Published in final edited form as:

Psychiatry Res. 2015 February 28; 225(3): 299–304. doi:10.1016/j.psychres.2014.12.021.

Coping styles: Longitudinal development from ages 17 to 33 and associations with psychiatric disorders

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Abstract

Relationships of coping styles to maturation, sex, and psychiatric diagnoses are not well defined. Accordingly, we examined their development from late-adolescence into adulthood, and their associations with psychiatric disorders. We assessed coping styles in 970 subjects prospectively, at mean ages 17, 24, 29, and 33, using the *Coping Inventory for Stressful Situations*. Selected DSM-IV-TR lifetime psychiatric disorders were assessed at age 24. We found that reliance on adaptive *task-oriented coping* (TOC) increased sharply from ages 17 to 24, (effect size [ES] = 0.94), and stabilized thereafter; less adaptive *emotion-oriented coping* (EOC) declined continuously over time. Men and women had similar TOC scores from ages 17 to 33, but women had moderately higher EOC scores at age 17 (ES=0.53). Greater reliance on EOC at age 24 was associated with more major depressive or anxiety disorders, adjusted for stressors and sex. Greater use of TOC at age 17 was associated with less risk for drug or alcohol abuse/dependence by age 24 after adjusting for sex and stressors. In conclusion, coping styles generally became more adaptive with maturation, though women used EOC more than men. Additionally, greater reliance on TOC in late-adolescence may reduce risks for substance use disorders.

Keywords

stress coping styles; psychiatric disorders; task-oriented coping; emotion-oriented coping

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1. Introduction

How one copes with inevitable life stresses contributes to psychological and physical well-being. Failure to cope with stress adaptively may lead to psychological problems and perhaps to psychiatric illnesses. Among the most robust dimensions identified in research on coping styles are: [a] *task-oriented coping* (TOC) or focusing on changing the stressful situation, [b] *emotion-oriented coping* (EOC) or prominent self-blame and negative emotional responses, and [c] *avoidance coping* or engaging in distracting activities in response to problems (McWilliams et al., 2003). Task-oriented coping is generally considered adaptive, and has been found to be associated with lower levels of *current* depression (Kendler et al., 1991; Windle and Windle, 1996; Johnsen et al., 1998; Rafnsson et al., 2006), anxiety (Kendler et al., 1991; Windle and Windle, 1996; Johnsen et al., 1998), post-traumatic symptoms (Johnsen et al., 2002), and alcohol abuse (Windle and Windle, 1996; Rafnsson et al., 2006). In contrast, emotion-oriented and avoidance-oriented coping styles generally appear to be maladaptive as both have been associated with more *current* depressive symptoms (Rosenberg et al., 1987; Windle and Windle, 1996; Rafnsson et al., 2006; Alim et al., 2008; Liber et al., 2008), alcohol abuse (Windle and Windle, 1996; Johnsen et al., 1998; Rafnsson et al., 2006), and post-traumatic symptoms (Bryant and Harvey, 1995; Alim et al., 2008). Studies of coping styles have provided valuable information, but with few exceptions (Kraaij et al., 2002) most are cross-sectional in design and consider current symptoms but not future risk for psychiatric disorders, leaving temporal sequencing or cause-effect relationships unclear (Christensen and Kessing, 2005). Moreover, there is little information on how coping styles develop with maturation.

To address gaps in research on coping, we examined the course of general coping styles over 16 years, from mean ages 17 to 33, in a community sample of 970 consenting subjects. We examined: [a] 16-year, sex-specific, development of coping styles from late-adolescence into adulthood (ages 17 to 33), and [b] relationships of coping styles assessed at ages 17 and 24, stress-loads, and sex to risk of selected lifetime psychiatric disorders assessed at age 24. Notably, the early 20s is part of the young adulthood phase of the lifespan that is associated with high rates of occurrence of the psychiatric disorders of interest to this report (Suvisaari et al., 2009; Copeland et al., 2011). We hypothesized that coping styles become more adaptive with age and that more adaptive coping is associated with a lower prevalence of psychiatric disorders in young adulthood. Incremental insights into developmental trajectories of coping styles and their relationship to psychiatric illnesses gained from studies such as this may inform efforts in prevention, potentially through early modification of coping styles, or through treatment with cognitive behavioral therapy.

