Published in final edited form as:

Addict Behav. 2008 November ; 33(11): 1484–1490. doi:10.1016/j.addbeh.2008.07.002.

Marijuana and Tobacco Exposure Predict Affect-Regulation Expectancies in Dual Users

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Abstract

In order to better compare affect-related expectancies for tobacco and marijuana smoking, associations of marijuana and tobacco exposure to negative affect reduction (NAR), positive affect enhancement (PAE), and related smoking outcome expectancies were assessed in young individuals who reported smoking both marijuana and tobacco on a regular basis (dual users). More frequent smoking of a given substance was associated with expectations of greater NAR and PAE by that substance while duration of exposure did not reliably predict NAR or PAE drug expectancies. Contrary to expectations, individuals anticipating greater NAR and/or PAE for one substance did not exhibit corresponding expectancies for the other drug. These findings suggest that exposure duration may be less important than current usage levels in influencing affect expectancies and that the affect-related expectancies for tobacco and marijuana are largely independent of each other.

Negative affect reduction (NAR) and positive affect enhancement (PAE) are reported to be major reasons for smoking by users of both tobacco (Brandon & Baker, 1991; Spielberger, 1986) and marijuana (Hathaway, 2003; Schafer & Brown, 1991). In a recent review of the literature, Viverosa, Marcoa, and File (2006) noted that, “These drugs are increasingly taken in combination, particularly among...adolescents and young adults... [and that this is] an area that is in urgent need of further investigation....” The high comorbidity between these two substances (Rigotti, Lee, & Wechsler, 2000) could reflect the above-noted outcome expectancies; however, it is reasonable to assume that for other reasons certain individuals may smoke both substances in order to attain NAR while others may smoke for PAE. Presently, we are unaware of any study that has compared NAR and PAE expectancies of both tobacco and marijuana (TAM) within the same individuals (dual users). Better characterization of expectancies in dual users is important not only because of the comorbidity of these drugs, but also to better understand the mechanisms by which these drugs moderate affect, and thereby possibly contribute to use of and dependence on both substances. Given that substance use expectations have been posited to reflect a final common pathway of the motivation for drug use (Cox & Klinger, 1988; Zvolensky et al., 2007), a more precise characterization of expectations for TAM use in dual users could provide potentially important information in this large group of individuals.

Current level of use is a likely contributor to individual differences in the expected and actual effects of marijuana (Galen & Henderson, 1999) and tobacco smoking (Piasecki,

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Richardson, & Smith, 2007). For example, acute marijuana smoking has been shown to decrease reported anxiety in frequent smokers while increasing anxiety and depression reported in individuals with minimal smoking experience (Benedikt, Cristofaro, & Mendelson, 1986; Mathew, Wilson, & Tant, 1989). Zvolensky et al. (2007) found 30-day marijuana use frequency, and not past use, to be significantly associated with certain marijuana motives (e.g., positive affect [PA] enhancement) while tobacco use was found to be predicted by marijuana negative affect (NA) coping motives. Occasional tobacco smokers have also been shown to report minimal NA or other signs of withdrawal during abstinence (Shiffman, Paty, Gnys, Kassel, & Elash, 1995). At present, we are unaware of any studies that have assessed the influence of current use level of these two drugs on expectancies in dual users. In fact, despite the preliminary evidence cited above, there is surprisingly little work on the relationship of level of use and expectancy effects for these drugs.

There are several advantages to comparing NAR and PAE expectancies in dual users of TAM. First, dual users are in a unique position to report their expectancies based on the same metric for both substances. Second, expectancies in the same individual allow within-participant correlations to be performed in a manner that could be confounded in between group comparisons. Thus, an important goal of the present study was to measure TAM smoking expectancies in dual users and to relate these differences in expectancies to individual differences in level of current use of each drug.

Based on the above-noted goals and related findings, we hypothesized that: a) NAR and PAE expectancies for tobacco would correlate moderately with NAR and PAE expectancies for marijuana; b) greater current tobacco use would predict greater NAR and PAE expectancies for tobacco, but not expectancies for marijuana; c) greater current marijuana use would predict greater NAR and PAE expectancies for marijuana, but not expectancies for tobacco; d) the pattern of NAR and PAE expectancies for smoking would be largely similar, though greater PA expectancies were predicted for marijuana than for tobacco.

