Psychometric Properties of a Short Coping Measure: An Investigation of the Coping Inventory for Stressful Situations – Short Form (CISS-SF)

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Abstract

Psychometric Properties of a Short Coping Measure: An Investigation of the Coping Inventory for Stressful Situations – Short Form (CISS-SF)

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Objective: The Coping Inventory for Stressful Situations (CISS) is a widely used measure of trait coping that was developed to assess three basic coping styles: task-oriented, emotion-oriented, and avoidance-oriented coping. This thesis examined the psychometric properties of a short form for the CISS (CISS-SF). **Method:** Data from a large longitudinal sample of adults were used to conduct analyses testing the measure's factor structure, internal and test-retest reliabilities, and construct validity with respect to mental health outcomes. **Results:** The 3-factor model provided acceptable fit to the sample data. Internal reliabilities for the scales were acceptable across multiple administrations (by gender and age), while 1 and 2-year test-retest correlations were also consistent with what would be expected for stable coping style constructs. Relationships were found to be consistent with previous research on coping. **Conclusion:** Overall, the results suggest that the CISS-SF is a valid and reliable brief multi-dimensional measure of coping styles.

Key words: coping, coping style, basic personality, mental health

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Chapter 1: Psychometric Properties of a Short Form for the Coping Inventory for Stressful Situations (CISS-SF)

Abstract

The Coping Inventory for Stressful Situations (CISS) is a widely used measure of coping that was developed to assess three basic coping styles: task-oriented, emotion-oriented, and avoidance-oriented coping. The present study examined the factor structure and psychometric properties (internal reliabilities and temporal stability) of a short form for the CISS (CISS-SF) in a large longitudinal sample of community-based adults who completed the coping measure on 3 separate occasions approximately 1 year apart. The 3-factor model composed of 21 coping items provided acceptable fit to the sample data, and the model was invariant across gender and age-groups. Internal reliabilities for the scales were acceptable across multiple administrations (by gender and age groups), while 1 and 2-year test-retest correlations were also moderate and consistent with what would be expected for stable coping style constructs. Preliminary validity of the CISS-SF was explored with basic personality (i.e., Five-Factor Model) and measures of depression and anxiety symptomatology. The relationships between coping, basic personality, and mental health outcomes were found to be consistent with previous research on coping. Overall, the results suggest that the CISS-SF is a valid and reliable brief multi-dimensional measure of coping styles.

Keywords: coping; coping style; basic personality

Compared to work on related constructs like “stress” or “defence,” the coping area is a relatively recent development in the history of psychology (Parker & Endler, 1996). For example, the category for "coping" was not included in *Psychological Abstracts* until 1967 (see Popplestone & McPherson, 1988). Despite having been introduced late in the discipline, coping has since proven to be an extremely popular construct. A recurring observation in reviews on the topic, even as the new field was just emerging (Lazarus et al., 1974), was the dramatic expansion of research interest on coping (see, for example, Carver & Connor-Smith, 2010; Endler & Parker, 1990a; Lazarus, 1981; Skinner & Zimmer-Gembeck, 2023; Somerfield & McCrae, 2000). Taking stock of the current state of the literature, the coping area would appear to have reached a new milestone with respect to research activity. Using the number of research sources as an indicator, the database in the ISI Web of Knowledge (IWK; Thompson-Reuters, 2017) contains 36,088 items with key-terms for “coping” in the period from 1990 to 2023. While there has been steady interest in coping research over the last 30+ years, it is noteworthy that nearly 40% of this work was published in just the last 5 years.

Along with commenting on the spectacular growth of interest in coping, another common observation in the review literature is the field’s messy conceptual state. In an early coping review paper Folkman (1982) lamented that “despite the growing conviction that how one copes with stress affects psychological, physical, and social well-being, little systematic research has been undertaken on how coping plays its mediating role. A major reason for this lack of research is that there is confusion as to how coping should be conceptualized and assessed” (p. 95). A decade later, Richard Lazarus (1993), another key pioneer in the coping field, echoed similar concerns: “It distresses me that so much that is being published on coping deals with trivial issues in over simple, one-session research designs when so much needs to be done. As a result

of the present climate of research, I am not optimistic that the challenging agendas that arise in the field of coping research— and which call for expensive, longitudinal research—will be adequately addressed" (p. 245).

Potentially reflecting both conflicting conceptual concerns and increased research interest, hundreds of distinct coping assessment tools have been developed since the 1970s (for detailed reviews, see Gugiu et al., 2022; Ridder, 1997; Skinner et al., 2003; Trudel-Fitzgerald et al., 2023). Though the sheer variety of measures poses a challenge to organizing research findings, it should be noted that much of the coping research over the past few decades is linked to a relatively small number of assessment tools (Kato, 2015). In turn, this smaller set of coping measures can be sorted into two broad types: "intraindividual" versus "interindividual" (Endler & Parker, 1990a; Lazarus, 1993; Parker & Endler, 1996). The intraindividual approach to coping, exemplified by measures like the *Ways of Coping Questionnaire* (WCQ; Folkman & Lazarus, 1988), attempts to identify basic strategies used by individuals in particular types of stressful situations. The interindividual approach, on the other hand, attempts to identify basic coping styles, or habitual coping strategies used by individuals across different types of stressful situations. The *Coping Inventory for Stressful Situations* (CISS; Endler and Parker, 1994), for example, is a widely used interindividual coping measure (Kato, 2015). There are also coping measures, like the COPE (Carver et al., 1989), the most widely used coping measure in the literature (Kato, 2015), developed to have both intraindividual (situation specific) and interindividual (dispositional) forms.

Although it has long been recognized that there is a broad range of potential coping strategies and reactions available to a person in a particular situation (Lazarus et al., 1974), there is an important assumption in the coping area that these activities can be classified into a small

set of basic coping dimensions or strategies—dimensions that overlap on both interindividual and intraindividual assessment tools (Parker & Endler, 1996). Based on the conceptual models used in the development of the more widely used coping measures (Kato, 2015), the number of basic coping dimensions ranges from the 2 higher-order coping dimensions initially proposed by Folkman and Lazarus (1980) to the 15 facets of coping measured by the COPE (Carver et al., 1989). Of these numerous strategies and dimensions, however, several core coping dimensions have emerged to be of particular importance in the literature—namely, task-oriented, emotion-oriented, and avoidance-oriented coping (Parker & Wood, 2008; Rogowska et al., 2021).

Task-oriented (or problem-oriented) coping involves strategies used to appraise a stressful situation to make it more comprehensible, find solutions to address the source of the stress, or reduce the salience of the stressor on the individual (Courbasson et al., 2002; Dowou et al., 2023; Kariv & Heiman, 2005). Task-oriented coping is associated with better judgement and decreased anxiety (Endler & Parker, 1990b; Rossi et al., 2023). In contrast, emotion-oriented coping involves focusing on the emotional consequences of a stressor rather than the stressor itself, including individuals engaging in self-preoccupation and fantasizing reactions (Courbasson et al., 2002; Endler & Parker, 1990a; Rossi et al., 2023). Avoidance-oriented coping detaches people further by having them seek to avoid stressful situations, including habitually ignoring or distracting oneself from the stressor to conserve emotional well-being (Endler & Parker, 1990a; Kariv & Heiman, 2005; Rossi et al., 2023).

Measuring Task, Emotion and Avoidance-oriented coping

Although there are other coping measures that tap comparable constructs, the CISS was explicitly developed to be a self-report tool designed to measure task, emotion, and avoidance-oriented coping (Endler & Parker, 1990a, 1990b, 1994). The initial phase of creating a new

coping scale involved compiling a comprehensive list of items representing diverse coping responses (Endler & Parker, 1990b). A preliminary 70-item inventory was administered to 559 undergraduate participants who were asked to gauge their general reactions when faced with challenging, stressful, or upsetting situations. The 70 items underwent several waves of factor analysis to reveal three factors (Task, Emotion, and Avoidance-Oriented coping). Factor analyses conducted separately for male and female undergraduates yielded almost identical factor structures (Endler & Parker, 1990b). Due to discrepancies in the number of items loading on the preliminary subscales, additional items were developed with the aim of achieving subscales with equal item counts. A subsequent 66-item scale was administered by Endler and Parker (1990b) to two different samples: 394 college students and 284 community-based adults. Following a similar set of analyses with the original item-pool, a 48-item scale was derived by eliminating redundant or poorly loading items-- subsequently known as the CISS (Endler & Parker, 1990a). The final 3-factor model for the CISS, three 16-item scales assessing task-, emotion-, and avoidance-oriented coping, was validated using multiple independent samples (Endler & Parker, 1990b, 1994).

Short Form for the CISS

In the research literature there has been a growing trend of abbreviated versions of commonly used assessment tools (Kruyen et al., 2013). This practice is aimed at streamlining the assessment process by enabling efficient evaluation of multiple constructs while reducing the cognitive burden on research participants. Not surprisingly, short forms have been developed for several widely used coping measures (Atkinson & Violato, 1993; Carver, 1997; Tobin et al., 1989). In the case of the CISS, a “short form” has been in circulation since 2006 (Cohan et al., 2006), however this specific form was not originally developed by the authors of the CISS. When the 2nd edition of the CISS

manual was developed in the late 1990s (Endler & Parker, 1999), the authors identified 21 CISS items (three 7-item scales for task, emotion, and avoidance-oriented coping) that could be used to assess coping behaviours in specific stressful situations (e.g., coping with job loss or coping with marital separation, etc). The development of a brief CISS-situation specific coping form (CISS-SSC) to go with the CISS duplicated the intrapersonal and interpersonal forms developed for other coping scales like the COPE (Carver et al., 1989). Cohan et al. (2006) used the CISS-SSC items to operationalize a short version of the original CISS (i.e., a short interpersonal coping measure of general coping styles), the psychometric properties of which they examined with data from undergraduates and community-based adults. Importantly, though the authors found evidence to support the use of this short form for measuring responses to "routine stressors," they chose to evaluate a 4-factor model never used by Endler and Parker in the development of the CISS (Endler & Parker (1990a, 1990b, 1994, 1999). The long form for the CISS had two subscales for the Avoidance scale (distraction and social diversion) and Cohan et al. (2006) opted to incorporate these into a 4-factor coping model: 7 items for task-oriented coping, 7 items for emotion-oriented coping, 3 items for distraction coping, and 3 items for social diversion coping (Cohan et al., 2006 dropped one of the avoidance items from the CISS-SSC).

Since its publication, a confusing body of literature has appeared using the CISS item set, and scoring developed by Cohan et al. (2006). The psychometric properties of this brief coping measure have been very inconsistent (Boysan, 2012; Choi et al., 2017; Li et al., 2017; Pisanti et al., 2015; van Horn & Wilpert, 2017). A contributing factor is that much of this research has utilized non-English versions of the item pool without adequate documentation on how these translated item sets were developed, increasing the likelihood of producing scales with problematic psychometric qualities (Uysal-Bozkir et al., 2013). On another hand, the decision by Cohan et al. (2006) to derive

4 subscales from a 20-item pool likely undermined the psychometric properties of the new form from the start, given the inherent challenges associated with 3-item scales (Marsh et al., 1998; Xiao & Hau, 2023). To date, no study has revisited Cohan et al.'s (2006) work and systematically evaluated the use of the 21 items from the CISS-SSC as a measure of general coping styles, particularly in line with the original 3-factor conceptual model of coping (Task, Emotion, and Avoidance-oriented coping) as proposed in the development of the CISS (Endler & Parker, 1990a, 1990b, 1994).

