected that reluctant respondents may differ from earlier respondents.

[2] Items included: (a) If you personally could no longer fish for some reason, how upsetting would that be to you?, (b) How important is fishing compared to other things in your life?, (c) How committed are you to the activity of fishing?, and (d) Compared to other recreation activities, how important is fishing to you?

[3] The use of trade, product, industry or firm names or products or software or models, whether commercially available or not, is for informative purposes only and does not constitute an endorsement by the U.S. Government or the US Geological Survey.

Table 1. Frequencies, means, and standard errors for items measuring problems experienced while fishing in Minnesota during the most recent angling season; weighted factor based scale means, standard deviations, and Cronbach's α or correlation for problem factors identified through exploratory factor analysis; and results of confirmatory factor analysis including composite reliability and average variance extracted for problem factors, and standardized parameter coefficients for problem items.

Potential Problem	α/R[a]	Percentage Responses					Mean[b]	SD	CFA		
		1	2	3	4	5			CR	AVE	Coef[c]
Direct intergroup conflict	.931						20.9	8.136	.93	.59	
Too much noise from personal watercraft (i.e., jet skiers) (prob11)		23.2	21.3	24.3	14.2	17.0	2.8	1.388			.80
Personal watercraft (i.e., jet skiers) coming too close to where I am fishing (prob9)		26.2	21.9	26.4	12.1	13.4	2.7	1.345			.78
Too many personal watercraft (jet skiers) where I am fishing (prob19)		31.7	27.4	17.6	9.8	13.5	2.5	1.375			.81
Other people in boats are traveling too fast (prob13)		32.1	30.8	18.7	11.2	7.3	2.3	1.232			.73
Too much noise from boats (prob10)		33.6	31.4	20.1	8.7	6.2	2.2	1.182			.84
Non-angling boaters coming too close to where I am fishing (prob8)		34.4	30.8	21.2	7.3	6.4	2.2	1.177			.72
Too many boaters where I am fishing (prob18)		42.1	36.6	11.0	6.2	4.1	1.9	1.071			.76
Other people making too much noise (prob20)		51.4	32.6	8.4	4.6	3.0	1.8	.995			.75
Too many non-anglers where I am fishing (prob17)		87.7	7.0	3.3	0.9	1.2	1.2	0.654			
People are taking too long at boat ramps/ landings (prob15)		50.2	29.7	14.5	3.0	2.6	1.8	0.976			

Notes. Scale of 1=did not experience, 2=was a slight problem, 3=was a moderate problem, 4=was a large problem, 5=was a very large problem.

[a] Cronbach's alpha reported for scales of three or more items; Pearson correlations reported for scales of two items.

[b] Weighted factor based scale means reported for factors.

[c] Coefficients for the manifest variables are from accepted model including correlated errors.

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Potential Problem	α/R[a]	Percentage Responses					Mean[b]	SD	CFA		
		1	2	3	4	5			CR	AVE	Coef[c]
Direct intragroup conflict	.887						15.1	5.631	.87	.57	
Other anglers coming too close to where I am fishing (prob1)		31.1	39.5	18.6	7.7	3.0	2.1	1.031			.73
Other anglers in boats coming too close to where I am fishing (prob6)		37.3	35.2	15.7	7.5	4.3	2.1	1.103			.78
Too many other anglers are fishing where I am fishing (prob16)		42.3	41.4	10.8	4.3	1.1	1.8	.879			.75
Other anglers are "hogging" good fishing spots (prob12)		55.8	27.7	11.2	3.7	1.6	1.7	.927			.69
Other anglers behaving in rude or inappropriate ways (prob5)		58.4	24.7	10.5	4.3	2.1	1.7	.971			.81
Problems with the environment/situation	.821						13.0	4.891	.84	.52	
Too much development (houses, docks, etc.) on shorelines (prob21)		36.8	29.2	18.0	8.0	8.0	2.2	1.244			.55
Loss of fish habitat (prob25)		45.5	30.2	15.1	5.5	3.7	1.9	1.073			.64
Landowners are removing too much aquatic vegetation (prob22)		68.5	16.4	8.4	3.4	3.2	1.6	1.004			.65

Note. Scale of 1=did not experience, 2=was a slight problem, 3=was a moderate problem, 4=was a large problem, 5=was a very large problem.

[a] Cronbach's alpha reported for scales of three or more items; Pearson correlations reported for scales of two items.

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Table 1. Frequencies, means, and standard errors for items measuring problems experienced while fishing in Minnesota during the most recent angling season; weighted factor based scale means, standard deviations, and Cronbach's α or correlation for problem factors identified through exploratory factor analysis; and results of confirmatory factor analysis including composite reliability and average variance extracted for problem factors, and standardized parameter coefficients for problem items (continued).

Potential Problem	α/R[a]	Percentage Responses					Mean[b]	SD	CFA		
		1	2	3	4	5			CR	AVE	Coef[c]
Tournament fishing is causing crowding at access areas (prob23)		71.9	14.1	6.7	4.1	3.2	1.5	1.011			.84
Tournament anglers are not letting others fish hot spots (prob24)		80.7	8.5	3.7	5.5	1.6	1.4	.916			.88
Indirect conflicts	.807						9.9	3.788	.86	.68	
Other anglers not following the fishing regulations (prob2)		60.0	18.5	14.2	5.0	2.3	1.7	1.033			.81
Non-anglers littering (prob4)		40.2	22.8	22.6	9.6	4.8	2.2	1.193			.89
Other anglers littering (prob3)		38.1	28.1	19.6	9.6	4.6	2.1	1.165			.77
Sailboat problems	.784						7.0	2.553			
Too many sailboats (prob7)		86.6	8.1	3.5	1.2	0.7	1.2	0.625			
Sailboats are coming too close (prob14)		87.7	7.0	3.3	0.9	1.2	1.2	0.654			
Items that did not load on factors											
People are taking too long at boat ramps/ landings (prob15)		50.2	29.7	14.5	3.0	2.6	1.8	0.976			

Note: Scale of 1=did not experience, 2=was a slight problem, 3=was a moderate problem, 4=was a large problem, 5=was a very large problem.