2. Methods

2.1 Subject recruitment and assessment

Study data were collected within a large, longitudinal project (*Lives Across Time*) focused on risk and protective factors for mood, anxiety, and substance-use disorders from late-adolescence to adulthood (Windle and Wiesner, 2004). The project followed high school juniors and seniors recruited from three similar suburban public high schools in western New York state, as detailed previously (Windle and Wiesner, 2004). All students at the three

high schools providing written, informed parental consent and informed, written assent were eligible to participate. The study protocol was reviewed and approved by the Institutional Review Board of the State University of New York at Buffalo. Participants were provided with an incentive of \$10 for completing the 45-minute adolescent survey and \$40 for completing the personal interviews at each wave in young adulthood. At mean age 17, investigators administered surveys for participants to complete individually in groups of 40–50 in their high-school classrooms. At mean ages 24, 29, and 33, subjects were evaluated individually in person at their homes. Data collection was conducted by a well-trained research team, all of whom had at least four years of college education.

2.2 Coping styles

Coping styles were assessed at mean ages 17, 24, 29, and 33 years using the well-validated Endler and Parker *Coping Inventory for Stressful Situations* (CISS). The CISS is commonly used in coping research (Windle and Windle, 1996; McWilliams et al., 2003; Rafnsson et al., 2006) and measures task, emotion, and avoidance-oriented coping strategies as defined above (Endler et al., 1993; Endler and Parker, 1999). It consists of a total of 48 items, with 16 items for each of the three coping strategies. In this study, only its task- and emotion-oriented subscales were measured in young adulthood because items for avoidance-oriented coping appear to mix adaptive (e.g., seeking social contact) and maladaptive coping (e.g., abusing substances) (Campbell-Sills et al., 2006). Each item was rated by the subjects on a five-point Likert scale ranging from 1 (*not at all*) to 5 (*very much*), for how much the subject considers himself or herself to engage in a particular activity when a difficult, stressful, or upsetting situation is encountered. Higher total scores for each subscale reflect greater reliance on task-oriented or emotion-oriented coping. Possible score range for each coping subscale is 16–80.

Sample items for task-oriented coping (TOC) include: *I think about how I have solved similar problems*; *I schedule my time better*; for emotion-focused coping (EOC): *I become preoccupied with aches and pains*; *I become very tense*. Internal reliability (Cronbach's α) for the two subscales used ranged from 0.88 to 0.92 across different samples; test-retest reliability (Pearson correlation r) over 6 weeks ranged from 0.51 to 0.73 (Endler and Parker, 1994). In the present sample, internal reliability was high for both task-oriented coping ($\alpha=0.93$) and emotion-focused coping ($\alpha=0.89$).

2.3 Major stressful events

We used a modified version of the Holmes and Rahe scale to ascertain major stressful life events (Holmes and Rahe, 1967). It considers 46 common stressful events, scored as present or absent (1 or 0), sampled from multiple age-appropriate domains, including: *family status* (e.g., parents or subjects separated or divorced), *relationships* (e.g., death of an immediate family member, problems with in-laws), *work* (e.g., disagreements with supervisors, conflicts with coworkers, being laid off), *finance* (heavy debts, interactions with bill collectors), *legal problems* (arrests, lawsuits), *health related concerns* (e.g., illness or injury), and *others* (e.g., being assaulted, property being vandalized). At each assessment, participants were asked to report whether or not any of the 46 defined stressful events had

occurred in the preceding 12 months. Total scores (range 0–46) were considered estimates of “stress-loads” for the past year for each assessment period.