Present Study

Using data from a large sample of adults who completed a short form of the CISS (called the CISS-SF in the remainder of this document) multiple times over several years (el-Guebaly et al., 2015), the present study sought to examine whether the original 3-factor model used in the development of the CISS (Endler & Parker, 1990a, 1990b, 1994) can be replicated in a large community-based sample. The longitudinal nature of the dataset also allowed for an exploration of test-retest reliability across a multi-year period. Using several personality and mental health variables in the dataset, the present study could also examine the construct validity of the CISS-SF using variables comparable to Cohan et al. (2006)—anxiety, depression, and basic personality.

Method

Participants and Procedures

The initial recruitment procedure for the study (“wave 1”) involved random digit dialling to produce telephone surveys, which were then followed up with in-person interviews and the administration of various self-report questionnaires as part of the Leisure, Lifestyle, and Lifecycle Project (LLLP; el-Guebaly et al., 2015). Participants were recruited from four locations in Alberta, Canada (Edmonton, Calgary, Lethbridge area, and Grand Prairie area) and were also oversampled

based on age and gender specific cut-offs for gambling activities, as well as for specific age groups (17- to 20-year-olds; 23- to 25-year-olds; 43- to 45-year-olds and 63- to 65-year-olds). There were 4 other "waves" (each 1 year apart) where data collection was completed using online surveys, and a small portion (less than 10% of the sample) completed paper and pencil versions.

A total of 1,372 adults 17 years or older participated in the initial "wave" of data collection (wave 1). The CISS-SF was included in waves 2, 3 and 4; data was available for 1145 individuals (478 men and 667 women) at wave 2, 1002 individuals (406 men and 596 women) at wave 3, and 1026 individuals (414 men and 612 women) at wave 4 (gender was missing for a small number of cases). Other demographic features of the sample have been described in detail elsewhere (el-Guebaly et al., 2015).

Measures

Coping

As already noted, the CISS was originally developed as an interindividual coping measure of basic coping styles (Endler & Parker, 1990a, 1990b, 1994). Endler and Parker (1999) created a 21-item scale from the CISS pool that could be used to measure situation-specific (intrapersonal) coping (CISS-SSC). The present study used the same 21 items from the CISS-SSC, but with instructions to respondents from the original CISS designed to measure basic coping styles. Unlike the measure developed by the Cohan et al. (2006), the CISS-SF has 21 items that measure 3 basic coping style dimensions: 7-items for task-oriented coping; 7 items for emotion-oriented coping; and 7-items for avoidance-oriented coping.

Mental Health

The LLLP included various mental health symptom variables from the Personality Assessment Inventory (PAI; Morey, 1991). The PAI is designed to measure a variety of individual

differences in psychopathology via 344 items with a 4-point Likert scale format. The present study used anxiety and depression subscales from the PAI collected at wave 4.

Basic Personality

The NEO-FFI is a shortened version of the NEO-PI-R (Costa & McCrae, 1992) designed to assess the five-factor model of personality (i.e., openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism). There is extensive support for the validity and reliability for the NEO-FFI (Costa & McCrae, 1992). The present study used data collected at wave 1 (the only time the personality measure was used).

Statistical Procedure

Factor Structure

Confirmatory Factor Analysis (CFA) was used to assess the proposed 3-factor structure of the 21 CISS-SF items, separately for waves 2, 3, and 4. All CFA models were estimated using Diagonally Weighted Least Squares (DWLS) as the estimation method. To assess goodness of model fit, we used the following robust indices: the model chi-square test statistic (χ^2), the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), the Root Mean Square Error of Approximation (RMSEA) with its 90% confidence interval (CI), and the Standardized Root Mean Square Residual (SRMR). The following common cut-off values were considered: CFI and TLI values $\geq .90$, and RMSEA and SRMR values $\leq .08$ were suggestive of acceptable model fit, and CFI and TLI values $\geq .95$, and RMSEA and SRMR values $\leq .05$ were suggestive of good model fit (Marsh et al., 2004).

Measurement Invariance

Measurement invariance of the 3-factor structure for the CISS-SF was evaluated with respect to gender (males and females) as well as age (age groups for 17-25 and 42-65) using data

from wave 2. We tested for measurement invariance for both gender and age, separately, within a multiple-group CFA framework by fitting the same model for the two samples (e.g., males and females) simultaneously and imposing increasingly restrictive cross-group equality constraints on its parameters. We began with a baseline model with no equality constraints (configural invariance), then conducted a test of invariant factor loadings (metric invariance), and then a test of invariant factor covariances (structural invariance). Invariance was assumed to hold if these constrained models fit the data well and if there was minimal difference in their fit from that of the baseline model (Chen, 2007). Because of excessive Type I error rates associated with the chi-square difference test in large samples, we adapted a procedure recommended by Vandenberg and Lance (2000) and evaluated the relative fit of constrained models using change in CFI, RMSEA and SRMR values, with minor differences of $\leq .02$ indicating equivalent fit.

Incremental Validity

To examine the relationships between coping, the five-factor model of personality, and mental health symptomatology, Pearson product-moment correlations were calculated (separately by gender) between the CISS-SF scales at wave 2, scales for the five-factor model at wave 1, and the scales for depression and anxiety at wave 4. To evaluate the incremental validity of the CISS-SF with respect to predicting depression and anxiety symptomatology, two hierarchical multiple regressions were conducted (separately by gender). For each regression model, mental health symptom scale scores were used as the dependent variable and the 5 scales from the NEO-FFI at wave 1 were entered as the predictor variables in step 1, followed by the three CISS-SF scales at wave 2 entered as predictor variables in step 2. Separate regression models were conducted with either depression or anxiety as the dependent variable.

Results

Factor Structure

CFA was used to assess the 3-factor theoretical model for the CISS-SF items separately for each wave of data. The 3-factor model for the CISS-SF items showed acceptable model fit for all three waves: Wave 2, CFI = .924, TLI = .914, SRMR = .076, and RMSEA = .075, 90% CI = [.071, .078]; Wave 3, CFI = .915, TLI = .904, SRMR = .085, and RMSEA = .084, 90% CI = [.080, .088]; and Wave 4, CFI = .919, TLI = .908, SRMR = .083, and RMSEA = .081, 90% CI = [.077, .085]. For all three waves, item-to-factor standardized parameter estimates were statistically significant as were all associations among each of the latent variables (see Table 1).

Measurement Invariance across Gender and Age

For measurement invariance across gender, the configural invariance model indicated an adequate fit to the data [CFI = .922, TLI = 0.915, RMSEA = .081, SRMR = .080] and 90% CI = [0.068, 0.076], implying that the 3-factor model was equivalent for men and women. The metric invariance model was comparably well fitting [CFI = .909, TLI = 0.917, RMSEA = .085, SRMR = .085] and 90% CI = [0.067, 0.075], indicating the CISS-SF items did not function differently for the two groups (change in SRMR was .005 and in RMSEA was .004). The structure invariance model was comparably well fitting [CFI = .895, TLI = 0.897, RMSEA = .089, SRMR = .088] and 90% CI = [0.076, 0.083], indicating the CISS-SF items did not function differently for the two groups (change in SRMR was .008 and RMSEA was .008).

Measurement invariance testing across the age groups (age groups for 17-25 and 42-65) produced results comparable with those for gender. The configural invariance model indicated an adequate fit to data as well (CFI = .923, TLI = 0.913, RMSEA = .073, SRMR = .080) and 90% CI is [0.070, 0.077], implying that the 3-factor model was equivalent between age groups 17-25 and

42-65 years. The metric invariance model was adequately fitting (CFI = .919, TLI = 0.913, RMSEA = .074, SRMR = .082) and 90% CI = [0.070, 0.077], indicating the CISS-SF items did not function differently for the two groups (change in SRMR was .002 and in RMSEA was .001). The structure invariance model was adequately fitting (CFI = .898, TLI = 0.883, RMSEA = .080, SRMR = .089) and 90% CI = [0.077, 0.084], indicating the CISS-SF items did not function differently for the two groups (change in SRMR was .009 and in RMSEA was .007).

Reliability and Group Differences for CISS-SF Scales

Means, standard deviations (SD), and Cronbach's alphas for the CISS-SF scales (separately by gender and age group) are presented in Table 2. All CISS-SF subscales showed moderate to high internal reliabilities with Cronbach's alphas ranging from .80 to .92 for the total sample across the 3 waves of data (alphas for men or women, as well as for younger or older adults were also moderate to high in value). Table 3 presents the test-retest correlations conducted for the CISS-SF scales across the 3 waves of data (separately by gender). A consistent pattern of moderate 1-year and 2-year test-retest correlations were found for all CISS-SF scales, ranging from .55 to .65 for the total sample across the 3 waves of data (correlations for men or women, as well as for younger or older adults were quite consistent in magnitude).

Gender differences on the various CISS-SF scales were evaluated using separate independent *t*-tests. For wave 2, women scored significantly higher on the emotion-oriented scale [t (1143) = 6.75, $p < .01$] with a small effect, $d = 0.40$, and the avoidance-oriented scale [t (1143) = 8.80, $p < .01$] with a moderate effect, $d = 0.53$. For wave 3, men scored significantly higher on the task-oriented scale [$t(1000) = -2.82$, $p < .01$] with a small effect, $d = 0.18$, while women scored higher on both the emotion-oriented scale [$t(1000) = 6.97$, $p < .01$] with a small effect, $d = 0.45$, and avoidance-oriented scale [$t(1000) = 7.82$, $p < .01$.] with a moderate effect, $d = 0.50$. For wave

4, women scored higher on the emotion-oriented scale [t (1024) = 6.54, p < .01], with a small effect, d = 0.42, and the avoidance-oriented scale [t (1024) = 9.04, p < .01], with a moderate effect, d = 0.58.

Age differences on the various CISS-SF scales were evaluated using separate independent t-tests. The younger group scored significantly higher on the emotion-oriented scale [t (1143) = 5.31, p < .001] with a small effect, d = 0.32 and the avoidance-oriented scale [t (1143) = 10.56, p < .001] with a moderate effect, d = 0.63, than the older group at wave 2. For wave 3, the younger group again scored significantly higher on both the emotion-oriented scale [t(1000) = 3.35, p < .001] with a small effect, d = 0.21, and the avoidance-oriented scale [t(1000) = 7.96, p < .001] with a moderate effect, d = 0.51, than the older group. For wave 4, the younger group scored significantly higher on the task-oriented scale [t(1024) = 3.64, p < .001] with a small effect, d = 0.23, the emotion-oriented scale [t(1000) = 4.00, p < .001] with a small effect, d = 0.25, and the avoidance-oriented scale [t(1000) = 8.73, p < .001] with a moderate effect, d = 0.55, than the older group.