[a] Cronbach's alpha reported for scales of three or more items; Pearson correlations reported for scales of two items.

[b] Weighted factor based scale means reported for factors.

[c] Coefficients for the manifest variables are from accepted model including correlated errors.

Table 2. Frequencies and mean scores for potential coping mechanisms used while fishing in Minnesota during the most recent angling season.

Potential Coping Mechanism	Percentage Responses				Mean	SD
	1	2	3	4		
Behavioral Coping					1.8	0.773
I avoid fishing on holidays or the fishing opener because of the changes in use at the places I fish (chang7)	36.9	18.8	16.1	28.2	2.4	1.240
I have changed the days of the week I fish to avoid changes in use at the places I fish (chang4)	51.4	21.0	16.9	10.7	1.9	1.048
I have stopped fishing at some places because of changes in use at those places (chang6)	52.1	23.6	11.2	13.1	1.9	1.066
I am fishing in different places to avoid changes in use at the places I used to fish (chang5)	53.0	27.0	12.6	7.4	1.7	0.944
I fish during off-peak seasons to avoid changes in use at the places I fish (chang3)	59.6	23.3	10.0	7.1	1.7	0.926
I go fishing less often than I used to because of changes in use at the places I fish (chang2)	62.3	22.9	9.3	5.6	1.6	0.875
Cognitive Coping					1.9	0.830
My fishing behavior has not changed in recent years, but the type of experience I have while fishing has changed because of changes in use at the places I fish (chang8)	40.7	35.6	16.1	7.6	1.9	0.931
My fishing behavior has not changed in recent years, but I am less satisfied with the experience I have while fishing because of changes in use at the places I fish (chang9)	45.8	34.8	12.8	6.6	1.8	0.903

Note. Scale of 1=not at all true, 2=slightly true, 3=moderately true, 4=very much true.

Table 3. Summary of fit indices for confirmatory factor analyses of problem factors

	χ^2	df	P	χ^2/df	GFI	AFGI	CFI	RMSEA
Model 1 [a]	1482.35	203	<0.001	7.30	.72	.65	.94	.11
Model 2 [b]	1394.64	202	<0.001	6.90	.74	.67	.95	.10
Model 3 [c]	1280.02	201	<0.001	6.37	.77	.71	.96	.093
Model 4 [d]	1240.91	200	<0.001	6.20	.78	.72	.96	.091
Model 5 [e]	1170.03	199	<0.001	5.88	.79	.73	.97	.087
Model 6 [f]	1117.64	198	<0.001	5.64	.80	.74	.97	.084
Model 7 [g]	1056.81	197	<0.001	5.36	.81	.75	.97	.081
Model 8 [h]	1032.40	196	<0.001	5.27	.81	.76	.97	.080
Model 9 [i]	1002.34	195	<0.001	5.14	.82	.77	.97	.078

[a] No correlated error terms.

[b] Added correlated errors between Prob1 and Prob6

[c] Added correlated errors between Prob9 and Prob11 to error correlations above.

[d] Added correlated errors between Prob2 and Prob4 to error correlations above.

[e] Added correlated errors between Prob8 and Prob9 to error correlations above.

[f] Added correlated errors between Prob22 and Prob24 to error correlations above.

[g] Added correlated errors between Prob9 and Prob19 to error correlations above.

[h] Added correlated errors between Prob12 and Prob16 to error correlations above.

[i] Added correlated errors between Prob17 and Prob18 to error correlations above.

Table 4. Summary of fit indices for confirmatory factor analyses of problem factors

	χ^2	df	P	χ^2/df	GFI	AFGI	CFI	RMSEA
Model 1 [a]	4167.08	419	<0.001	9.95	.61	.54	.97	.080
Model 2 [b]	4070.24	418	<0.001	9.74	.62	.55	.97	.077
Model 3 [c]	4028.34	417	<0.001	9.66	.62	.55	.97	.077
Model 4 [d]	3862.86	416	<0.001	9.29	.64	.57	.98	.072
Model 5 [e]	3840.11	415	<0.001	9.25	.64	.57	.98	.071
Model 6 [f]	3766.49	414	<0.001	9.10	.64	.57	.98	.071
Model 7 [g]	3741.13	413	<0.001	9.06	.64	.57	.98	.071
Model 8 [h]	3692.67	412	<0.001	8.96	.65	.58	.98	.069
Model 9 [i]	3684.75	411	<0.001	8.97	.66	.59	.98	.068
Model 10 [j]	3578.45	410	<0.001	8.73	.66	.59	.98	.065

[a] No correlated error terms.

[b] Added correlated errors between Prob6 and Prob12 to error correlations above.

[c] Added correlated errors between Chang3 and Chang6 to error correlations above.

[d] Added correlated errors between Prob11 and Prob18 to error correlations above.

[e] Added correlated errors between Prob9 and Prob10 to error correlations above.

[f] Added correlated errors between Prob8 and Prob9 to error correlations above.

[g] Added correlated errors between Prob10 and Prob20 to error correlations above.

[h] Added correlated errors between Prob9 and Prob17 to error correlations above.

[i] Added correlated errors between Prob18 and Prob20 to error correlations above.

[j] Added correlated errors between Prob21 and Prob22 to error correlations above.

measures of convergent, content, and discriminant validity, respectively (Diamantopoulos & Siguaw, 2000; Tsaur & Liang, 2008) (Table 1).