2.4 Psychiatric diagnoses

Lifetime DSM-IV-TR Axis-I psychiatric disorders were evaluated by direct interview of each participant at mean ages 24 using the World Health Organization Composite International Diagnostic Interview (WHO-CIDI), which has established sensitivity and reliability (World Health Organization, 1997; Kessler et al., 2003; Kessler et al., 2005). Research staff-members were trained by certified CIDI trainers until their inter-rater agreement with expert CIDI trainers on clinical diagnoses exceeded 90%. Annual retraining on the CIDI was conducted to maintain reliable assessments. Specific DSM Axis I diagnoses assessed were major depressive disorder, anxiety disorders (generalized anxiety disorder, panic disorder, phobias, or social anxiety disorder), alcohol abuse or dependence, and drug abuse or dependence.

2.5 Data analysis

To assess whether coping styles changed with age, and to compare coping styles of men and women, we used the repeated measures analysis of variance (ANOVA) model as implemented in the General Linear Model (GLM) module of IBM SPSS Version 21. This GLM approach provides Mauchly's test of sphericity to evaluate whether the variances and covariances of the repeated measures are the same. As Mauchly's test is highly sensitive (i.e. conservative) several test statistics (e.g., Greenhouse-Geiser or Huynh-Feldt) have been developed that adjust for degrees of freedom in testing for equality of means across time (Heck et al., 2010). These modifications enable appropriate inferences about significant differences in mean levels of repeated measure across time. We specified separate ANOVA models for TOC and EOC. Each model included the four assessment ages as a within-subject (Time) factor, sex as a between-subject factor, and sex-by-assessment-age-group as the interaction term.

We also examined associations between EOC and TOC at ages 17 and 24 and lifetime psychiatric disorders assessed at age 24 using a multiple logistic regression model for each disorder, controlling for stressors reported at mean ages 17 and 24, and sex. Specifically, we ran four regression models for four clinical outcomes: a) major depressive disorder, b) anxiety disorders, c) alcohol abuse or dependence, and d) drug abuse or dependence. There were seven predictor variables in each regression model: EOC score at mean age 17, TOC score at mean age 17, the number of stressful life events reported at age 17, EOC score at mean age 24, TOC score at mean age 24, the number of stressful life-events reported at age 24, and sex. We checked the assumptions for logistic regression (e.g. convergence of estimation, measurement properties of the independent and dependent variables) and they were met.

Averages are presented as means $\pm$ standard deviation (SD) unless noted otherwise. Magnitudes of differences are presented as standardized effect-size (ES), which is mean difference divided by pooled standard deviation (Lipsey and Wilson, 2001). Effects are

considered statistically significant when two-tailed $p < 0.05$. Risks are presented as computed Odds Ratios (OR) with their 95% confidence intervals (CI).

3. Results

3.1 Subject characteristics

Of the 970 subjects, 54% were women, and 98% were Caucasian (Table 1). At mean age 33, 67% of the participants were married and 33% either divorced or single, education averaged 15.3 ± 1.9 years, and 5.5% were unemployed (Table 1). Characteristics of families of participants included full-time employment among 96% of fathers and 43% of mothers, with an average of 13.8 ± 2.4 years of education among fathers and 13.5 ± 2.0 years among mothers. Median family income was \$40,000/year in the early 1990s.

3.2 Development of coping styles

The *Coping Inventory for Stressful Situations* was added to the assessment protocol during the adolescent phase of the study when one of the three high schools had already completed its participation; from the remaining two schools 580 subjects provided ratings of coping styles at mean age 17, and 464 of them again participated in later assessments at mean ages 24, 29, and 33 years. All participants in young adulthood were eligible to complete the coping inventory; the numbers of subjects providing data on coping styles at mean ages 17, 24, 29, and 33 were 580, 770, 734, and 744 respectively (Table 2). Rates of incomplete data for coping styles averaged 20.6% at mean age 24, 24.3% at age 29, 23.3% at age 33, and 22.7% overall. Attrition analyses (comparing participants and non-participants over a large number of collected variables) conducted at each wave of assessment and longitudinally over the course of the study suggested no evidence of systematic dropout (Windle and Windle, 1996; Windle and Wiesner, 2004). These analyses were conducted for overall participation/non-participation, as well as between participation and specific type of dropout (e.g., refusals, unable to locate) and there was no evidence of selection bias.