CISS-SF Validity: Predicting Mental Health Symptomatology

Table 4 presents the means and standard deviations for all coping, personality, and mental health variables (separately by gender), as well as correlations among all variables. Total scores for depression, anxiety, and stress all showed low to moderate correlations with the CISS-SF scales: ranging from -.22 to .39 for males and -.28 to .52 for females. There was also a range of moderate negative and positive correlations between the basic personality scales and the CISS-SF, ranging from -.49 to .55 for males and -.49 to .58 for females. For analyses with the NEO-FFI and the CISS-SF, neuroticism had a negative relationship with task-oriented coping, extraversion had a negative relationship with emotion-oriented coping, and both agreeableness and conscientiousness

had a negative relationship with both emotion-oriented and avoidance-oriented coping. In contrast, openness had very weak correlations across all three coping scales.

To examine the unique contribution of coping to the prediction of mental health problems, while controlling for basic personality, a series of hierarchical multiple regression analyses were conducted (separately by gender), with each of the mental health outcomes (i.e., depression and anxiety) as dependent variables. For depression, the predictors accounted for 30% of the variance for women and 35% of the variance for men (see Table 5). For women, the CISS-SF scales accounted for an additional 4% of variability in depression above basic personality, whereas for men the CISS-SF accounted for an additional 6%. For women, neuroticism, extraversion, and agreeableness were all unique predictors, whereas for men only neuroticism and extraversion were significant predictors. In terms of the CISS-SF, emotion-oriented coping was the strongest predictor in both women and men. For anxiety, predictors accounted for 42% of the variance in women and 35% of the variance in men (see Table 6). For women, the CISS-SF scales accounted for an additional 9% of variability in anxiety above basic personality, whereas for men the CISS-SF accounted for an additional 6%. Results show neuroticism was the strongest unique predictor, with all three CISS-SF factors uniquely contributing for women, and only task-oriented coping and emotion-oriented coping being unique predictors for men.

Discussion

The present study sought to examine whether the 3-factor model used to guide development of the CISS (Endler & Parker, 1990a, 1990b, 1994) would replicate in a shortened version of the scale (CISS-SF) with a large community-based sample. We used a novel set of longitudinal data (Alberta LLLP; el-Guebaly et al., 2015), where participants completed the CISS-SF on three separate occasions (approximately 1 year apart). Confirmatory factor analysis

(CFA) results with the multiple "waves" of data demonstrated acceptable fit for the 3-factor model: three 7-item scales assessing task, emotion, and avoidance-oriented coping. Additionally, measurement invariance of the CISS-SF demonstrated that the model held well for both men and women, as well as for younger and older adults (17- to 25-year-olds versus 42- to 65-year-olds), indicating that men and women, as well as younger and older adults respond to the CISS-SF in a similar fashion. The creation of short forms from a longer assessment tool often comes with reduced internal reliability (Kruyen et al., 2013). However, the alpha coefficients in the current study ranged from .76 to .90 for women, .81 to .93 for men, .75 to .90 for young adults, and .79 to .92 for older adults, suggesting that the short form for the CISS has acceptable internal reliability (Tavakol & Dennick, 2011).

The pattern of associations among the three latent variables (task, emotion, and avoidance), as well as correlations among the matching scale scores, were indicative of three relatively orthogonal coping dimensions, as was found with the normative data for the long form for the CISS; (Endler & Parker, 1990a, 1999). It is interesting to note that the relationships between the task and emotion dimensions were consistently negative and very low; the association between these 2 latent variables ranged from -.099 and -.164 across the 3 waves of data. As long emphasized by coping theorists like Folkman and Lazarus (e.g., Folkman & Lazarus, 1980; 1985), task or problem and emotion-oriented coping are quite distinct responses to stressful situations: "The function of problem-focused coping is to change the troubled person-environment relationship by acting on the environment or oneself. The function of emotion-focused coping is to change either a) the way the stressful relationship with the environment is attended to (as in vigilance or avoidance) or b) the relational meaning of what is happening, which mitigates the stress even though the actual conditions of the relationship have not changed" (Lazarus, 1993, p. 238).

Thus, the minimal correlation observed between the task-oriented and emotion-oriented coping scales on the CISS-SF is as expected. This pattern of results is also consistent with the results reported for the CISS (Higgins & Endler, 1995; Endler & Parker, 1994; Spoor et al., 2007).

The unique nature of the Alberta LLLP dataset also allowed for test-retest correlations of the CISS-SF scales to be examined across 1- and 2-year time intervals. The temporal stability of coping behaviours has long been a point of debate. Early coping theorists like Folkman and Lazarus consistently dismissed the importance of trait measures of coping style (Lazarus, 1993). As noted by Folkman (1982), "Trait measures of coping assume that people are behaviourally consistent across all situations. However, substantial consistency has seldom been found by personality research" (p. 103). Nevertheless, there has long been an interest in the coping area in developing tools for measuring stable basic coping styles (Joffe & Naditch, 1977; Parker & Endler, 1996). When the CISS was originally developed, Endler and Parker (1990a; 1990b) explicitly proposed that the new measure assessed three "habitual coping strategies" (or styles) used by individuals across stressful situations. Thus, the CISS-SF scales should correlate at least moderately across time. The present study found the scales to be quite stable across time: the correlations for 1-year test-retest correlations ranged from .50 to .60 for men, .56 to .65 in women, .49 to .65 in younger adults, and .55 to .64 in older adults. The two-year test-retest correlations were very similar in magnitude, ranging from .53 to .58 for men, .54 to .60 for women, .50 to .58 in younger adults, and .58 to .59 in older adults (see Table 3). These results are higher than the 1-year test-retest correlations from a recent study on basic personality (Assaad et al., 2022). Not only are these findings additional evidence that the CISS-SF is a reliable psychometric tool, but the results also support Endler and Parker's (1990a, 1990b) contention that coping styles are stable trait constructs.

With respect to the gender differences in mean scores on the CISS-SF scales observed in the current study, previous research has consistently found gender differences in coping behaviours and responses (e.g., Lawrence et al., 2006; Melendez et al., 2012). Women, for example, tend to report using more emotion-oriented coping than men; the opposite pattern of results has also been reported for task-oriented coping (Cohan et al., 2006; Endler & Parker, 1990; Monteiro et al., 2014; Rafnsson et al., 2006). Across the various waves of data, the present study found gender differences in coping scores consistent with previous research using both the long and short forms of the CISS (see also Endler and Parker, 1990, 1999). Also consistent with the general coping literature (Graves et al., 2021; see also a meta-analysis by Tamres, et al., 2002). The magnitude of the gender differences was quite low.

Potential age-related differences in the use of specific coping strategies have long been of interest in the coping field (see, for example, McCrae, 1982). In the small set of relevant studies (Strack & Feifel, 1996), collective results have been very inconsistent, largely due to the lack of longitudinal designs, as well as important methodological differences in the way that coping has been operationalized (e.g., interindividual vs. intraindividual coping measures). While some researchers have reported that as people age, they shift from using problem-focused coping toward more emotion-focused coping (Chen et al., 2018; Hertel et al., 2015; Melendez et al., 2017), others have found either weak or non-existent links between different coping strategies and age (Aldwin et al., 1996; McCrae, 1989). In the current study, most of the age-related differences on the CISS-SF were non-significant or quite weak. The one exception was a moderate effect for avoidance-oriented coping across the various waves, with younger adults reporting higher scores on this scale than the older adult group. This is consistent with other

reports that the use of avoidance-oriented coping decreases in older adulthood (Amirkhan & Auyeung, 2007; Brennan et al., 2012; Wuthrich & Mohlman, 2024).

Validity of the CISS-SF

The present study also sought to examine the validity of the CISS-SF by exploring the relationships among the coping scales, and basic personality and several mental health variables. Potential links between coping and basic personality like the 5-factor model have been of longstanding interest in the coping area (Connor-Smith & Flachsbart, 2007), with some researchers questioning the need for specific coping assessment tools if coping is nothing more than "personality under stress" (e.g., Bolger, 1990; Costa et al., 1996). At the very least, coping style measures like the CISS-SF are expected to be empirically related to measures of basic personality, but also need to demonstrate incremental validity when it comes to predicting important outcomes like health and wellness (Endler & Parker, 1994).

In terms of the relationship between the CISS-SF and basic personality (5-factor model), the results obtained for neuroticism (moderate positive association with emotion-oriented coping and negative association with task-oriented coping) closely match previous results obtained using the long form of the CISS (Endler & Parker, 1990b;1999; Saklofske & Kelly, 1995), as well as results reported with other coping measures and related constructs (Afshar et al., 2015; Connor-Smith & Flachsbart, 2007). For the most part, however, the other personality scales correlated very low with the CISS-SF scales. For men, they ranged from .08 (openness and emotion-oriented) to -.28 (conscientious and emotion-oriented), with a mean absolute value of .16; for women, correlations ranged from -.05 (openness and emotion-oriented) to .32 (conscientiousness and task-oriented coping), with a mean absolute value of .17.

Previous research has found that specific coping dimensions assessed by the CISS-SF are linked with a variety of mental health outcomes (Van Horn & Wilpert, 2017; Zimmer-Gembeck & Skinner, 2016). Cohan et al., 2006, in their work to develop a potential short form for the CISS, focused on using the scale to predict depression and anxiety symptomatology. In the present study, depression was found to be moderately related to task- and emotion-oriented coping for both men and women (negatively with task-oriented and positively correlated with emotion-oriented coping for both men and women). Previous researchers have similarly found that higher levels of task-oriented coping are linked to lower levels of depressive symptoms; an opposite pattern of results have been found with emotion-oriented coping, with high levels of this coping style being linked to higher levels of depressive symptoms (Kraaij et al., 2002; Sawhney et al., 2020; Shao et al., 2020).

Prior research has likewise found anxiety symptomatology to be correlated with the coping dimensions that appear on the CISS-SF (Zeidner & Ben-Zur, 1994; Kariv & Heiman, 2005). Previous research has found higher levels of task-oriented coping to be linked to lower levels of anxiety symptoms, with the opposite pattern of results found for both emotion-oriented and avoidance coping (Zeidner & Ben-Zur, 1994; Kariv & Heiman, 2005; Shao et al., 2020). This pattern of results was replicated in the current study (for both men and women).

To explore the incremental validity of the CISS-SF with respect to basic personality, hierarchical multiple regressions were conducted, separately by gender, to determine if the scales predict depression and anxiety symptomology beyond the variability accounted for from basic personality. This is particularly relevant as the constructs connected to the 5-factor model routinely predict moderate amounts of depression and anxiety symptomatology (Malouff et al., 2005; Yang et al., 2024). For depression symptoms, the results indicated that for both women

and men, neuroticism and extraversion were the greatest unique contributors in terms of personality, whereas task- and emotion-oriented coping were the greatest unique contributors in terms of the CISS-SF. Agreeableness, in contrast, was a significant predictor of depression only in women, which is consistent with previous studies indicating that women may have higher neuroticism and agreeableness when going through depressive states than men (Kim et al., 2016). The unique contributions of task- and emotion-oriented for both genders is also consistent with previous research, as past studies indicate that these strategies are used by both men and women (Kariv & Heiman, 2005; Endler & Parker 1990; Sawhney et al., 2020). Incremental validity was also demonstrated for the CISS-SF, as the coping scales explained an additional 4% of the variability in depression symptoms in women and 6% in men above basic personality.