We used structural equation modeling (SEM) with robust maximum likelihood estimation (RML) to examine relationships among angling problems, coping responses, and satisfaction. SEM builds on regression and factor analysis. It uses the analysis of covariances to explore relationships among a set of variables (McCoach, Black, & O'Connell, 2007). SEM provides a comprehensive and flexible method for examining relationships among observed variables and unmeasured latent constructs (Knoke, Bohrnstedt, & Mee, 2002; McCoach et al., 2007). As opposed to multiple regression, SEM explicitly accounts for measurement error (McCoach et al., 2007). SEM also allows the assessment of overall model fit to data and the determination of equivalences of model parameters across several samples (Knoke et al., 2002; McCoach et al., 2007). Interpretation of path models produced through SEM is fairly straightforward—the standardized coefficients are interpreted as regression coefficients, and unexplained variance of an endogenous (i.e., dependent) variable equal to $1 - R^2$ in recursive models (where causal loops are unidirectional) (Kline, 2005). In our model, angling problems represent the exogenous latent variables, which are used to predict endogenous latent coping variables, which in turn predict the latent endogenous satisfaction variable. In our model, satisfaction is a single-indicator latent variable. Because scores from a single indicator are unlikely to be free of measurement error (Kline, 2005), we estimate measurement error for satisfaction as the product of 0.15 by the variance of the measured variable based on the recommendations of Jöreskog and Sörbom (1996).

We employed multiple-sample SEM to test whether angling involvement moderated the relationships among model parameters. Angler involvement was dichotomized into less-involved ($\overline{x} \leq 3.0$, $n = 172$) and more-involved ($\overline{x} > 3.0$, $n = 269$) participants based on the four-item scale of angler involvement, because sample size limited further segmentation based on angler involvement.

We report several measures of model fit for CFA and SEM, including chi-square, chi-square per degree of freedom, goodness-of-fit index (GFI), adjusted goodness-of-fit index (AFGI), comparative fit index (CFI), root mean square error of approximation (RMSEA), and normed fit index (NFI). For an acceptable fit, the chi-square statistic should not be significant, and the GFI, AFGI, and CFI measures should exceed 0.90. RMSEA values less than 0.05 suggest good model fit, between 0.05 and under 0.08 reasonable fit, between 0.08 and 0.10 mediocre fit, and greater than 0.10 poor fit (Diamantopoulos & Siguaw, 2000; Raykov & Marcoulides, 2006). In our examination of model invariance based on angler involvement, we report change in chi-square and change in Akaike's information criterion (AIC). The AIC measure of model fit is commonly used for comparing models; smaller AIC values suggest better fit (Diamantopoulos & Siguaw, 2000; Raykov & Marcoulides, 2006).

Based on findings from previous research (Jacob & Schreyer, 1980; Johnson & Dawson, 2004; Kuentzel & Heberlein, 1992; Manning & Valliere, 2001; Miller & McCool, 2004; Vaske et al., 2004; Schuster, Hammitt, & Moore, 2006; Schuster, Hammitt, Moore, & Schneider, 2006), our research was guided by five hypotheses:

1a: Respondents who are more involved in angling will report higher levels of angling problems.

1b: Respondents who are more involved in angling will report increased coping response.

2a: Different types of perceived problems with angling will be associated with different types of coping response.

3a: Greater behavioral coping will relate to lower satisfaction with the angling experience.

3b: Greater cognitive coping will relate to lower satisfaction with the angling experience.

Results

Survey Response

We contacted 839 anglers by mail. Seventeen surveys were discarded because the recipient was physically unable to fish, did not fish, was deceased, was under the age of 16, or indicated they did not want to complete the survey. Of the 822 remaining surveys, 27 were undeliverable, and 457 were returned resulting in a response rate of 58%.

Respondent Characteristics

Nearly all respondents (98%) were White, and the large majority (85%) was male. About half (51%) had an income of $40,000 or more, and about one-third (32%) had a college degree or higher level of education. The mean respondent age was 48 years. Respondents' demographic characteristics were generally similar to those found in other surveys of Minnesota anglers (Schroeder & Fulton, 2005; Schroeder, Fulton, Currie, & Goeman, 2006).

Reluctant respondents (used to explore possible non-response bias) were significantly younger ($\overline{x}$ = 36 years) than other respondents ($p \leq 0.001$). We found no other statistically significant differences between reluctant and other respondents based on gender, number of days spent fishing, satisfaction with the overall fishing experience, and importance of fishing. Other research has found age bias in mail surveys (Filion, 1975; Schroeder et al., 2006).

Angling Problems

None of the 25 items used to measure problems encountered while angling had a mean score greater than 3.0. However, 95% of respondents reported that one or more items were a moderate to very large problem. The three problems with the highest mean scores were all direct intergroup conflicts related to the use of jet skis.

In exploratory factor analysis, we identified five underlying problem factors with eigenvalues greater than 1.0 : (a) direct intergroup conflict (9 items, $M = 20.9$, $SD = 8.1$, $\alpha = 0.931$), (b) direct intragroup conflict (5 items, $M = 15.1$, $SD = 5.6$, $\alpha = 0.887$), (c) problems associated with the environment or situation (5 items, $M = 13.0$, $SD = 4.9$, $\alpha = 0.821$), (d) indirect interpersonal conflict (3 items, $M = 9.9$, $SD = 3.8$, $\alpha = 0.807$), and (e) problems with sailboats (2 items, $M = 7.0$, $SD = 2.6$,

R = 0.784) (F (4, 689) = 1465.6, $p < 0.001$)[4] (Table 1). Prior to conducting confirmatory factor analysis and structural equation modeling of relationships among problems, coping and satisfaction, we excluded sailboat problems because the four other factors paralleled recreation conflicts/problems that have been examined in the literature and because few respondents indicated angling problems with sailboats. The initial confirmatory factor model did not achieve acceptable fit.[5] Examination of theoretically consistent modification indices provided by LISREL suggested adjustments to improve model fit. With the addition of a few correlated error terms,[6] model fit improved to "reasonable" based on the RMSEA and CFI measures of goodness of fit. All problem factors had composite reliability values greater than 0.60 and average variance extracted values greater than 0.50, which suggests acceptable content and discriminant validity (Diamantopoulos & Siguaw, 2000). Results of confirmatory factor analysis are presented in Tables 1 and 3.