Method

Participants

Undergraduate students from a Midwestern university received class credit for participation in the study. The sample consisted of 89 (36 Female) who reported smoking tobacco on a daily basis and smoking marijuana at least once per week on average. The sample was primarily Caucasian (75%) and African American (15%) and age ranged from 18 to 51 ($M = 20.4$ years). The mean number of tobacco cigarettes/day was 9.27 ($SD = 7.34$) and mean FTND scores were in the low to middle dependence levels ($M = 2.33$; $SD = 2.12$). The mean frequency of marijuana use/week was 6.0 ($SD = 5.72$). IRB-approved written informed consent was obtained.

Measures

Fagerström Test of Nicotine Dependence (FTND, Heatherton, Kozlowski, Frecker, & Fagerström, 1991)—The FTND is a widely used measure of nicotine dependence.

Horn-Waingrow Reasons for Smoking scale (RFS, Horn & Waingrow, 1966)—The 23 items of the RFS reflect a mixture of tobacco use expectancies and motivations. The scale was adapted to measure marijuana use by substituting “marijuana” for “tobacco”. The six RFS factors (habit, addiction, NAR, pleasure, stimulation, and sensorimotor

manipulation) have been validated in a number of studies (Costa, McCrae, & Bosse, 1980; Tate & Stanton, 1990).

Tobacco and Marijuana Expectancy scale (TAME)—The TAME is an author-constructed measure of tobacco and marijuana smoking expectancies that uses identical items for tobacco and marijuana effects using a four-point scale (“Never”, “Seldom”, “Much of the Time”, “Always”). The six NAR items of the TAME were included in the present analyses: Relaxes (“relaxes me”), calms anger (“calms me when I am mad”), calms nerves (“calms me when I am nervous”), calms jitters (“calms me when I am jittery”), helps depression (“helps me feel better when I am depressed”), and helps worries (“helps me forget my worries”).

Procedure

Statistical approach—Initial analyses compared mean NAR and PAE expectancies for tobacco versus marijuana smoking in dual users. Mixed-design MANOVAs using Drug Type (marijuana vs. tobacco) as within-participant variables and Gender, Tobacco-Frequency (1-4 vs. 5-10 vs. 11+ cigarettes/day), and Marijuana-Frequency (1-3 vs. 4+ times/week) as between participant factors were conducted for the RFS scores (after correcting for item number) and the NAR items of the TAME scale. Follow up analyses were conducted using Bonferroni corrections for multiple comparisons. Pearson correlations were used to test several hypotheses.

Results

RFS tobacco and marijuana expectancies

There was a main effect of Expectancy category (across marijuana and tobacco smoking), Wilkes Lambda (WL) = .151/ $F(5, 68) = 76.286$, $p < .001$, reflecting the fact that pleasure was more highly endorsed than other RFS scales (Fig 1a, all p 's $< .01$), NAR was rated second most highly and was significantly greater than all reasons except pleasure, addiction, and sensory motor, while habit was the least endorsed reason and was significantly lower than all other scales. While there was a great deal of similarity in the pattern of expectancies, there was also a significant Drug $\times$ Expectancy interaction that reflected greater attribution of NAR, habit, and addiction expectancies to tobacco, relative to marijuana ($p < .01$), and a tendency toward greater attribution of marijuana smoking to pleasure ($p < .084$, after correction for multiple comparisons), WL = .404/ $F(5, 68) = 20.069$, $p < .001$.

Findings also strongly supported the hypothesis that degree of regular drug exposure is predictive of drug use expectancies. Greater daily tobacco use predicted greater expectations for tobacco relative to marijuana, Tobacco Frequency $\times$ Drug interaction, WL = .846/ $F(2, 72) = 6.534$, $p = .002$, such that, smoking 11+ tobacco cigarettes per day was associated with greater tobacco than marijuana expectancies ($p < .01$), while there was no difference between the drug expectancies in the two groups that smoked fewer tobacco cigarettes. Similarly, greater frequency of weekly marijuana smoking predicted greater expectations for marijuana relative to tobacco, Marijuana Frequency $\times$ Drug interaction, WL = .822/ $F(1, 72) = 15.581$, $p < .001$, such that, smoking fewer than 4 times per week was associated with greater tobacco than marijuana expectancies ($p < .01$), while there were no mean differences across the six expectancies in individuals who reported smoking 4+ times per week. Finally, there was a Tobacco Frequency $\times$ Drug $\times$ Expectancy interaction, WL = .722/ $F(10, 136) = 2.402$, $p = .012$, such that, smoking 11+ tobacco cigarettes per day was associated with greater expectancies for tobacco than for marijuana on NAR, habit, addiction, and stimulant scales (all p 's $< .05$). The moderate tobacco smoking group (5-10/day) also reported greater habit and addiction expectancies for tobacco than for marijuana smoking while the group of