The second hierarchical regression predicted anxiety symptoms using basic personality and the CISS-SF scales. The results for both women and men indicate that neuroticism is the strongest contributor in terms of basic personality, whereas all three CISS-SF scales were significant predictors, with task-oriented and emotion-oriented being the strongest. Incremental validity was also demonstrated for the CISS-SF, as the coping scales explained an additional 9% of the variability in anxiety symptoms in women and 6% in men above basic personality.

Limitations and Future Directions

The dataset used in the present study had several limitations that should be noted. El-Gueblay et al. (2015) have suggested that participants in earlier waves of the LLLP project may have sought treatment for mental health problems and withdrawn from the study. This potential confound could have influenced the findings of the present study with respect to relationships among the coping, personality, and mental health variables. Furthermore, the results obtained from this study are limited to four regions in Alberta, and while the present study did explore

potential gender and age differences in psychometric features on the CISS-SF, it is possible that there may be differences with respect to other demographic variables (e.g., ethnicity and socioeconomic status).

Nonetheless, although other brief coping-related measures exist (Kato, 2015; Trudel-Fitzgerald et al., 2023), the CISS-SF measures three very distinct coping dimensions that have emerged as particularly significant in the coping field, specifically task-oriented, emotion-oriented, and avoidance-oriented coping (Parker & Endler, 1996; Parker & Wood, 2008). Short forms like the CISS-SF are appealing because they can be used in research settings where there are limited time and space for lengthy assessment tools, such as in prospective longitudinal research designs (see Brennan et al., 2012; Lazarus, 1981, 1993, 2000). Short coping forms like the CISS-SF also lend themselves to person-centered approaches, attracting growing interest in the coping area (Kleshinski et al., 2024; Nagy & Balázs, 2023), where identification of meaningful coping patterns (or profiles) is better suited to a smaller range of coping dimensions (Solberg et al., 2022). For instance, use of latent profile analysis (LPA) within the field of coping enables the identification of meaningful coping profiles, exploration of combinations of coping strategies, and examination of outcomes linked to these patterns of coping behavior. The growing use of statistical approaches like latent profile analysis (LPA) in the coping area is also an important indicator that the field is finally adopting a more person-centered approach—a gap long lamented in the coping literature (see, especially, Lazarus, 1993, 2000)

Tables

Table 1.

Standardized Item-to-Factor Parameter Estimates and Inter-Factor Estimates from CFAs of the Three-Factor CISS-SF Model (separately by wave)

Item	Wave 2	Wave 3	Wave 4
Task-Oriented			
1. Focus on the problem…	.662*	.747*	.771*
4. Think about how I…	.765*	.781*	.793*
7. Determine a course…	.829*	.850*	.838*
10. Work to understand…	.810*	.839*	.844*
13. Take corrective action…	.716*	.734*	.729*
16. Think about the event…	.763*	.742*	.765*
19. Analyze the problem…	.658*	.723*	.717*
Emotion-Oriented			
2. Blame myself…	.624*	.679*	.674*
5. Feel anxious about…	.716*	.733*	.742*
8. Blame myself for…	.758*	.797*	.788*
11. Become very upset	.703*	.723*	.722*
14. Blame myself for…	.778*	.785*	.761*
17. Wish that I could…	.620*	.647*	.681*
20. Focus on my general…	.742*	.766*	.738*
Avoidance-Oriented			
3. Treat myself to…	.619*	.681*	.682*

6. Go out for a…	.638*	.684*	.653*
9. Buy myself something	.610*	.640*	.610*
12. Visit a friend	.635*	.625*	.620*
15. Spend time with…	.579*	.544*	.581*
18. Phone a friend	.670*	.580*	.587*
21. Take time off…	.457*	.454*	.541*
Inter-Factor Estimates			
Task with Emotion	-.164*	-.143*	-.099*
Task with Avoidance	.134*	.076*	.171*
Emotion with Avoidance	.437*	.498*	.471*

Note. N = 1145 for wave 2, 1002 for wave 3 and 1026 for wave 4; * $p < .05$

Table 2

Means, Standard Deviations and Alpha Coefficients by Gender and Wave for the CISS-SF Scales

	Task-Oriented	Emotion-Oriented	Avoidance-Oriented
	Mean (SD) Alpha	Mean (SD) Alpha	Mean (SD) Alpha
Wave 2			
Men (n = 478)	21.16 (12.04) .91	12.60 (8.23) .86	12.97 (8.43) .82
Women (n = 667)	23.10 (10.40) .89	15.86 (8.54) .88	16.72 (8.31) .76
Young (n = 508)	26.31 (5.18) .87	18.36 (6.38) .88	20.00 (5.42) .75
Old (n = 637)	26.95 (6.05) .91	16.43 (5.89) .86	16.51 (5.68) .80
Total (n = 1145)	22.23 (11.20) .90	14.42 (8.56) .87	15.06 (8.57) .80
Wave 3			
Men (n = 406)	18.22 (13.60) .92	9.73 (8.22) .87	10.32 (8.52) .81
Women (n = 596)	20.08 (11.98) .90	13.301 (9.15) .89	13.98 (8.94) .77
Young (n = 435)	26.47 (5.70) .90	16.82 (6.71) .90	18.52 (5.49) .77
Old (n = 567)	26.32 (6.02) .91	15.49 (5.89) .87	15.73 (5.49) .79
Total (n = 1002)	19.25 (12.75) .91	11.73 (8.93) .89	12.36 (8.94) .80
Wave 4			
Men (n = 415)	18.20 (13.38) .93	9.89 (8.06) .87	10.52 (8.45) .82
Women (n = 612)	20.91 (11.85) .90	13.39 (8.80) .89	14.69 (8.95) .78
Young (n = 447)	27.15 (5.27) .89	16.71 (6.25) .89	18.92 (5.53) .78
Old (n = 579)	25.76 (6.64) .92	15.19 (5.84) .88	15.87 (5.57) .80
Total (n = 1027)	19.71 (12.62) .92	11.85 (8.67) .88	12.85 (8.98) .80

Table 3.

Test-Rest Correlations for CISS-SF Scales (Separately by Gender and Time-Period)

Scale/Time-Period	Total Sample	Males	Females	Young	Old
Task-Oriented					
wave 2 with wave 3	.56*	.53*	.58*	.58*	.55*
wave 2 with wave 4	.55*	.54*	.56*	.52*	.58*
wave 3 with wave 4	.56*	.52*	.60*	.59*	.56*
N	1372	602	770	656	716
Emotion-Oriented					
wave 2 with wave 3	.58*	.57*	.56*	.56*	.59*
wave 2 with wave 4	.59*	.53*	.60*	.58*	.58*
wave 3 with wave 4	.65*	.60*	.65*	.65*	.64*
N	1372	602	770	656	716
Avoidance-Oriented					
wave 2 with wave 3	.56*	.50*	.57*	.49*	.55*
wave 2 with wave 4	.59*	.58*	.54*	.50*	.59*
wave 3 with wave 4	.59*	.53*	.59*	.57*	.58*
N	1372	602	770	656	716

Note. * $p < .05$

Table 4.

Correlations for NEO-FFI, CISS-SF, Anxiety Variables, and Depression Variables (separately by Gender and Time-Period)

Measure	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**Mean**	**SD**
1 Depress	—	0.72*	-0.24*	0.38*	0.07	0.47*	-0.35*	-0.15*	-0.10*	-0.25*	14.21	3.75
2 Anxiety	0.77*	—	-0.28*	0.52*	0.26*	0.58*	-0.21*	-0.21*	-0.06	-0.24*	15.23	10.35
3 Task	-0.22*	-0.21*	—	-0.22*	0.07	-0.27*	0.14*	0.13*	0.20*	0.32*	3.81	0.79
4 Emotion	0.42*	0.44*	-0.05	—	0.31*	0.50*	-0.14*	-0.24*	-0.05	-0.26*	2.62	0.90
5 Avoid	0.06	0.21*	0.16*	0.39*	—	0.21*	0.11*	-0.16*	0.16*	-0.15*	2.76	0.78
6 Neurot.	0.51*	0.55*	-0.27*	0.48*	0.22*	—	-0.35*	-0.42*	-0.04	-0.49*	46.98	10.96
7 Extra.	-0.35*	-0.24*	0.14*	-0.20*	0.17*	-0.41*	—	0.26*	0.21*	0.23*	52.49	10.76
8 Agree	-0.29*	-0.24*	0.09*	-0.16*	-0.14*	-0.41*	0.22*	—	0.04	0.36*	51.38	11.56
9 Open	-0.06	0.01	0.19*	0.08	0.18*	0.04	0.18*	-0.04	—	-0.03	56.08	10.16
10 Cons	-0.29*	-0.26*	0.15*	-0.29*	-0.20*	-0.49*	0.38*	0.27*	-0.16*	—	48.46	11.09
Mean	13.69	11.72	3.81	2.27	2.33	48.10	53.02	49.52	55.23	47.60		
SD	9.53	8.65	0.86	0.82	0.84	11.10	11.31	11.30	11.22	10.77		

Note. Values for men below the diagonal; Depress = total depression at wave 4, Anxiety = total anxiety at wave 4, Task = task-oriented coping at wave 2, Emotion = emotion-oriented coping at wave 2, Avoid = avoidance-oriented coping at wave 2, Neurot = neuroticism at wave 1, Extra = extraversion at wave 1, Agree = agreeableness at wave 1, Open = openness at wave 1, Cons = conscientiousness at wave 1. N for men is 602 and N for women is 770; * p <.05.

Table 5.

Results of Hierarchical Multiple Regressions for Total Depression at Wave 4

Variable	*b*	*Beta*	Partial Corr	R^2
Women (N = 613)				
[Step 1] Neuroticism	0.36*	0.41	0.36	
Extraversion	-0.18*	-0.20	-0.21	
Openness	-0.04	-0.04	-0.05	
Agreeableness	0.08*	0.10	0.10	
Conscientiousness	-0.04	-0.04	-0.04	0.26*
[Step 2] Task	-1.07*	-0.09	-0.09	
Emotion	2.22*	0.21	0.20	
Avoidance	-0.38	-0.03	-0.03	0.30*
Men (N= 415)				
[Step 1] Neuroticism	0.34*	0.38	0.34	
Extraversion	-0.14*	-0.16	-0.16	
Openness	-0.03	-0.04	-0.04	
Agreeableness	-0.06	-0.07	-0.08	
Conscientiousness	-0.05	-0.06	-0.06	0.29*
[Step 2] Task	-0.95	-0.09	-0.10	
Emotion	3.11*	0.28	-0.16	
Avoidance	-1.07	-0.10	0.27	0.35*

Note. * $p < .05$

Table 6.