Angling involvement was positively correlated with ratings of problem factors. The significant correlations between involvement and seriousness of problem were as follows: environmental/situational problems ($R = 0.167$, $n = 428$, $p < 0.01$), indirect conflict ($R = 0.182$, $n = 434$, $p < 0.001$), direct intergroup conflict ($R = 0.231$, $n = 433$, $p < 0.001$), and direct intragroup conflict ($R = 0.348$, $n = 434$, $p < 0.001$). Differences between the dichotomized more-involved and less-involved anglers were as follows: environmental/situational problems (1.6 vs. 1.3, $t = 2.750$ (426 *df*), $p < 0.01$), indirect conflict (2.1 vs. 1.9, $t = 2.244$ (432 *df*), $p < 0.05$), direct intergroup conflict (2.3 vs. 2.0, $t = 3.202$ (421 *df*), $p < 0.01$), and direct intragroup conflict (2.1 vs. 1.7, $t = 5.026$ (432 *df*), $p < 0.001$).

Coping

The large majority (85%) of respondents rated one or more coping strategies as slightly, moderately, or very much true. Eighty percent of respondents reported using at least one behavioral strategy, with 75% using at least one temporal strategy and 58% using at least one spatial strategy. Two-thirds of respondents used at least one cognitive strategy, with 59% using product shift and 54% using rationalization.

Respondents reported similar average levels of behavioral (6 items, $\alpha = 0.847$, $M = 1.8$, $SD = 0.8$) and cognitive (2 items, $R = 0.630$, $M = 1.9$, $SD = 0.8$) coping responses (Table 2). Angling involvement was significantly positively correlated to both behavioral ($R = 0.259$, $n = 431$, $p < 0.001$) and cognitive ($R = 0.218$, $n =$

[4] Because Mauchly's test of sphericity was significant, and the Greenhouse-Geisser and Huynh-Feldt epsilons were both less than 0.75, this result reflects the more conservative Greenhouse-Geisser correction.

[5] The GFI and AGFI goodness-of-fit measures are subject to reduced fit when the degrees of freedom are high relative to sample size, and the chi-square measure is subject to reduced fit with non-normality and increasing sample size.

[6] Researchers must exercise prudence when modifying measurement models in structural equation modeling. Several authors have expressed concern over the use of within-factor correlated measurement error (Gerbing & Anderson, 1984; Netemeyer, 2001). Others have suggested that worry about correlated errors may be overblown (Bentler, 2001) and that theoretical the effects of model overspecification are quite minimal (Fan & Hancock, 2006). We correlated error terms within constructs based on our acceptance that shared measurement error between items may exist because of similarities in item wording, item placement, and respondent fatigue. The addition of correlated errors did not significantly alter the structural parameter estimates of a model, and it did not significantly alter the measurement parameters of the model.

430, $p < 0.001$) coping. Compared to less-involved anglers, more-involved anglers reported significantly greater use of both cognitive ($M = 1.9$ ($SD = 0.8$) vs. 1.7 ($SD = 0.8$), $t = 3.104$ (428 *df*), $p < 0.01$) and behavioral ($M = 2.0$ ($SD = 0.8$) vs. 1.7 ($SD = 0.7$), $t = 3.774$ (429 *df*), $p < 0.001$) coping strategies.

Satisfaction

On average respondents were slightly to moderately satisfied ($M = 5.4$, $SD = 1.5$) with their overall fishing experience. Angling involvement was significantly positively correlated to satisfaction with the overall fishing experience ($R = 0.165$, $n = 431$, $p < 0.01$). Compared to less-involved anglers ($M = 5.2$, $SD = 1.5$), more-involved anglers ($M = 5.6$, $SD = 1.4$) were significantly more satisfied ($t = 3.103$ (429 *df*), $p < 0.01$).

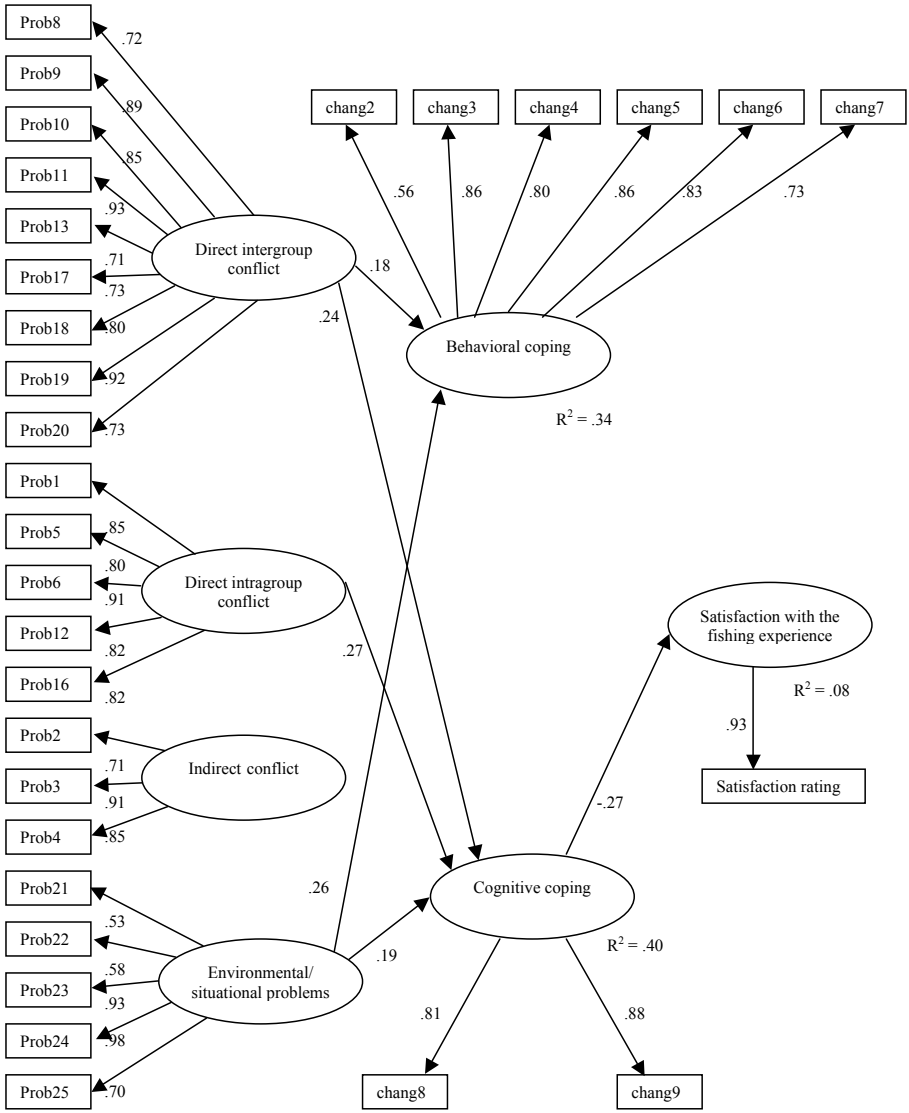
Modeling Problems, Coping, and Satisfaction