Scores of task-oriented coping (TOC) increased sharply from mean ages 17 to 24 (effect size [ES] = 0.94; $p < 0.0001$) and remained stable from ages 24 to 33. The TOC mean scores were 50.0 ± 12.2 [range 18–80] at age 17, 59.9 ± 9.2 [range 22.0–80.0] at age 24, 60.9 ± 9.9 [16.0–80.0] at age 29, and 59.4 ± 11.2 [16.0–80.0] at age 33 (Table 2; Figure). Men and women had similar TOC scores from ages 17 to 33 (Table 2; Figure).

Emotion-oriented coping (EOC) gradually decreased with age among men and women, from 44.1 [range 17–74] at mean age 17 to 35.5 [range 16.0–76.0] at age 33 (Table 2; Figure). Compared to men, women had moderately higher EOC scores at mean age 17 (ES=0.53; $p < 0.0001$) but only slightly higher EOC scores thereafter, from ages 24 to 33 (ES=0.20–0.24; $p = 0.005$; Table 2; Figure).

A repeated-measures ANOVA model for TOC suggested a significant effect for age ($p < 0.0001$) for the large increase in TOC scores from age 17 to 24 with an effect size of 0.94 (Table 2 and Figure). However, it found no evidence of an influence of sex or interaction between sex and age (time). Note that for both the TOC and EOC repeated measures models, the conservative Mauchly's test was rejected and the inferences reported are based

on consistency of levels of significance for the Greenhouse-Geiser and Huynh-Feldt degrees of freedom correction statistics.

In contrast, a repeated measures ANOVA model for EOC showed a significant main effect of sex ($p<0.0001$) and age ($p<0.0001$), and a significant effect for the interaction term between sex and age ($p=0.0017$). These findings reflect a significant difference in EOC scores between men and women across the four ages. This difference was generally small, with effect sizes ranging from 0.20 to 0.24, except for during ages 17 to 24, when the difference was moderate with an effect size of 0.53 (Table 2; Figure).

3.3 Associations of coping styles and sex on lifetime psychiatric disorders

Prevalence of lifetime psychiatric diagnoses by age 24 in this cohort were: major depressive disorder (MDD) 21.2%, anxiety disorders (generalized anxiety disorder, panic disorder, social anxiety disorder, or phobias) 23.3%, alcohol abuse or dependence 34.3%, and drug abuse or dependence 19.3%. A total of 440 subjects (out of 580) with complete data for the outcomes and predictor variables were included in the four regression models predicting the particular lifetime psychiatric diagnoses (Table 3).

Multiple logistic regression model with lifetime MDD as the outcome identified three significant predictors: [a] more stressors within 12 months of mean age 24 ($p<0.0001$), [b] higher EOC ratings at mean age 24 ($p=0.009$), and [c] female sex ($p=0.036$; Table 3). Specifically, for similar levels of EOC and TOC at age 17 and of TOC at age 24, one point higher on the EOC scale at age 24 was significantly associated with a higher risk for MDD (Odds Ratio [OR]=1.04; [95% CI: 1.01–1.07]; $p=0.009$; Table 3) after controlling for stressors at age 17 and 24 and sex. Additionally, more stressful events at age 24 were associated with a higher risk for MDD at any time up to age 24 years (OR=1.20; [CI: 1.11–1.29]; $p<0.0001$; Table 3). Notably, being female was associated with 1.8 times higher risk for having MDD by age 24 (OR=1.8 [1.04–3.10]; $p=0.036$; Table 3). EOC and TOC at age 17, TOC at age 24, and stress level at age 17 were not significantly associated with lifetime MDD in this model (Table 3).