Results of *Hierarchical Multiple Regressions for Total Anxiety at Wave 4*

Variable	*b*	*Beta*	Partial Corr	R^2
Women (N = 613)				
[Step 1] Neuroticism	0.58*	0.60	0.52	
Extraversion	0.00	0.00	0.00	
Openness	-0.03	-0.03	-0.04	
Agreeableness	0.03	0.04	0.04	
Conscientiousness	0.04	0.04	0.04	0.33*
[Step 2] Task	-1.80*	-0.14	-0.16	
Emotion	3.12*	0.27	0.28	
Avoidance	1.27	0.10	0.11	0.42*
Men (N = 415)				
[Step 1] Neuroticism	0.42*	0.51	0.43	
Extraversion	-0.01	-0.02	-0.02	
Openness	0.01	0.01	0.01	
Agreeableness	-0.02	-0.03	-0.03	
Conscientiousness	-0.01	-0.01	-0.01	0.29*
[Step 2] Task	-1.12*	-0.12	-0.13	
Emotion	2.29*	0.22	0.22	
Avoidance	0.59*	0.06	0.06	0.35*

Note. * $p < .05$

Chapter 2: Coping Strategies and Their Impact on Mental Health: Explorations using the Short Form for the Coping Inventory for Stressful Situations (CISS-SF)

Abstract

The Coping Inventory for Stressful Situations (CISS) is a widely used measure that was developed to assess three coping styles: task-oriented, emotion-oriented, and avoidance-oriented coping. The present study explored the construct validity of a short version of the instrument (the CISS-SF) in a large longitudinal sample of community-based adults who completed the CISS-SF and various measures of a range of mental health variables. Consistent with prior literature, low to moderate correlations were found between the CISS-SF scales and externalizing behaviours (e.g., antisocial, illicit drug use), with positive correlations found for emotion and avoidance-oriented coping and negative correlations found with task-oriented coping. Results also showed individuals with externalizing disorders (e.g., alcohol, substance use disorders, problematic gambling) generally had higher emotion- and avoidance-oriented coping, but lower task-oriented coping scores, compared to individuals without these externalizing disorders. Individuals with internalizing disorders (major depressive disorder; generalized anxiety disorder) similarly showed higher scores on emotion- and avoidance-oriented coping, but no differences in task-oriented coping, compared to individuals without internalizing disorders. Overall, our findings provide evidence for the construct validity of the CISS-SF as a short measure of coping styles, with associations of coping with mental health outcomes consistent with other widely used coping assessment tools.

Keywords: coping; longitudinal study; mental health; psychometrics

Coping has long been a concept of interest in psychology, however with recent global events (e.g., the COVID-19 pandemic) there has been a noticeable increase in the number of coping studies published in the extent literature. While there has been steady interest in coping research over the last 30+ years, nearly 40% of this work was published just from 2018-2023. It is worth noting that Lazarus and Folkman's original transactional theory of coping (and subsequent modifications) continues to have a strong influence on the field (Biggs et al., 2017; Lazarus et al., 1974). Specifically, most contemporary research focuses on three core coping styles or dimensions: task-, emotion-, and avoidance-oriented coping.

Coping Dimensions

Task-oriented coping, also called problem-focused coping, involves strategies used to appraise situations and work to find solutions to combat the source of stress (e.g., cognitive reappraisal; Courbasson et al., 2002; Dowou et al., 2023). Research has found task-oriented coping to be associated with positive outcomes, including better mental health (Rogowska et al., 2021; Veisani et al., 2021), reduced burnout (Nowakowska-Domagala et al., 2015; Rossi et al., 2023), and stronger relationship satisfaction (Song et al., 2023). Emotion-oriented coping involves focusing on the emotional consequences of a stressor (e.g., self-blame; Courbasson et al., 2002; Endler & Parker, 1990). Emotion-oriented coping has consistently been associated with poorer outcomes like reduced mental health (Rogowska et al., 2021), increased burnout (Rossi et al., 2023), and weaker relationship satisfaction. (Song et al., 2023). Avoidance-oriented coping involves behaviours aimed at avoiding stressful situations entirely (e.g., denial; Endler & Parker, 1990; Kariv & Heiman, 2005). Like emotion-oriented coping, avoidance-oriented coping has been involved with reduced mental health (Rogowska et al., 2021), increased burnout (Chen et al., 2021; Rossi et al., 2023), and weaker relationship satisfaction (Song et al., 2023).

Coping and Mental Health

Prior studies have found that specific coping dimensions are associated with a variety of internalizing and externalizing mental health outcomes (Van Hort & Wilpert, 2017; Tsirigotis & Peczkowsi, 2015; Rogowska et al., 2022). For instance, use of task-oriented coping is associated with fewer anxiety symptoms (Mohammadzadeh et al., 2020; Rogowska et al., 2020) and depression symptoms (Nrugham et al., 2012). An important moderator of these relationships between coping and internalizing mental health outcomes appears to be gender. Women with high levels of depression symptoms have been shown to use more emotion-oriented coping (Ottenbreit, Dobson, & Quigley, 2014) compared to men with similar levels of depression symptoms (Romano, Stout, & Mendrek, 2022). Similarly, women have been found to be more reliant on emotion-oriented coping than men if they met criteria for an anxiety disorder (Mohammadzadeh et al., 2020).

Coping has also been found to be related to externalizing mental health problems, such as addictions. For gambling disorder, it was found that greater avoidance-oriented and emotion-oriented coping are associated with greater gambling risk, whereas task-oriented coping tends to be associated with reduced risk (Gupta et al., 2004; Rizzo et al., 2023). Similarly, for substance use addictions, previous studies have found that greater alcohol use (Papadopoulou et al., 2023) and substance use (Ayres, 2021) are associated with greater use of avoidance-oriented coping.

Other externalizing issues such as disordered behavior have also been found to be in association with the coping dimensions assessed. For example, previous studies have found that higher aggressive behavior aligns with higher avoidance and emotion-oriented coping (Curci et al., 2017; Zhang et al., 2023). Maladaptive coping has also been found to be associated with greater risk-taking behavior (Ju et al., 2020) and antisocial behaviour (Pastwa-Wojciechowska et al., 2012). Previous studies have also found greater use of illicit drugs (e.g., crack cocaine, heroin) to be

associated with avoidance- and emotion-oriented coping (Duopah et al., 2024; Hyman et al., 2009; Singh et al., 2024). However, variability does exist among genders, with women having a higher resistance to maladaptive coping than men.

Coping Assessment

Despite the substantial literature between coping and both mental health and disordered behaviors outcomes, it remains unclear whether the psychometric properties of the coping assessment tools used are adequate. In this regard, a vast number of coping measures currently exist. Coping measures have been developed following one of two approaches: the interindividual (or dispositional) approach and the intraindividual (or situational) approach (Endler & Parker, 1990a; Lazarus, 1993; Parker & Endler, 1996). Interindividual approaches to identify basic coping styles or habitual coping strategies used by individuals across different types of stressful situations. One of the most widely used measures in coping literature, the *Coping Inventory for Stressful Situations* (CISS; Endler & Parker, 1994), is an interindividual coping measure (Kato, 2015). In contrast, intraindividual coping measures aim to identify and assess coping strategies used by individuals in particular types of stressful situations (e.g., the *Ways of Coping Questionnaire*; WCQ; Folkman & Lazarus, 1988). Some coping measures, such as the widely used COPE (Carver et al., 1989) and Brief COPE (Carver, 1997), have multiple versions that allow for either interindividual or intraindividual coping assessment.

Despite their widespread use, however, issues regarding the psychometric properties of these assessment tools persist (Corti et al., 2018; Merino-Soto et al., 2024). For instance, the short version of the CISS (the CISS-SF) has been widely used despite limited research on its psychometric properties. Both the original and short of the CISS follow the same 3-factor model

of dispositional coping, including task-oriented, emotion-oriented, and avoidance-oriented coping dimensions.

Studies on the original CISS have found considerable support for its reliability and validity (Endler & Parker, 1992; Endler & Parker, 1994) and have subsequently used the CISS to understand associations between coping and a range of variables, including mental health (Gautuam et al., 2024; Rossi et al., 2023; Gloria & Steinhardt, 2016) and disordered behavior (Carlo et al., 2012). More recently, the CISS-SF was similarly found to have both good reliability and factorial validity, with preliminary evidence showing good construct validity through its associations with the Five-Factor Model of personality and mental health symptoms (Van Elswyk et al., 2024).

Using longitudinal data, Van Elswyk et al. (2024) found that the internal reliability of the CISS-SF was good, with Cronbach's alphas between .80 to .92 for the total sample across the 3 waves. Stable 1-year and 2-year test-retest correlations were found for all CISS-SF scales, ranging from .55 to .65 for the total sample. Confirmatory factor analysis also demonstrated that the measurement had acceptable fit for its factor model. Furthermore, tests of measurement invariance demonstrated that the model held well for men and women in addition to separate age populations. For construct validity, neuroticism had a negative relationship with task-oriented coping, extraversion had a negative relationship with emotion-oriented coping, and both agreeableness and conscientiousness had a negative relationship with both emotion-oriented and avoidance-oriented coping.

Limitations of the Coping Assessment Literature

Despite these findings on the psychometric properties of the CISS-SF, however, gaps remain in the literature regarding the construct validity of the CISS-SF. For instance, as with other widely

used coping measures, previous studies on the associations between coping styles and relevant outcomes such as mental health and disordered behaviors tend to take a cross-sectional approach, thus limiting the generalizability of their results to a specific time. In particular, the lack of longitudinal studies in this area means it is unclear whether the relationships between the CISS-SF scales and these variables remain over larger time periods (Karing & Oeltjen, 2024; Umezaki et al., 2024). As dispositional coping measures, like the CISS-SF, are meant to assess coping at the trait level (Ptacek et al., 2006), the utilization of longitudinal data would allow researchers to test whether the CISS-SF scales predict mental health and disordered behavior later in life.

Previous studies examining associations between the CISS-SF and mental health and disordered behaviors also have tended to use non-representative samples and a narrow assessment of these outcomes (e.g. only examining one specific illicit substance rather than the broader range of illicit substances). They also focus on examining mental health symptoms rather than addressing the presence of specific mental health disorders, particularly with internalizing disorders (e.g Major Depressive Disorder, Generalized Anxiety Disorder, etc) (Musa & Hamid, 2025; Vasylebska-Skupa et al., 2024). Additionally, very limited research has been performed examining the CISS-SF in relation to disordered behavior. Studies that have examined the CISS and disordered behavior have only used the long form of the CISS to do so, rather than the CISS-SF. This leaves yet another gap in the literature that should be addressed. Utilization of the CISS-SF to examine these variables can shine more light on the psychometric properties of the measure.

Present Study

Using data from a large community sample of adults who completed the CISS-SF multiple times over several years (el-Guebaly et al., 2015), the present study sought to further validate the scale by examining the relationship between coping and various indicators of

internalizing and externalizing mental health outcomes and disordered behaviors across time. Consistent with previous studies, we hypothesized that the CISS-SF's emotion-oriented and avoidance-oriented coping scales would be associated with poorer mental health and more disordered behavior, while task-oriented coping would be related to better mental health and lower disordered behavior.