lightest tobacco smokers (1-4/day) expected only two differences between marijuana and tobacco—greater habit expectancy for tobacco and greater pleasure expectancy for marijuana. These light tobacco smokers (1-4/day) were the only individuals who expected marijuana to produce significantly greater pleasure than tobacco. Additionally, both TAM use frequency were associated with Smoking Frequency $\times$ NAR expectancy interactions (Fig 1b-1d), $WL = .757/F(10, 146) = 2.181, p = .022$; and $WL = .836/F(5, 73) = 2.862, p = .020$, for TAM smoking respectively. Specifically, follow-up analyses revealed that 11+ tobacco cigarette smokers, relative to 1-5 per day, reported tendencies to expect greater reductions in anger, nervousness, jitteriness, and depression (all p 's $< .07$), irrespective of drug. Follow-up analyses also revealed that smoking marijuana 4+ times per week, relative to smoking less, was associated with expectations of greater reductions in anger ($p = .048$), irrespective of drug.

TAME NAR expectancies

Analysis of the NAR items of the TAME scale provided specific affect expectations that were not available with the RFS scales (Fig 2). For each of the items there was a greater expectancy for marijuana than for tobacco to reduce NA, with a drug main effect across items, $WL = .778/F(1, 77) = 21.944, p < .001$. There was also a Drug $\times$ NAR Type interaction, $WL = .699/F(5, 73) = 6.60, p < .001$, that reflected the expectation that marijuana versus tobacco differences would be especially large for depression and worry reduction (p 's $< .01$), while perceptual enhancement and NA expectancies did not differ across drugs. Relative to tobacco, marijuana was reported to produce greater relaxation and reduction in anger (p 's $< .05$).

Findings also supported the hypothesis that degree of regular drug exposure is predictive of drug use expectancies. Greater frequency of weekly marijuana smoking predicted greater NAR expectations for marijuana relative to tobacco (Fig 3), Marijuana Frequency $\times$ Drug interaction, $WL = .928/F(1, 77) = 5.977, p = .017$, such that, smoking marijuana 4+ times per week was associated with greater mean overall marijuana than tobacco NAR expectancies ($p < .001$), while there were no mean differences across the six TAME NAR expectancies in individuals who reported smoking marijuana fewer than 4 times per week ($p = .126$).

Associations of tobacco and marijuana expectancies with level of use

While years of tobacco use and years of marijuana use did not correlate with either RFS tobacco or marijuana expectancies, TAM use levels did correlate systematically (Table 1). The number of tobacco cigarettes smoked per day correlated significantly with NAR and PAE expectancies for tobacco, but not for marijuana. Similarly, the number of times marijuana was smoked per week correlated with NAR and PAE expectancies for marijuana, but not for tobacco. The number of tobacco cigarettes smoked per day correlated significantly with TAME scale expectancies for tobacco (r 's ranging from .25 to .38 for all but "forgetting worries"), but not for marijuana. Similarly the number of times marijuana was smoked per week correlated with TAME scale expectancies for marijuana (significant r 's ranging from .21 to .34, for all but "depression" and "worries") but not for tobacco.

Based on the rationale that controlling for exposure might reveal common underlying mechanisms of affective expectancies, partial correlations were used to control for level of use of both substances in assessing the above associations of marijuana expectancies with tobacco use expectancies. These partial correlational analyses revealed that RFS pleasure expectancies for tobacco were significantly associated with RFS pleasure expectancies for marijuana (partial $r = .22, p = .043$), but RFS NAR expectancies for tobacco were not significantly associated with those for marijuana (partial $r = .17, p = .120$). RFS NAR

expectancies for tobacco were highly associated with RFS PAE expectancies for tobacco (partial $r = .61$, $p < .001$) and RFS NAR expectancies for marijuana were significantly associated with RFS PAE expectancies for marijuana (partial $r = .41$, $p < .001$).

In summary, with the exception of the modest partial correlation of RFS PAE expectancies for marijuana with those for tobacco, Pearson and partial correlations were limited to the same drug and were greater for those who more frequently used the drug.