Structural equation modeling was used to examine relationships among angling problems, coping response, and satisfaction. We included four of the five types of angling problems as described in the confirmatory factor analysis: direct intergroup conflict, direct intragroup conflict, indirect conflict, and environmental/situational problems. The initial model was on the borderline for acceptable fit. However, model fit improved with the addition of correlated error terms. As for the confirmatory factor analysis of problems, we only correlated error terms between variables within a construct (Table 4).

Results from SEM suggest that direct intergroup conflicts and environmental/situational problems were positively related to both cognitive and behavioral coping (Figure 2). Direct intragroup conflict was positively related to cognitive coping. Indirect conflicts were not related to either type of coping response. The variables in the model explained 34% of the variance in behavioral coping and 40% of the variance in cognitive coping. Cognitive coping was negatively related to satisfaction with the fishing experiences (R^2 for structural equations = 0.08; R^2 reduced form = 0.04). The model had a reasonable fit to the data ($\chi^2 = 3578.45$*** (410 *df*), RMSEA = 0.065).

Next, we compared structural equation models for more-involved and less-involved anglers (Figures 3–4). We included correlated errors among four pairs of variables in the more-involved angler model to improve fit, while the less-involved angler model did not.[7] Among more-involved anglers, direct *intragroup* conflict was positively related to cognitive coping and environmental/situational conflict was positively related to behavioral coping (Figure 3). Cognitive coping was negatively related to satisfaction. The variables in the model explained 33% of the variance in behavioral coping, 44% of the variance in cognitive coping. Model variables explained 11% of the variance in satisfaction with 6% explained by exogenous variables. The model had a reasonable fit to the data ($\chi^2 = 3344.65$*** (415 *df*), RMSEA = 0.078). Among less-involved anglers, environmental/situational problems were again positively related to behavioral coping, and direct *intergroup* conflict

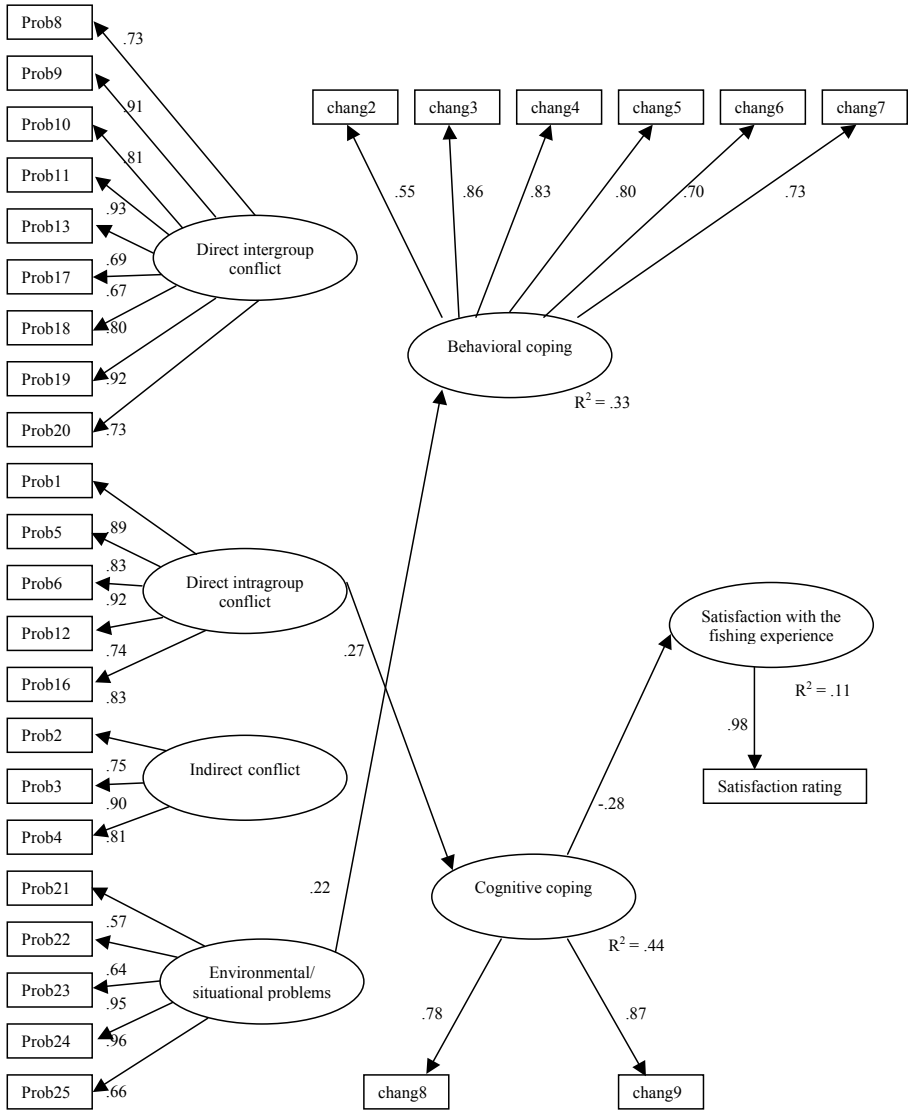
[7] The model for more-involved anglers included correlated error terms, which were added to the original model in the following order: Prob1 and Prob5, Chang5 and Chang6, Prob11 and Prob18, Prob17 and Prob18.