Methods

Participants and Procedures

Data for the present study came from the Leisure, Lifestyle, and Lifecycle Project (LLLP; el-Guebaly et al., 2015). Participants were recruited from four locations in Alberta, Canada (Edmonton, Calgary, Lethbridge area, and Grand Prairie area) and were also oversampled based on age and gender specific cut-offs for gambling activities, as well as for specific age groups (17- to 20-year-olds; 23- to 25-year-olds; 43- to 45-year-olds and 63- to 65-year-olds). Initial recruitment for the study ("wave 1") involved random digit dialing with telephone in-take surveys, which were then followed up with in-person interviews and the administration of various self-report questionnaires. Four additional "waves" (each 1 year apart) of follow-up data collection were completed using online surveys, and a small portion (less than 10% of the sample) completed paper and pencil versions.

A total of 1,372 adults 18 years or older participated in the initial data collection (wave 1). The CISS-SF was included in waves 2, 3 and 4; data were available for 1145 individuals (478 men and 667 women) at wave 2, 1002 individuals (406 men and 596 women) at wave 3, and 1026 individuals (414 men and 612 women) at wave 4 (gender were missing for a small number of cases). Other demographic features of the sample have been described in detail elsewhere (el-Guebaly et al., 2015).

Measures

Coping

The CISS was originally developed as an interindividual coping measure of basic coping styles (Endler & Parker, 1990a, 1990b, 1994). The present study used the 21-item CISS-SF (Van Elswyk et al., 2024), a self-report measure with 3 coping style scales: 7-items for task-oriented coping; 7-items for emotion-oriented coping; and 7-items for avoidance-oriented coping. For the present study, only data on the CISS-SF collected at wave 2 were used. A previous study by Van Elswyk et al. (2024) found that the CISS-SF has good factorial validity as well as good internal and test-retest reliability, with Cronbach's alphas ranging from .87 to .93 for task-oriented, .86 to .90 for emotion-oriented, and .75 to .82 for avoidance-oriented.

Disordered behaviors

Disordered behaviors were measured using items from the Personality Assessment Inventory (PAI; Morey, 1991), a 344-item self-report measure with 39 sub-scales, including clinical, treatment, interpersonal, and validity scales. Of these, only the original PAI scale for antisocial features (24 items) was used for the present study. For a more comprehensive examination of disordered behaviors, two further scales were derived from additional items on the PAI, selected based on item content. All such items were then included in an exploratory factor analysis (EFA) using oblimin rotation. This procedure identified two substantive factors: aggressive behaviour (33 items) and risky behaviour (7 items). Data on the PAI was collected at wave 4. Cronbach's alphas were also generated for these scales, with the antisocial scale presenting as .75, the aggression scale presenting as .90, and the risky behavior scale presenting as .73. As an additional measure of disordered behaviors, frequency of illicit drug use in the past year was collected from the Canadian Community Health Survey (CCHS; Statistics Canada &

the Canadian Institutes of Health Research, 1991), an annual survey distributed to the population every two years. This data had participants answering ‘yes’ or ‘no’, depending on what kind of substance they have tried (e, g. cannabis, cocaine/crack, speed/amphetamines, etc.). Data on this variable was collected at wave 3.

Mental Health Symptomology

The Composite International Diagnostic Interview (CIDI; WHO, 1994), is a 276-item structured clinical interview designed to evaluate symptom severity and impairment for a variety of mental disorders according to DSM-IV criteria. The CIDI was used to evaluate the presence (or absence) of MDD (Major Depressive Disorder), GAD (Generalized Anxiety Disorder), CUD (Cannabis Use Disorder), AUD (Alcohol Use Disorder), and SUD (Substance Use Disorder), with presence of the disorder coded 1 and absence of the disorder codes 0. For AUD and SUD, data from the CIDI were collected across waves 2, 3, and 4. If an individual met criteria at any wave, they were classified at wave 4 as having a lifetime substance use disorder. Data on MDD and GAD were only used for the present study at wave 4 and assessed the presence of the disorder in the past year. Data on the CUD was only available for wave 4 and assessed lifetime presence of the disorder.

The presence of pathological gambling was derived from the Composite International Diagnostic Interview-Gambling Module (CIDI-GM; WHO, 1994). This additional module of the CIDI includes 17 yes or no questions that map onto the ten diagnostic criteria for pathological gambling that are in the DSM-IV (American Psychiatric Association, 1994). Pathological gambling was coded 0 for low/non-pathological gamblers and 1 for pathological gamblers. All data on the CIDI-GM used in the present study was collected at wave 4.

Data on tobacco use disorder (TUD) was collected through the CCHS (Statistics Canada & the Canadian Institutes of Health Research, 1991). Individuals were coded as having TUD if they reported currently smoking cigarettes daily in addition to responding "yes" to at least one of the following two questions: "Do you find it difficult to refrain from smoking in places where it is forbidden?" and "Do you smoke even if you are so ill that you are in bed most of the day?". Data for these variables were available at waves 2, 3, and 4. If an individual met criteria at any wave, they were classified at wave 4 as having a lifetime tobacco use disorder.

Statistical Procedure

All statistical analyses were conducted in JASP version 0.19.3.0 (JASP Team, 2024). A series of independent 2 (mental health group) by 2 (gender) ANOVAs were used to assess differences between groups for major depressive disorder, generalized anxiety disorder, pathological gambling, tobacco-use disorder, alcohol-use disorder, cannabis-use disorder, and substance-use disorder with each of the three CISS-SF scales at wave 2 as the dependent variable. Due to the continuous nature of some variables, the analysis on antisocial behavior, risk behavior, aggressive behavior, and illicit drug use were completed using Pearson's Correlations.

Results

Coping and disordered behaviors

Table 1 depicts the correlations, means, and standard deviations for the disordered behavior variables that were continuous. For antisocial behaviour, results showed low correlations with the CISS-SF scales (ranging from -0.11 to 0.22 for women and -0.06 to 0.18 for men). Aggressive behaviour had low to moderate correlations with the CISS-SF scales (ranging from -0.18 to 0.31 for women and -0.18 to 0.37 for men). Risky behaviour had low correlations with the CISS-SF scales (ranging from -0.08 to 0.22 for women and -0.06 to 0.21 for men). Illicit

substance uses likewise had low correlations with the CISS-SF scales for women (-0.06 to 0.18) and men (-0.10 to 0.19).

Internalizing Disorders

Table 2 shows the means and standard deviations for CISS-SF scales by gender and the Major Depressive Disorder (MDD) group. For the ANOVA with gender and MDD group as the independent variables and the CISS-SF scales as the dependent variables, there were no main effects or an interaction for task-oriented coping. For emotional-oriented coping, there was a main effect for MDD group, F (1, 983) = 20.91, $p < .001$, $\eta^2_p = 0.02$, with individuals with MDD having higher levels of emotion-oriented coping. There was also a main effect for gender, F (1, 983) = 15.53, $p < .001$, $\eta^2_p = 0.02$, with men having higher rates of emotion-oriented coping. There was no significant interaction between gender and MDD group. For avoidance-oriented coping, there was a main effect for MDD group, F (1, 983) = 4.63, $p < .05$, $\eta^2_p = 0.01$, with those who have higher MDD being more inclined to avoidance-oriented coping. There was a main effect for gender, F (1, 983) = 34.41, $p < .001$, $\eta^2_p = 0.03$, with men having higher rates of avoidance-oriented coping, but the interaction between gender and MDD group was not significant. Table 2 depicts the means and standard deviations for this ANOVA.

Table 3 depicts the means and standard deviations for CISS-SF scales by gender and Generalized Anxiety Disorder (GAD) group. For the ANOVA with gender and GAD group, there was no main effect for GAD group, with task-oriented coping as the dependent variable, F (1, 983) = 1.43, $p = 0.23$, $\eta^2_p = 0$. There was also no main effect for gender and no significant interaction between gender and GAD group. For the analysis with emotion-oriented coping as the dependent variable, there was a main effect, F (1, 983) = 30.99, $p < .001$, $\eta^2_p = 0.03$, with individuals with GAD having higher levels of emotion-oriented coping. There was a main effect

for gender, F (1, 983) = 9.16, p < .05, η^2_p = 0, with men having higher rates of emotion-oriented coping, but there was no significant interaction between gender and GAD group. For analysis with avoidance-oriented coping as the dependent variable, there was a main effect for GAD group, F (1, 983) = 6.14, p < .05, η^2_p = 0, with those who have higher GAD being more inclined to avoidance-oriented coping. There was a main effect for gender, F (1, 983) = 23.32, p < .001, η^2_p = 0.02, with men having higher rates of avoidance-oriented coping, but there was no significant interaction between gender and GAD group.

Addiction

Table 4 depicts the means and standard deviations for CISS-SF Scales by gender and Substance Use Disorder (SUD) group. For the ANOVA with gender and lifetime illicit substance use (SUD) as the independent variables, there was a main effect for SUD group with task-oriented coping as the dependent variable, F (1, 1141) = 16.31, p < .001, η^2_p = 0.01, with individuals with SUD having lower levels of task-oriented coping. There was no main effect for gender nor a significant interaction between gender and SUD group. For the analysis emotion-oriented coping as the dependent variable, there was a significant main effect, F (1, 1141) = 17.10, p < .001, η^2_p = 0.01, with individuals with SUD having higher levels of emotion-oriented coping. There was a main effect for gender, F (1, 1141) = 50.38, p < .001, η^2_p = 0.04, with men having higher rates of emotion-oriented coping, but there was no significant interaction between gender and SUD group. For the analysis with avoidance-oriented coping as the dependent variable, there was a significant main effect for SUD group, F (1, 1141) = 15.25, p < .001, η^2_p = 0.01, with individuals with SUD having higher levels of avoidance-oriented coping. There was a significant main effect for gender, F (1, 1141) = 73.44, p < .001, η^2_p = 0.06, with men having

higher rates of avoidance-oriented coping, but there was no significant interaction between gender and SUD group.

Table 5 depicts the means and standard deviations for CISS-SF scales by gender and Alcohol Use Disorder (AUD) group. For the ANOVA with gender and lifetime alcohol use (AUD) groups as the independent variables, there was a significant main effect for AUD group with task-oriented coping as the dependent variable, F (1, 1141) = 16.36, $p < 0.01$, $\eta^2_p = 0.01$, with individuals with AUD having lower levels of task-oriented coping. However, there was no significant main effect for gender nor a significant interaction between gender and AUD. For the analysis with emotion-oriented coping as the dependent variable, there was a significant main effect for AUD, F (1, 1141) = 31.56, $p < 0.01$, $\eta^2_p = 0.03$, with individuals with AUD having higher levels of emotion-oriented coping. There was a significant main effect for gender, F (1, 1141) = 47.49, $p < .001$, $\eta^2_p = 0.04$, with men having higher rates of emotion-oriented coping, but there was no significant interaction between gender and AUD. For the analysis with avoidance-oriented coping as the dependent variable, there was a significant main effect for alcohol use, F (1, 1141) = 28.41, $p < 0.01$, $\eta^2_p = 0.02$, with individuals with AUD having higher levels of avoidance-oriented coping. There was a significant main effect for gender, F (1, 1141) = 60.96, $p < .001$, $\eta^2_p = 0.05$ with men having higher rates of avoidance-oriented coping, but there was no significant interaction between gender and AUD.