Associations of RFS and TAME marijuana expectancies with the Marijuana Effect Expectancies Questionnaire (MEEQ, Schafer & Brown, 1991)

The extensively used MEEQ was not utilized in the present study because it does not include items deemed important to tobacco smoking. However, for validation purposes, the MEEQ and the RFS NAR scales were correlated with the six NAR items of the marijuana portion of the TAME. As can be seen in Table 2, the correlational pattern of the MEEQ scales with the RFS and TAME scales supports the validity of the latter two measures. Specifically, RFS pleasure, stimulation, and NAR scales correlated with MEEQ relaxation-tension reduction, social-sexual facilitation, and perceptual-cognitive enhancement scales. Each of the six NAR items of the TAME correlated with the MEEQ relaxation-tension reduction scale, the perceptual-cognitive enhancement scale, and with one exception, the social-sexual facilitation scale.

Discussion

Support was found for all but one of the hypotheses. First, the level of current tobacco use (cigarettes/day) predicted greater NAR and PAE expectancies for tobacco, but not for marijuana. Second, greater weekly current marijuana use predicted greater NAR and PAE expectancies for marijuana, but not for tobacco. However, findings generally failed to support the hypothesis that individuals expecting greater NAR or PAE for one substance would report corresponding expectancies for the other. Thus, TAM expectancies were largely independent of each other in dual users despite the fact that the pattern of mean group expectancies was quite similar for the two drugs. This independence was exhibited again when level of tobacco use failed to predict marijuana expectancies, and vice versa. Despite the failure of level of use of one drug to predict expectancies for the other drug, the level of marijuana use was substantially related to marijuana expectancies, while level of tobacco use was a strong predictor of tobacco expectancies. The strength of the associations of expectancies with current level of drug use is in stark contrast to the lack of association of these expectancies with duration of drug use. Below we discuss the important theoretical and clinical implications of these findings followed by the study limitations and directions for future research.

The finding that TAM expectancies were largely independent of each other in dual users appears to make a strong case for the argument that unique, rather than common mechanisms mediate individual differences in affective expectancies for TAM. Any tendency for there to have been individual differences in response biases in reporting should have produced associations between TAM expectancies, yet none were found. Similarly, one might expect associations between TAM to result from a tendency for individuals high in negative affect-proneness (neuroticism/negative affectivity) to experience greater NA and therefore to report greater NAR from TAM. Individual differences in the neurobiological mechanisms mediating TAM might also be expected to lead to correlated expectancies. For example, both tobacco (Corrigall, Coen, & Adamson, 1994) and marijuana (Lupica & Riegel, 2005) produce release of mesolimbic dopamine (DA) contributing to the reinforcing properties of both substances. Consistent with the notion that a common biological disposition contributes to polysubstance abuse, individual differences in DA tone has been

hypothesized to predict disposition to the abuse of many drugs (Blum et al., 2000; Lupica & Riegel, 2005). Thus, in the face of so many factors promoting an association of the NAR and PAE effects of TAM, it is surprising that the only evidence of any involvement in this direction was a very small connection between the expectancy that TAM would produce PA. This association was evident only after controlling for the typical level of use of both drugs.

A large literature supports the importance of contextual and situational factors in moderating the affect-modulating properties of both tobacco (Gilbert, 1995; Kassel, Stroud, & Paronis, 2003) and marijuana (Bailey, Flewelling, & Rachal, 1992; Haller, Varga, Ledent, Barna, & Freund, 2004). The potential importance of these factors is provided by studies that suggest that the reinforcing properties of drugs, including marijuana, are influenced by social factors that are challenging to replicate in a laboratory setting (Doty & de Wit, 1995; Foltin et al., 1989). For example, tobacco smoking is legal and smoked in somewhat different situations than marijuana. These situational differences in availability and drug use context may contribute to the lack of association of TAM NAR and PAE expectancies. Additionally, the neurobiological mediators of NAR and PAE expectancies for marijuana may reflect genetically based individual differences in cannabinoid receptors that are independent of and uncorrelated with differences in genetic and environmental factors producing variability in response to tobacco smoking.