$\chi 2$=3578.45*** (410 df), RMSEA = .065, NFI = .97

FIGURE 2. SIGNIFICANT (P < 0.05) STANDARDIZED COEFFICIENTS AND R2 FOR STRUCTURAL EQUATIONS FOR PATH MODEL RELATING ANGLING PROBLEMS, COPING RESPONSE, AND OVERALL SATISFACTION FOR BEST-FIT MODEL (N = 382).[8]

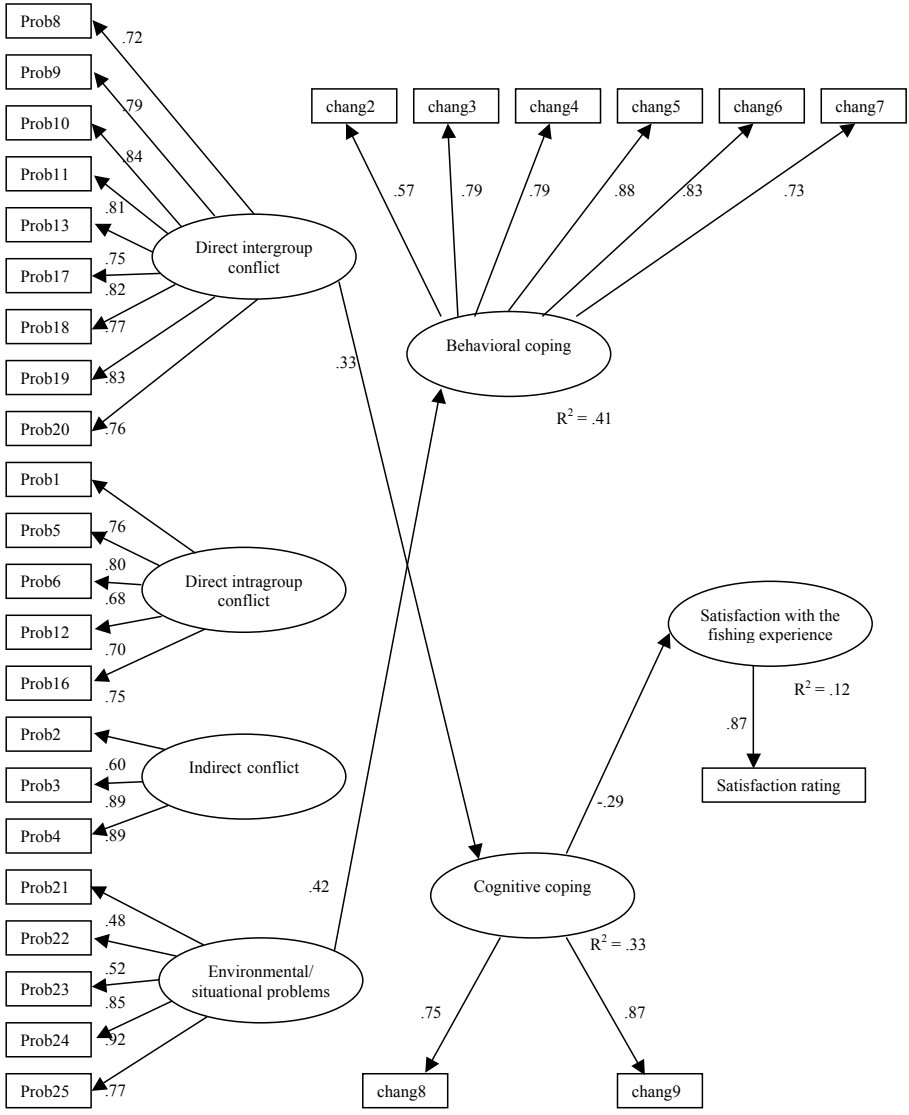
[8] In order to maintain the clarity of the figure, we do not show correlated error terms between Prob6 and Prob12, Chang3 and Chang6, Prob11 and Prob18, Prob9 and Prob10, Prob8 and Prob9, Prob10 and Prob20, Prob9 and Prob17, Prob18 and Prob20, and Prob21 and Prob22.



χ2=3344.65*** (415 δφ), PMΣEA = .078, NΦI = .95

FIGURE 3. SIGNIFICANT (P < 0.05) STANDARDIZED COEFFICIENTS AND R2 FOR STRUCTURAL EQUATIONS FOR PATH MODEL RELATING ANGLING PROBLEMS, COPING RESPONSE, AND OVERALL SATISFACTION FOR MORE-INVOLVED ANGLERS (N = 236).[9]

[9] In order to maintain the clarity of the figure, we do not show correlated error terms between Prob1 and Prob5, Chang5 and Chang6, Prob11 and Prob18, and Prob17 and Prob18.



$\chi 2$=1793.30*** (419 $\delta\phi$), PMΣEA = .076, NΦI = .93

FIGURE 4. SIGNIFICANT (P < 0.05) STANDARDIZED COEFFICIENTS AND R2 FOR STRUCTURAL EQUATIONS FOR PATH MODEL RELATING ANGLING PROBLEMS, COPING RESPONSE, AND OVERALL SATISFACTION FOR LESS-INVOLVED ANGLERS (N = 140).

positively related to cognitive coping (Figure 4). As among more-involved anglers, cognitive coping was negatively related to satisfaction. The variables in the model explained 41% of the variance in behavioral coping and 33% of the variance in cognitive coping. Model variables explained 12% of the variance in satisfaction with 5% explained by the exogenous variables. This model also had a reasonable fit to the data (χ^2 = 1793.30*** (419 *df*), RMSEA = 0.076).

Results from multiple-sample structural equation modeling suggested that angler involvement moderated the relationships among angling problems, coping response, and satisfaction. We observed a better fit when factor loadings and structural parameters varied between more-involved and less-involved anglers, compared to the fully constrained model ($\Delta\chi^2$ = 109.63, 34 df, $p < 0.001$; ΔAIC = 40.70). Fit improved further when error terms (along with factor loadings and structural parameters) were allowed to vary freely across groups ($\Delta\chi^2$ = 197.40, 10 df, $p < 0.001$; ΔAIC = 76.48).