Table 6 depicts the means and standard deviations CISS-SF scales by gender and Cannabis Use Disorder (CUD) group. For the ANOVA with gender and lifetime cannabis use (CUD) groups as the independent variable, a significant main effect for CUD was found for task-oriented coping as the dependent variable, F (1, 584) = 12.79, $p < .001$, $\eta^2_p = 0.02$, with individuals with CUD having lower levels of task-oriented coping. However, there was no

significant main effect for gender nor a significant interaction between CUD and gender. For the ANOVA analysis with emotion-oriented coping as the dependent variable, a significant main effect for CUD was found, F (1, 584) = 3.90, $p < .05$, $\eta^2_p = 0$, with individuals with CUD having higher levels of emotion-oriented coping. A significant main effect for gender was noted, F (1, 584) = 15.97, $p < .001$, $\eta^2_p = 0.03$, with men having higher rates of emotion-oriented coping, but there was no significant interaction between CUD and gender. For the analysis with avoidance-oriented coping as the dependent variable, a significant main effect for CUD was found, F (1, 584) = 5.36, $p < .05$, $\eta^2_p = 0$, with individuals with CUD having higher levels of avoidance-oriented coping. A significant main effect for gender was noted, F (1, 584) = 17.88, $p < .001$, $\eta^2_p = 0.03$, with men having higher rates of avoidance-oriented coping, but there was no significant interaction between CUD and gender.

Table 7 depicts the means and standard deviations for CISS-SF scales by gender and Tobacco Use Disorder (TUD) group. For the ANOVA with gender and lifetime tobacco use (TUD) as the independent variables, a significant main effect was found for TUD with task-oriented coping as the dependent variable, F (1, 1141) = 7.51, $p < .05$, $\eta^2_p = 0$, with individuals with TUD having lower levels of task-oriented coping. However, there was no significant main effect for gender nor significant interaction between TUD and gender. For the analysis with emotion-oriented coping as the dependent variable, a significant main effect for TUD was found, F (1, 1141) = 4.27, $p < .05$, $\eta^2_p = 0$, with individuals with TUD having higher levels of emotion-oriented coping. A significant main effect for gender was noted, F (1, 1141) = 26.22, $p < .001$, $\eta^2_p = 0.02$, with men having higher rates of emotion-oriented coping, but there was no significant interaction between TUD and gender. For the analysis with avoidance-oriented coping as the dependent variable, no significant main effect for TUD was found. A significant main effect for

gender was found, F (1, 1141) = 31.78, p < .001, η^2_p = 0.03, with men having higher rates of avoidance-oriented coping, but there was no significant interaction between TUD and gender.

Table 8 depicts the means and standard deviations for CISS-SF scales by gender and Problematic Gambling group (PG). For the ANOVA with gender and problematic gambling (PG) group as the independent variables, no significant main effect was found for PG with task-oriented coping as the dependent variable. There was also no significant main effect for gender nor a significant interaction between PG and gender. For the analysis with emotion-oriented coping as the dependent variable, a significant main effect for PG was found, F (1, 983) = 13.67, p < .001, η^2_p = 0.01, with individuals with a higher PG having higher emotion-oriented coping. There was a significant main effect for gender, F (1, 983) = 24.18, p < .001, η^2_p = 0.02, with men having higher rates of emotion-oriented coping, but there was no significant interaction between PG and gender. For the analysis with avoidance-oriented coping as the dependent variable, there was a significant main effect for PG, F (1, 983) = 11.69, p < .001, η^2_p = 0.01, with individuals with a higher PG having higher avoidance-oriented coping. There was a significant main effect for gender, F (1, 983) = 26.56, p < .001, η^2_p = 0.03, with men having higher rates of avoidance-oriented coping. There was a significant interaction between PG and gender, F (1, 983) = 4.87, p < .05, η^2_p = 0.01 Planned comparisons showed that for women, avoidance-oriented coping is significantly higher for the high pathological gambling group than the low PG group (d = 0.47), but not for men there were no significant differences between the groups (d = 0.10).

Discussion

The present study sought to further validate the CISS-SF by examining relationships between coping dimensions measured by the CISS-SF and various indicators of internalizing and externalizing mental health outcomes across time. A novel set of longitudinal data was used

(Alberta LLLP; el-Guebely et al., 2015). Participants also completed measures of a broad range of internalizing mental health and disordered behavior variables.

Coping and Externalizing Behaviors

Results showed antisocial behavior was moderatelyon and positively associated with both emotion- and avoidance-oriented coping and negatively associated with task-oriented coping. This is in line with existing research (Saltoglu & Uysal Irak, 2022; Pastwa-Wojciechowska et al., 2012), which finds those with antisocial traits tend to use fewer adaptive coping strategies, instead relying more on emotion- and avoidance- oriented coping when faced with stressful situations. Results also showed that antisocial behavior was slightly more strongly associated with avoidance-oriented coping than emotion-oriented coping. An explanation for this could be that individuals with antisocial behaviors tend to have a reduced emotional range (Baumeister & Lobbestael, 2011), making it more challenging for these individuals to engage in emotion-oriented coping. In contrast, avoidance-oriented coping, which removes the emotional consequences of the stressor through the individual avoiding the stressor entirely, would likely be more desirable to engage in (Endler & Parker, 1994).

Likewise, for aggressive behavior, low to moderate positive correlations were found with emotion- and avoidance- oriented coping, and low negative correlations were found with task-oriented coping. These results are consistent with existing research which indicates that emotion- and avoidance-oriented coping predict more aggressive (Whitman & Gottdiener, 2015) and risky behavior (Ju et al., 2020). It should be noted that, contrary to previous research, a significant relationship was found between aggressive behaviour and task-oriented coping (Scarpa & Haden, 2006). This implies that individuals who employ more task-oriented coping may be able to rein in or temper their aggressive responses when faced with stressful situations.

Regarding risky behavior, low negative correlations were found with task-oriented coping while low positive correlations were found with emotion-oriented coping and avoidance-oriented coping. Like antisocial behavior, stronger relationships were found between risky behavior and avoidance-oriented coping than task- and emotion-oriented coping. This is consistent with a study on risky gambling and coping which found individuals were more likely to use avoidance-oriented coping through engaging in risky behaviors (Nower et al., 2004). Other studies have found that individuals who use task-oriented coping to handle stress are less tempted to engage in risky behaviors such as reckless driving (Shamoa-Nor & Koslowsky, 2010) whereas those who tend to use emotion-oriented coping are more likely to engage in reckless behavior (Lotfi et al., 2017). This association between coping style and risky behavior may be moderated by the specific type of behaviour in question.

Illicit drug use similarly showed results in-line with previous research, including low negative correlations with task-oriented coping and low positive correlations with emotion- and avoidance. This indicates that those who use more illicit substances throughout the year tended to focus on the emotional consequences of their stress or avoid their stressors, rather than trying to address the sources of their stress (Azizi et al., 2019; Singh et al., 2024). One explanation for the negative correlation with task-oriented coping could be that engaging in illicit drug use is a form of emotion or avoidance coping and therefore may be an indicator of self-medication. These findings are also in line with other correlates of illicit drug use, such as anger and suicidal ideation, which similarly indicate less use of task-oriented coping (Karabulut et al., 2021).

Coping and Externalizing Disorders

Consistent with our findings for illicit substance use and in line with previous research (Marquez-Arrico et al., 2015), individuals with a lifetime substance use disorder (SUD), alcohol

use disorder (AUD), or cannabis use disorder (CUD) were found to use less task-oriented coping and more emotion- and avoidance-oriented coping. This aligns with previous research on other coping measures and SUDs (Cerea et al., 2017; Coriale et al., 2012) and provides further support for the previously mentioned self-medication hypothesis. This hypothesis proposes that individuals engage in substance use to control or remove themselves from the emotional consequences of stressors they are experiencing (Khantzian, 1997). Like our findings, previous research using other measures of emotion- and avoidance-oriented coping has demonstrated support for the self-medication hypothesis (Hawn et al., 2020). The only exception to this pattern of evidence is our findings on tobacco use disorder.

Unlike our findings for illicit substance use and other substance use disorders, slightly more mixed results for coping and substance use were found for tobacco use disorder (TUD). Individuals with TUD showed similar differences to other substance use disorders with respect to task- and emotion-oriented coping, but not for avoidance-oriented coping. One explanation for this could be a difference between individuals with a tobacco use disorder and those who habitually use tobacco. Although previous research has indicated that greater habitual use of tobacco is associated with greater use of avoidance-oriented coping (Pietras et al., 2011; Shakeri et al., 2021) this may not necessarily be the case for those with a TUD. Instead, individuals with TUD may be physically dependent on tobacco as indicated by withdrawal symptoms but not use tobacco for avoidance of stress more broadly.

The results that were obtained for people with problematic gambling disorder similarly demonstrate greater use of emotion-oriented coping in both men and women, as well as greater use of avoidance-oriented coping in women. This finding aligns with previous research, which has found the severity of a gambling addiction to be associated with an individual's use of these

two coping styles (Bergevin et al., 2006; Gupta et al., 2004; Neophytou et al., 2023). Problematic gamblers often use their addiction as a means of escape (Wood & Griffiths, 2010) or as a denial that there is any concern to begin with (Farrelly et al., 2012). Although less problematic gambling may be assumed to be related to more task-oriented coping, the results of the present study do not appear to support this outcome. Previous research has similarly found mixed results when it comes to the relationship between gambling addictions and task-oriented coping (Neophytou et al., 2023), with some analyzed studies indicating no existing relationship. Therefore, consistent with our findings, the extent of a relationship between problematic gambling and task-oriented coping is unclear.

Coping and Internalizing Disorders

Regarding the relationships between the CISS-SF scales and internalizing disorders, our results showed similar findings for both major depressive disorder (MDD) and generalized anxiety disorder (GAD). Those with MDD and GAD showed higher uses of emotion- and avoidance-oriented coping, whereas those without these disorders showed higher use of task-oriented coping. Our results for MDD match what has been found in previous research. Other examinations on the nature of coping and MDD using longer coping measures have similarly found that those with MDD exhibit reduced task-oriented coping, greater emotion-oriented coping (Tsujimoto et al., 2018), and greater avoidance-oriented coping (Tsuji et al., 2021). Further, depressed individuals have been observed to more frequently engage in various maladaptive coping strategies such as disengagement, denial, and emotional distancing, which are all examples of emotion- and avoidance-oriented coping strategies (American Psychiatric Association, 2013). Likewise, the core components of MDD – that is fatigue, loss of interest, depressed mood, and so forth – may also play a role in why these participants have a stronger

tendency towards using these maladaptive coping strategies. Considering that task-oriented coping strategies involve addressing the stressor (Endler & Parker, 1994), an increase in apathy and fatigue could serve as an obstacle to this.

Similarly, our results regarding GAD match what has been found in previous research. Prior studies on GAD and coping have found that individuals with GAD engage in less task-oriented coping, tending more towards the use of both emotion-oriented and avoidance-oriented coping (Batista et al., 2022; Panayiotou et al., 2014; Pietras et al., 2011). An explanation for this could be found in the unique symptomology of GAD, since this disorder involves excessive worry, irritability, and impaired concentration among other diagnostic criteria (American Psychiatric Association, 2013). Worry has been found to be an avoidant coping response in previous research alongside a desire to avoid the distressing situation (Lee et al., 2010). Likewise, irritability and similar traits associated with GAD have previously been found to be associated with emotion-oriented coping (Lee et al., 2010; Pozzi et al., 2015). As with MDD, task-oriented copings involves addressing the source of one's distress direct, which may explain why individuals with GAD are less likely to use this coping strategy when faced with high levels of distress.