There are several clinical implications of the current findings. First, although TAM smoking have a high degree of comorbidity, some individuals appear to experience greater NAR and PAE from one drug versus the other leading to the assumption that the drug used more often is likely to be experienced as providing great NAR and PAE. However, it is not clear why differences in use levels exist. Do some individuals experience greater benefits from one drug than the other and thus use it more often? Or, does level of use cause differences in these expectancies? It is unclear which direction the causal arrow is pointing.

There are several important study limitations. The sample size was relatively modest, limited in age range, and limited to daily tobacco smokers who in addition smoked marijuana weekly or more. Also, the TAME used single-item affective dimensions that would be better characterized by multi-item scales. Not only are larger and more heterogeneous samples needed for questionnaire-based assessments of smoking expectancies, but there is a need to assess the effects of situation by drug interactions on TAM expectancies through the use of experimental investigations that systematically manipulate nicotine and THC in a variety of conditions.

Acknowledgments

This research was supported in part by grants from the National Institute on Drug Abuse (R01 DA014104 and R01 DA017837) awarded to the second author.

References

- Bailey SL, Flewelling RL, Rachal JV. Predicting continued use of marijuana among adolescents: The relative influence of drug-specific and social context factors. *Journal of Health and Social Behavior*. 1992; 33:51–65. [PubMed: 1619258]
- Benedikt RA, Cristofaro P, Mendelson JH. Effects of acute marijuana smoking in post-menopausal women. *Psychopharmacology*. 1986; 90:14–17. [PubMed: 3094054]
- Blum K, Braverman ER, Holder JM, Lubar JF, Monastra VJ, Miller D, et al. Reward deficiency syndrome: A biogenetic model for the diagnosis and treatment of impulsive, addictive, and compulsive behaviors. *Journal of Psychoactive Drugs*. 2000; 32:1–112.
- Brandon TH, Baker TB. The smoking consequences questionnaire: The subjective expected utility of smoking in college students. *Psychological Assessment*. 1991; 3:484–491.

- Corrigall WA, Coen KM, Adamson KL. Self-administered nicotine activates the mesolimbic dopamine system through the ventral tegmental area. *Brain Research*. 1994; 653:278–284. [PubMed: 7982062]
- Costa PT, McCrae RR, Bosse R. Smoking motive factors: A review and replication. *International Journal of Addiction*. 1980; 15(4):537–549.
- Cox WM, Klinger E. A motivational model of alcohol use. *Journal of Abnormal Psychology*. 1988; 97:168–180. [PubMed: 3290306]
- Doty P, de Wit H. Effect of setting on the reinforcing and subjective effects of ethanol in social drinkers. *Psychopharmacology*. 1995; 118:19–27. [PubMed: 7597118]
- Foltin RW, Fischman MW, Brady JV, Capriotti RM, Emurian CS. The regularity of smoked marijuana self-administration. *Pharmacology, Biochemistry, & Behavior*. 1989; 32:483–486.
- Galen LW, Henderson MJ. Validation of cocaine and marijuana effect expectancies in a treatment setting. *Addictive Behaviors*. 1999; 24:719–724. [PubMed: 10574312]
- Gilbert DG, Gilbert BO. Personality, psychopathology, and nicotine response as mediators of the genetics of smoking. *Behavioral Genetics*. 1995; 25(2):133–148.
- Haller J, Varga B, Ledent C, Barna I, Freund TF. Context-dependent effects of CB1 cannabinoid gene disruption on anxiety-like and social behaviour in mice. *European Journal of Neuroscience*. 2004; 19:1906–1912. [PubMed: 15078564]
- Hathaway AD. Cannabis effects and dependency concerns in long-term frequent users: A missing piece of the public health puzzle. *Addiction Research and Theory*. 2003; 11:441–458.
- Heatherton TF, Kozlowski LT, Frecker RC, Fagerström KO. The Fagerström Test for Nicotine Dependence: A revision of the Fagerström Tolerance Questionnaire. *British Journal of Addiction*. 1991; 86:1119–1127. [PubMed: 1932883]
- Horn, D.; Waingrow, S. Behavior and attitudes, questionnaire. National Clearinghouse for Smoking and Health; Bethesda, MD: 1966.
- Kassel JD, Stroud LR, Paronis CA. Smoking, stress, and negative affect: Correlation, causation, and context across stages of smoking. *Psychological Bulletin*. 2003; 129:270–304. [PubMed: 12696841]
- Lupica CR, Riegel AC. Endocannabinoid release from midbrain dopamine neurons: A potential substrate for cannabinoid receptor antagonist treatment of addiction. *Neuropharmacology*. 2005; 48(8):1105–1116. [PubMed: 15878779]
- Mathew RJ, Wilson WH, Tant SR. Acute changes in cerebral blood flow associated with marijuana smoking. *Acta Psychiatrica Scandinavica*. 1989; 79:118–128. [PubMed: 2923005]
- Piasecki TM, Richardson AE, Smith SM. Self-monitored motives for smoking among college students. *Psychology of Addictive Behaviors*. 2007; 21(3):328–337. [PubMed: 17874883]
- Rigotti NA, Lee JE, Wechsler H. US college students' use of tobacco products: Results of a national survey. *Journal of American Medical Association*. 2000; 284:699–705.
- Schafer J, Brown SA. Marijuana and cocaine effect expectancies and drug use patterns. *Journal of Consulting and Clinical Psychology*. 1991; 59:558–565. [PubMed: 1918560]
- Shiffman S, Paty JA, Gnys M, Kassel JD, Elash C. Nicotine withdrawal in chippers and regular smokers: Subjective and cognitive effects. *Health Psychology*. 1995; 14:301–309. [PubMed: 7556033]
- Spielberger, CD. Psychological determinants of smoking behavior. In: Tollison, RD., editor. *Smoking and society: Toward a more balanced assessment*. Heath; Lexington, MA: 1986. p. 89-134.
- Tate JC, Stanton AL. Assessment of the validity of the reasons for smoking scale. *Addictive Behaviors*. 1990; 15:129–135. [PubMed: 2343786]
- Viverosa M-P, Marcoa EM, File SE. Nicotine and cannabinoids: Parallels, contrasts and interactions. *Neuroscience and Biobehavioral Reviews*. 2006; 30:1161–1181. [PubMed: 17049986]
- Zvolensky MJ, Vujanovic AA, Bernstein A, Bonn-Miller MO, Marshall EC, Leyro TM. Marijuana use motives: A confirmatory test and evaluation among young adult marijuana users. *Addictive Behaviors*. 2007; 32:3122–3130. [PubMed: 17602842]