Regression modeling with a lifetime anxiety disorder as the outcome also identified three significant associated factors: [a] more use of EOC at age 24 ($p<0.0001$), [b] higher stress level at age 24 ($p=0.001$), and [c] female sex ($p=0.0006$; Table 3.) Given similar levels of EOC and TOC at mean age 17 and of TOC at mean age 24, similar stress levels during these two periods, and the same sex, one point higher on EOC rating at age 24 was associated with a slightly higher risk for an anxiety disorder (OR=1.07 [1.04–1.10]; $p<0.0001$; Table 3). Furthermore, having more stressors and being female in early adulthood were associated with a greater likelihood of being diagnosed with an anxiety disorder by age 24 (Table 3).

For alcohol abuse or dependence, relying more on TOC at age 17 was associated with a lower risk for a lifetime diagnosis of an alcohol use disorder (OR=0.97 [0.95–0.99]; $p=0.002$; Table 3). Higher stress levels around age 17 ($p=0.001$) and 24 ($p=0.005$), and being male ($p=0.003$) were associated with higher risks for having a diagnosis of alcohol abuse or dependence (Table 3).

Likewise, for drug-use disorders, using more TOC in late adolescence was associated with a lower risk for having a drug abuse or dependence after controlling for stress levels and sex (OR=0.97 [0.94–0.99]; $p=0.005$; Table 3). Lastly, being male and having more stressors around age 17 and age 24 were associated with higher risks for having a drug use disorder (Table 3).

4. Discussion

This study examined developmental trajectories of task-oriented (TOC) and emotion-oriented (EOC) coping styles in a large cohort of male and female subjects from the general population, followed prospectively from mean ages 17 to 33 years. We found a large increase in reliance on TOC from ages 17 to 24 ($ES=0.94$) in both men and women. TOC, however, stabilized thereafter, from age 24 to 33 years. This finding indicates significant maturational increases in the use of this adaptive coping style between late adolescence (mean age 17) and early adulthood (mean age 24). Moreover, less-adaptive EOC decreased gradually over time in both sexes. We hypothesize that, with maturity, people rely less on emotional reactions in response to stress and take a more proactive approach to coping. This hypothesis is consistent with emerging research in developmental neuroscience suggesting that more dominant emotional brain systems during adolescence that yield to later neurodevelopmental maturation in the prefrontal cortex to yield more reflective decision-making and self-regulation (Steinberg, 2010). Compared to men, women had moderately higher EOC scores during late adolescence ($ES=0.53$) and slightly higher EOC scores (ES 0.20 to 0.24) from ages 24 to 33. This finding is consistent with observations from at least two previous studies finding that women had more emotional response to stressful situations than men (Morris-Prather et al., 1996; Kelly et al., 2008). However, there was no difference in TOC scores between men and women from age 17 through 34. Overall, these results suggest that coping styles mature through late adolescence and early adulthood, and that TOC stabilizes thereafter whereas the EOC slightly decreases during adulthood.

We also examined prospectively whether coping styles in late adolescence and early adulthood influenced risks for lifetime psychiatric disorders manifested by age 24, including major depression, anxiety disorders, or alcohol or drug misuse. We found that greater reliance on EOC at age 24 was associated with greater odds of having a diagnosis of major depression or anxiety disorder, but not of alcohol or drug use disorders. However, greater reliance on TOC in late adolescence was associated with a lower risk of developing a drug or alcohol use disorder. These findings suggest that greater reliance on less-adaptive EOC in early adulthood increases risks for mood or anxiety disorders while more reliance on TOC in late adolescence decreases risks for drug and alcohol use problems. Our finding of lower risk of drug or alcohol use disorder associated with greater reliance on TOC is consistent with prior studies on this topic (Windle and Windle, 1996; Rafnsson et al., 2006). Interestingly, a study of protective behavioral strategies, coping styles, and alcohol use among college students found that protective behavioral strategies, including cognitive, behavioral, and environmental self-regulation, mediated the relationship between more problem-focused coping and less alcohol use issues (Walker and Stephens, 2014).