Discussion

Angling Involvement, Perception of Problems, and Coping

Results support the two hypotheses related to angling involvement. Respondents who were more involved in angling reported higher levels of problems associated with angling and greater use of coping strategies. These results are consistent with previous research suggesting that more experienced recreation participants perceive greater conflict than others (Jacob & Schreyer, 1980; Vaske et al., 2004). Despite their perception of problems associated with angling and the need to employ coping responses, more-involved anglers reported greater levels of satisfaction with the overall angling experience. Although this appears counterintuitive, more-involved anglers may simply report more problems with angling and coping activity because they spend more time fishing. On average, more-involved anglers reported fishing 38 days during the previous season, compared to 14 days for less-involved anglers. The more-involved anglers apparently derive a great deal of satisfaction from their avid participation in fishing, despite perceived problems.

Relating Recreation Problems to Coping Response

In support of Hypothesis 2a, results suggest that anglers employ different coping strategies in response to different types of problems. Anglers use both behavioral and cognitive coping strategies to address environmental and situational problems (i.e., loss of fish habitat, shoreline development, and fishing tournaments) and intergroup conflicts with jet skiers and boaters. They use cognitive, but not behavioral, coping in response to conflicts with other anglers. These results parallel other studies, which have found that recreation users employ different coping strategies in response to different types of conflicts or levels of stress (Kuentzel & Heberlein, 1992; Manning & Valliere, 2001; Miller & McCool, 2004; Schuster, Hammitt, Moore, & Schneider, 2006).

Certain problems, which may be seen as more enduring or troublesome, may predict behavioral changes in anglers. Environmental changes like lakeshore development and loss of fish habitat, special situations like fishing tournaments, and intergroup conflicts with jet skiers and boaters may lead some anglers toward

displacement in addition to cognitive coping. More transient problems, such as other anglers fishing too close or other intragroup conflicts, may simply lead to cognitive coping. Differences in coping response may result from differences in the perceived controllability of the situation. Schuster, Hammitt, Moore, & Schneider (2006) found that situations that were perceived as controllable predicted increased use of problem-focused coping mechanisms. However, our observed differences in coping response to intragroup versus intergroup conflict may also relate to differences in lifestyle tolerance that anglers have for other anglers compared to boaters or jet skiers.

Coping and Satisfaction

Consistent with other research (Johnson & Dawson, 2004; Schuster, Hammitt, & Moore, 2006; Schuster, Hammitt, Moore, & Schneider, 2006), we found that coping may detract from the experience. In this study, cognitive, but not behavioral, coping was related to lower levels of satisfaction. This contradicts Hypothesis 3a and supports Hypothesis 3b. Behavioral coping strategies like temporal or spatial displacement may reduce or eliminate the source of stress, while cognitive coping mechanisms leave the recreationist in contact with the stressors.

Schuster, Hammitt, and Moore (2006) and Schuster, Hammitt, Moore, & Schneider (2006) found that problem-focused coping predicted detraction from the recreation experience. They suggested that problem-focused coping may generate stress. Our results suggest cognitive, but not behavioral coping, predicts lower satisfaction. Like participants who use confrontive or other types of problem-focused coping, individuals who employ cognitive coping may stay in contact with the source of stress, which may detract from the recreation experience.

Modeling Coping Based on Activity Involvement

Results suggest that activity involvement moderates the relationship between perceptions of recreation problems and coping. In the model for more-involved anglers, environmental/situational problems predicted behavioral coping and direct *intragroup* conflict predicted cognitive coping. For less-involved anglers, environmental problems predicted behavioral coping, and direct *intergroup* conflict predicted cognitive coping. The model for more-involved anglers explained more variance in cognitive than behavioral coping, and the opposite was true for less-involved anglers. This suggests that avid recreation participants may be more resistant to displacement in the face of problems than casual participants. Avid participants appear to be sensitive to interpersonal conflict with other anglers, but employ cognitive coping to maintain valued participation in the activity. More casual participants may be less sensitive to interpersonal conflicts, but may be more likely to be displaced by enduring environmental or situational problems.

Theoretical and Methodological Implications

This research extended the use of the transactional stress/coping model beyond previous applications, which have examined specific visits to parks and wilderness areas, by applying it to angler experiences over the course of a fishing season. The results demonstrated the value of the model for examining the

relationships among established recreation problem constructs (i.e. intergroup conflict, intragroup conflict, indirect conflict, and environmental problems), to cognitive and behavioral coping, and satisfaction with the experience.

This study may be the first to apply confirmatory factor analysis to the established constructs of intergroup conflict, intragroup conflict, indirect conflict, and environmental problems, previously identified in the recreation literature. Our results suggest that there is need for additional refinement of scales used to measure these constructs. The error covariances included in our final models suggest shared measurement error. We can only speculate about why these errors exist in our models. Similarities in item wording, item placement, and respondent fatigue may have contributed to these correlated errors. Future studies should attempt to minimize sources of measurement error and identify other sources of correlation among items used to gauge recreation conflicts, problems, and coping strategies.

Our results suggest certain problems, which may be perceived as more enduring, may predict behavioral changes in recreation participants. For example, environmental problems, like loss of fish habitat, predicted displacement in addition to cognitive coping. More transient problems, like anglers not following regulations, predicted only cognitive coping. Our results clarified important differences between avid and casual recreation participants. Compared to less-involved participants, more-involved participants reported experiencing more problems and employing greater use of coping mechanisms, yet they reported greater overall satisfaction. More avid participants may be sensitive to interpersonal conflicts but respond through cognitive coping rather than being displaced. Less-avid recreation participants may perceive less conflict, but be more likely to be displaced by overt problems. However, the sample sizes for the structural equation models segregated by angler involvement were small relative to the complexity of the models, and further research could examine these relationships with larger sample sizes.