Figure 1. Means and standard errors of Horn-Waingrow Reasons for Smoking (RFS) for tobacco and marijuana smoking expectancy in full sample (1a), light (1-4 cigarettes/week) (1b), medium (5-10 cigarettes/week) (1c), and heavy (11+ cigarettes/week) (1d) tobacco smokers.

Figure 2. Means and standard errors of Tobacco and Marijuana Expectancy (TAME) scales for tobacco and marijuana by scale type.

Figure 3. Means and standard errors of mean Tobacco and Marijuana Expectancy (TAME) scales for light (1-3 times/week) and heavy (4+ times/week) marijuana smokers.

Table 1

Pearson Correlations of Tobacco and Marijuana Expectancies and Level of Use

	Marijuana/ Week	Tobacco /Day	RFS-M Pleasure	RFS-M NAR	RFS-T Pleasure
Tobacco/Day	-.193	1			
RFS-M Pleasure	.397**	.030	1		
RFS-M NAR	.444**	-.043	.506**	1	
RFS-T Pleasure	-.092	.450**	.169	.065	1
RFS-T NAR	.095	.507**	.181	.183	.683**

Correlation significant at the 0.05 level = *; 0.01 level = **.

Table 2
Pearson Correlations of MEEQ with RFS (R) and TAME (T) Marijuana Expectancies

	Cognitive-Behavioral Impairment	Relax-Tension Reduction	Social-Sexual Facilitation	Perceptual-Cognitive Enhance	Negative Effects	Craving-Physical Effects
R Pleasure	-.192	.413**	.354**	.404**	-.377**	-.033
R Stimulation	-.017	.374**	.456**	.365**	.112	-.016
R NAR	-.082	.450**	.377**	.366**	.016	-.091
T Relaxation	-.090	.565**	.436**	.350**	-.178	.031
T Calm Anger	-.142	.587**	.358**	.334**	-.051	.049
T Calm Nerve	-.117	.576**	.461**	.438**	-.010	-.020
T Calm Jitter	.009	.513**	.400**	.423**	.020	.166
T Depression	-.151	.523**	.371**	.272*	-.083	-.027
T Worry	.175	.445**	.184	.329**	.176	.030

N = 84;

** = Correlation significant at the 0.01 level (2-tailed).

* = Correlation significant at the 0.05 level (2-tailed).