As expected, more stressful life events in early adulthood (age 24) predicted higher risks of having major depression, anxiety disorders, or alcohol or drug abuse or dependence. Moreover, more stressful life events during late adolescence (age 17) were also predictive of higher risks for an alcohol or drug use disorder by age 24. Notably, we found that being female increased risk for major depression (OR=1.80) or an anxiety disorder (OR=2.54), whereas being male increased risk for having an alcohol (OR=4.61) or drug use disorder (OR=1.77). These sex-associated risks are consistent with prior national comorbidity survey studies, in which being female was associated with higher odds for having either major depression (Kessler et al., 2003) or an anxiety disorder (Kessler et al., 2005) but lower odds for having alcohol or drug use disorders (Kessler et al., 2005).

A two-and-a-half year follow-up study of cognitive coping in 99 subjects aged 67 years or older found that the use of positive reappraisal as a coping strategy was associated with fewer depressive symptoms after prior depressive symptoms and stressful life events were controlled for (Kraaij et al., 2002). While it is not possible to directly compare our findings to the result of that study due to differences in the conceptualization of coping styles and subject ages, the present findings are consistent with the notion that coping styles are meaningfully associated prospectively with depression.

The lifetime prevalence of psychiatric disorders in this sample may seem high, but are similar to those based on U.S. national survey data. For example, the lifetime prevalence of MDD by age 24 for the current sample was 21.2%, compared to 22.1% in the National Comorbidity Study-Replication (NCS-R) for ages 18–29 years (Kessler et al., 2003). Similarly, the lifetime prevalence of anxiety disorders by age 24 in this study was 23.3% and 28.8% in the NCS-R for ages 18–29 (Kessler et al., 2005). Finally, for the current study, the lifetime prevalence of alcohol use disorders by age 24 was 34.4% and other drug-use disorders 19.3%; findings from the National Epidemiologic Study of Alcohol-Related Conditions yielded a prevalence of 30.3% for alcohol disorders and 10.3% for other drug disorders (Compton et al., 2007). The higher prevalence of drug disorders in the current sample is primarily related to cannabis use disorders and could be influenced by a range of factors such as effects of age and birth-cohort. Again, overall, the prevalence of psychiatric disorders in the current sample is highly similar to those reported in U.S. national samples for subjects of similar age.

Interpretation of the present findings should consider their potential limitations. These include possible recall-bias in reporting stressful life experiences and lack of assessment of the nature and severity of reported stressors. Furthermore, age and sex may influence the self-ratings of coping skills, in that men and women at certain ages may have a systematic difference in perceiving or reporting how they deal with stressful situations due to social norms or perceived desirability. Additionally, the findings may not generalize to members of other ethnic groups since 98% of study participants were Caucasian. Finally, the stressful life events and how one copes with them could precipitate particular psychiatric illnesses, or the illnesses may be causative of stressful events. Nevertheless, this study is the first, to our knowledge, to assess coping styles longitudinally over a course of 16 years, from late adolescence to adult years, of participants from a large community sample. Our assessments

were reliable as they were performed individually by trained research staff certified by CIDI trainers.

In conclusion, this longitudinal study of 970 persons sampled from a general-population of high-school students and followed prospectively and systematically for 16 years, found that coping skills became more adaptive with maturation with only minor sex differences in the rate of growth. Additionally, more TOC coping at age 17 was associated with decreased risks for lifetime alcohol or drug use disorders by age 24, suggesting that efforts aimed at enhancing this adaptive coping style in late adolescence, either through health education class or as part of a substance abuse treatment program for youth, may help to prevent substance use disorders.

Acknowledgments

We thank Drs. Mitchel Klein and Beau Bruce for their statistical advice. This study was supported, in part, by a NARSAD Young Investigator award and VA Career Development Award 1IK2CX000601 (to APW), the Bruce J. Anderson Foundation and McLean Private Donor Psychiatric Research Fund (to RJB), and National Institute of Alcohol Abuse and Alcoholism Research Grant K05AA021143 (to MW). The contents do not represent the views of the Department of Veterans Affairs or the United States Government.