People cope with stress and problems in many distinguishable yet interdependent ways. We employed "symptom-focused" cognitive and behavioral coping measures identified in previous recreation research, but excluded "problem-focused" measures of confrontive coping and planful problem solving employed by Schuster and colleagues (2003, 2006). Future research needs to further refine measurement of coping to incorporate and differentiate a variety of problem- and symptom-focused behavioral coping mechanisms including (a) absolute, spatial, and temporal displacement, (b) confrontation, (c) planful problem solving, (d) political or legal action, (e) activism, and (f) other possible actions. Careful measurement and differentiation of behavioral coping mechanisms may clarify coping response to different types of problems and how different coping strategies affect satisfaction. While researchers distinguish different types of coping mechanisms, they must also recognize that these strategies are interdependent. In this study, intergroup conflict and environmental/situational problems were positively related to both cognitive and behavioral coping. Recreation participants may employ multiple coping strategies in response to problems and stressors.

This research and other studies suggest that coping responses may relate to reduced satisfaction with or detraction from the recreation experience (Johnson & Dawson, 2004; Schuster et al., 2006). Schuster and colleagues (2006) found that

problem-related (opposed to emotion-related) coping was related to detraction from the recreation experience. We found that cognitive (but not behavioral) coping was negatively related to satisfaction. Because cognitive coping roughly parallels emotion-related coping, these results may appear inconsistent. The results, however, may derive from the measurement of different coping constructs, in particular that Schuster et al.'s (2006) measures of problem-related coping included confrontation and planful problem solving in addition to displacement.

Our study evaluated problems, coping, and satisfaction based on reflections on an entire fishing season rather than for a specific time or place. The evaluation of experiences over a 12-month period is a challenging cognitive task, so responses may be influenced by extraordinary events that were easier to recall (Bradburn, Sudman, & Wansink, 2004). However, future recreation participation—and in particular future purchase of a fishing or hunting license—may be influenced by reflections on the previous season. Indeed, Miller and McCool (2003) emphasized the need to examine differences in perceptions of stress and coping based on the time frame of evaluation. Anglers' problem perception, coping response, and satisfaction might differ depending on the time frame or setting. Future research could examine coping behavior for specific fishing outings (e.g. fishing opener weekend at a specific lake) and settings, as well as by angler type.

Based on our dichotomized index of angler involvement, we found that more-involved anglers experienced greater problems, coping response, and satisfaction. We also found that although the avid anglers engaged more in all types of coping, that problems more strongly predicted displacement among less-avid anglers. This suggests that anglers of different types and levels of involvement may respond differently to angling problems and stressors. Future research could further differentiate anglers by involvement and type. For example, fly anglers might pursue a more solitary experience than ice fishers and respond differently to problems. Likewise, shore anglers or anglers fishing in canoes might employ different coping strategies than anglers in motorized boats, who have the capacity to quickly move away from an area. There may also be differences in coping behavior by location. For example, anglers fishing in an urban area might have different expectations about crowding and conflict than those fishing in a wilderness area. Finally, age, gender, or cultural background may affect perceptions of conflict or coping behavior (Diehl, Coyle, & Labouvie-Vief, 1996).

Management Implications

To maintain and improve the satisfaction of recreational anglers, managers need to recognize stress and conflict and subsequent coping behavior. Angling, like other forms of outdoor recreation, provides benefits to individuals, the economy, society, and the environment. If environmental problems or interpersonal conflicts detract from the experience, anglers—particularly casual anglers—may quit fishing at certain areas, fish less, or potentially quit fishing. Reductions in angling participation could lead to lead to diminished support for habitat protection, loss of public and private revenues associated with fishing, and the demise of the recreational fishing lifestyle.

Minnesota anglers may feel outnumbered by jet skiers and boaters, because anglers make up a declining proportion of lake users and there is an increasing prevalence of larger, noisier, and more powerful boats (Minnesota Department of Natural Resources, 1999). Our respondents reported that intergroup conflicts associated with jet skiing were particularly problematic for fishing. This finding is consistent with other studies reporting asymmetric conflict between landowners and motor boaters toward jet skiers (Wang & Dawson, 2005). Anglers' reported conflict with jet skiers is also consistent with findings that individuals engaged in traditional activities (e.g., snow skiing) feel more conflict toward people participating in newer, nontraditional activities (e.g., snowboarding) (Vaske et al., 2004). The reported conflicts related to jet skiers may relate to the noise associated with these machines. One of the primary motivations for outdoor recreation is to escape the noise found in urban areas, and noise has been found to be a key source of conflict among recreationists (Vittersø et al., 2004). Although many anglers may use motorized boats to reach fishing areas, they may turn off their boat motor and expect quiet. In the United Kingdom, Roe and Benson (2001) found that "small numbers of people involved in the noisy activity of jet-skiing at otherwise quiet locations were the greatest cause of conflict" (p. 36). In response to conflicts with jet skiers, others have proposed the creation of single-use recreation zones (e.g., zoned in time and space) as "attractions to concentrate such use where and when it can be better accommodated" (Wang & Dawson, 2005, p. 313). It is possible that both jet skiers and anglers in Minnesota might respond positively to "jet ski parks" similar to parks designed for skate boarders and snowboarders.

Coping is a normal, healthy response to adverse stimuli, but it can also indicate problems in outdoor recreation. Our results show that a large percentage of Minnesota anglers adopt behavioral and cognitive coping mechanisms because of problems at the places they fish. Intergroup conflicts with jet skiers and boaters along with environmental and situational problems including lakeshore development, loss of fish habitat, and fishing tournaments, may lead to angler displacement, particularly among less-avid anglers. Displaced anglers may shift their use to previously low-use times and places, and these times and places may no longer be "low-use." If resource managers are concerned about anglers being displaced from current angling destinations to other locales, they may need to minimize negative environmental changes by taking efforts to: (a) maintain and improve fish habitat, (b) protect undeveloped lakeshore property, and (c) minimize conflicts between anglers and other users including jet skiers, recreational boaters, and tournament anglers.

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