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Fig. 1. Mean ($\pm$ SEM) scores for task-oriented coping (TOC) and emotion-oriented coping (EOC) from mean ages 17 to 33.

Table 1

Characteristics of 970 study subjects

Characteristics	Measures
Sex (female, %)	53.6
Ethnicity (%)	
Caucasian	98.0
Others	2.0
Marital status at age 33 (%)	
Married	67.1
Single or divorced	32.9
Education (years $\pm$ SD)	15.3 $\pm$ 1.9
Employment at age 33 (%)	
Full-time	76.5
Part-time	12.5
Homemaker	5.3
Unemployed	5.5
Retired	0.2

Other ethnicities include Black, Hispanic, Asian, Native American

Table 2

Development of stress coping styles from ages 17 to 33

Mean age	Subjects (<i>n</i>)	Task-oriented coping (TOC)			Emotion-oriented coping (EOC)		
		All Subjects	Men	Women	All Subjects	Men	Women
17.0±0.7	580	50.0±12.2 ^a	49.5±12.3	50.5±12.2	44.1±11.9	41.0±10.9 ^b	47.2±12.2 ^b
23.8±1.3	770	59.9±9.2 ^a	60.5±9.0	59.5±9.4	41.9±10.5	40.7±10.4	42.8±10.5
28.8±1.1	734	60.9±9.9	61.1±9.5	60.7±10.3	37.9±10.8	36.5±10.1	38.9±11.1
33.4±1.4	744	59.4±11.2	59.7±11.0	59.1±11.3	35.5±10.8	34.0±10.5	36.6±11.0

Scores are means ± SD from Coping Inventory for Stressful Situations (CISS) subscales for TOC and EOC; possible range of scores: 16–80.

^a Standardized effect size of the difference (ES) = 0.94, $p < 0.0001$ for TOC between mean age 23.8 and mean age 17.0 among men and women.

^b ES = 0.53; $p < 0.0001$ for EOC between women and men at mean age 17.0.

Table 3

Factors associated with selected lifetime psychiatric diagnoses

Disorders	N cases/controls	Factors	OR [CI]	p-value
Major depression	89/351	High stress age 24	1.20 [1.11–1.29]	<0.0001
		High EOC age 24	1.04 [1.01–1.07]	0.009
		Female sex	1.80 [1.04–3.10]	0.036
Anxiety disorders	99/341	High EOC age 24	1.07 [1.04–1.10]	<0.0001
		Female sex	2.54 [1.49–4.34]	0.0006
		High stress age 24	1.13 [1.05–1.22]	0.005
Alcohol abuse/dependence	141/299	High stress age 17	1.19 [1.10–1.29]	<0.0001
		Male sex	4.61 [2.81–7.57]	<0.0001
		High TOC age 17	0.97 [0.95–0.99]	0.002
		High stress age 24	1.10 [1.02–1.17]	0.008
Drug abuse/dependence	85/355	High stress age 24	1.17 [1.09–1.26]	<0.0001
		High stress age 17	1.13 [1.04–1.22]	0.003
		High TOC age 17	0.97 [0.94–0.99]	0.005
		Male sex	1.77 [1.03–3.03]	0.038

Findings are based on four separate regression models (with n=440) for four outcomes: a) Major Depression; b) Anxiety Disorders (generalized anxiety disorder, social anxiety disorder, panic disorder, or specific phobia); c) Alcohol Abuse or Dependence; and d) Drug Abuse or Dependence. Each regression model included seven predictor variables: a) emotion-oriented coping (EOC) score at mean age 17; b) task-oriented coping (TOC) score at mean age 17, c) the number of stressful life events around age 17, d) EOC score at mean age 24, e) TOC score at mean age 24, f) the number of stressful life events around age 24, and g) sex. N=440 subjects with complete data for all of the above variables.

Abbreviations: N= number of subjects; OR= odds ratio; CI= 95% confidence interval.