Limitations and Future Directions

In summary, the present study sought to further examine the validity of the CISS-SF scales as predictors of both internalizing and externalizing behaviors. However, some limitations of the present study should be noted. One such limitation is the modest sample sizes of some subgroups for the externalizing behaviors that were examined. Problematic gambling, for instance, had varying sample sizes across the low, moderate, and high groups, requiring a combination of the moderate and high problematic gambling groups into a moderate/high group

to obtain sufficient statistical power for analysis. This could have potentially influenced the findings of the present study with respect to relationships among the CISS-SF scales and these externalizing behaviors. Furthermore, data used for this study were collected in only four regions in Alberta, Canada (el-Guebely et al., 2015), limiting broader generalizability of our results to other regions and demographics.

Despite these limitations, our findings importantly provide support for the construct validity of the CISS-SF with task-oriented coping being negatively associated with internalizing and externalizing behaviors while emotion- and avoidance-oriented coping are both positively associated with these mental health outcomes. Our findings suggests the CISS-SF as a valid and useful measure for coping research as a short version alternative to the longer form CISS and other longer measures of coping strategies.

Tables

Table 1

Pearson's Correlations Among CISS-SF Scales by Gender and Disordered Behavior

Variables	1	2	3	4	5	6	7	Mean (SD)
1. Antisocial	-	0.63*	0.79*	0.30*	-0.12*	0.16*	0.22*	10.02 (5.74)
2. Aggressive	0.54*	-	0.46*	0.18*	-0.18*	0.31*	0.18*	19.72 (12.45)
3. Risky	0.76*	0.47*	-	0.28*	-0.08	0.11*	0.22*	5.02 (3.28)
4. Illicit Drug Use	0.41*	0.3*	0.43*	-	-0.06	0.11*	0.18*	0.36 (0.72)
5. Task	-0.06	-0.18*	-0.06	-0.10*	-	-0.05	0.16*	26.65 (6.02)
6. Emotion	0.12*	0.37*	0.15*	0.14*	-0.22*	-	0.4*	15.86 (5.77)
7. Avoidance	0.18*	0.22*	0.21*	0.19*	0.07	0.31*	-	16.33 (5.88)
Mean (SD)	6.44	18.54	3.50	0.24	26.67	18.32	19.30	
	(4.66)	(11.43)	(2.71)	(0.60)	(5.45)	(6.27)	(5.46)	

Note. Results for men are below the line, while results for women are above. Antisocial, Aggressive, Risky, and Illicit were retrieved from the PAI and CCHS measured at wave 4 and wave 3 respectively. Task, Emotion, and Avoidance were assessed by the CISS-SF measured at wave 2.

Table 2.

Means, Standard Deviations, and Sample Sizes for CISS-SF Scales by gender and Major Depressive Disorder (MDD) group

	MDD Absent		MDD Present		Total	
Scale/Sample	Mean (SD)	*N*	Mean (SD)	*N*	Mean (SD)	*N*
Task						
Men	26.86 (5.55)	470	26.04 (4.83)	119	26.69 (5.42)	589
Women	26.04 (6.18)	353	26.29 (5.84)	45	26.66 (6.13)	398
Total	26.79 (5.82)	823	26.11 (5.12)	164	26.68 (5.72)	987
Emotion						
Men	17.69 (6.03)	470	20.55 (6.61)	119	18.26 (6.25)	589
Women	15.73 (5.68)	353	18.04 (6.34)	46	15.99 (5.80)	398
Total	16.85 (5.96)	823	19.86 (6.61)	164	17.35 (6.17)	987
Avoidance						
Men	18.96 (5.41)	470	20.41 (5.34)	119	19.25 (5.42)	589
Women	16.18 (5.79)	353	17.00 (6.43)	46	16.28 (5.86)	398
Total	17.77 (5.74)	823	19.48 (5.84)	164	18.05 (5.79)	987

Note. MDD was retrieved from the CIDI measured at wave 4. Task, Emotion, and Avoidance were assessed by the CISS-SF measured at wave 2.

Table 3.

Means, Standard Deviations, and Sample Sizes for CISS-SF Scales by Gender and Generalized Anxiety Disorder (GAD) Group

	GAD Absent		GAD Present		Total	
Scale/Sample	Mean (SD)	*N*	Mean (SD)	*N*	Mean (SD)	*N*
Task						
Men	26.91 (5.41)	495	25.54 (5.41)	94	26.69 (5.42)	589
Women	26.67 (6.12)	365	26.58 (6.34)	33	26.66 (6.13)	398
Total	26.81 (5.72)	860	25.81 (5.66)	127	26.68 (5.72)	987
Emotion						
Men	17.71 (6.13)	495	21.17 (6.15)	94	18.26 (6.25)	589
Women	15.69 (5.71)	365	19.33 (5.78)	33	15.99 (5.80)	398
Total	16.85 (6.03)	860	20.69 (6.09)	127	17.35 (6.17)	987
Avoidance						
Men	19.01 (5.36)	495	20.52 (5.62)	94	19.25 (5.42)	589
Women	16.16 (5.81)	365	17.61 (6.32)	33	16.28 (5.86)	398
Total	17.8 (5.73)	860	19.76 (5.93)	127	18.05 (5.79)	987

Note. GAD was retrieved from the CIDI measured at wave 4. Task, Emotion, and Avoidance were assessed by the CISS-SF measured at wave 2.

Table 4.

Means, Standard Deviations, and Sample Sizes for CISS-SF Scales by Gender and Substance Use Disorder (SUD) Group

	SUD Absent		SUD Present		Total	
Scale/Sample	Mean (SD)	*N*	Mean (SD)	*N*	Mean (SD)	*N*
Task						
Men	27.16 (5.39)	440	25.72 (5.45)	227	26.67 (5.45)	667
Women	27.23 (6.00)	279	25.84 (5.96)	199	26.65 (6.02)	478
Total	27.19 (5.63)	719	25.78 (5.69)	426	26.66 (5.69)	1145
Emotion						
Men	17.69 (6.03)	440	19.53 (6.55)	227	18.32 (6.27)	667
Women	15.35 (5.72)	279	16.59 (5.78)	199	15.86 (5.77)	478
Total	16.78 (6.02)	719	18.16 (6.37)	426	17.29 (6.18)	1145
Avoidance						
Men	18.99 (5.49)	440	19.91 (5.37)	227	19.30 (5.46)	667
Women	15.58 (5.56)	279	17.37 (6.17)	199	16.33 (5.88)	478
Total	17.67 (5.76)	719	18.73 (5.89)	426	18.06 (5.82)	1145

Note. SUD was retrieved from the CIDI measured at wave 4. Task, Emotion, and Avoidance were assessed by the CISS-SF measured at wave 2.

Table 5.

Means, Standard Deviations, and Sample Sizes for CISS-SF Scales by Gender and Alcohol Use Disorder (AUD) Group

	AUD Absent		AUD Present		Total	
Scale/Sample	Mean (SD)	*N*	Mean (SD)	*N*	Mean (SD)	*N*
Task						
Men	27.14 (5.43)	516	25.07 (5.21)	151	26.67 (5.45)	667
Women	26.97 (6.01)	329	25.95 (5.99)	149	26.65 (6.02)	478
Total	27.08 (5.66)	845	25.51 (5.62)	300	26.66 (5.69)	1145
Emotion						
Men	17.73 (6.09)	516	20.32 (6.49)	151	18.32 (6.27)	667
Women	15.25 (5.64)	329	17.21 (5.84)	149	15.86 (5.77)	478
Total	16.77 (6.04)	845	18.78 (6.36)	300	17.29 (6.18)	1145
Avoidance						
Men	18.95 (5.53)	516	20.52 (5.04)	151	19.30 (5.46)	667
Women	15.57 (5.55)	329	18.01 (6.24)	149	16.33 (5.88)	478
Total	17.63 (5.78)	845	19.28 (5.79)	300	18.06 (5.82)	1145

Note. AUD was retrieved from the CIDI measured at wave 4. Task, Emotion, and Avoidance were assessed by the CISS-SF measured at wave 2.

Table 6.

Means, Standard Deviations, and Sample Sizes for CISS-SF Scales by Gender and Cannabis Use Disorder (CUD) Group

	CUD Absent		CUD Present		Total	
Scale/Sample	Mean (SD)	*N*	Mean (SD)	*N*	Mean (SD)	*N*
Task						
Men	27.15 (4.99)	279	25.02 (5.32)	46	26.85 (5.09)	325
Women	27.08 (5.98)	209	24.89 (5.93)	54	26.63 (6.03)	263
Total	27.12 (5.43)	488	24.95 (5.63)	100	26.75 (5.52)	588
Emotion						
Men	18.23 (6.09)	279	20.00 (6.65)	46	18.48 (6.19)	325
Women	16.00 (6.01)	209	16.87 (5.83)	54	16.17 (6.97)	263
Total	17.2 (6.15)	488	18.31 (6.39)	100	17.45 (6.20)	588
Avoidance						
Men	19.60 (5.20)	279	20.24 (5.69)	46	19.69 (5.27)	325
Women	16.22 (5.96)	209	18.43 (5.85)	54	16.67 (5.99)	263
Total	18.15 (5.78)	488	19.26 (5.82)	100	18.34 (5.80)	588

Note. CUD was retrieved from the CIDI measured at wave 4. Task, Emotion, and Avoidance were assessed by the CISS-SF measured at wave 2.

Table 7.

Means, Standard Deviations, and Sample Sizes for CISS-SF Scales by Gender and Tobacco Use Disorder (TUD) Group

	TUD Absent		TUD Present		Total	
Scale/Sample	Mean (SD)	*N*	Mean (SD)	*N*	Mean (SD)	*N*
Task						
Men	26.79 (5.36)	570	26.00 (5.91)	97	26.67 (5.45)	667
Women	26.90 (5.97)	416	24.97 (6.15)	62	26.65 (6.02)	478
Total	26.84 (5.62)	986	25.6 (6.00)	159	26.66 (5.69)	1145
Emotion						
Men	18.10 (6.16)	570	19.58 (6.77)	97	18.32 (6.27)	667
Women	15.77 (5.63)	416	16.48 (6.67)	62	15.86 (5.77)	478
Total	17.12 (6.05)	986	18.37 (6.88)	159	17.29 (6.18)	1145
Avoidance						
Men	19.49 (5.46)	570	18.23 (5.35)	97	19.30 (5.46)	667
Women	16.42 (5.97)	416	15.74 (5.26)	62	16.33 (5.88)	478
Total	18.2 (5.88)	986	17.26 (5.44)	159	18.06 (5.82)	1145

Note. TUD was retrieved from the CCHS measured at wave 4. Task, Emotion, and Avoidance were assessed by the CISS-SF measured at wave 2.

Table 8.

Means, Standard Deviations, and Sample Sizes for CISS-SF Scales by Gender and Problematic Gambling (PG) Group

	Low PG		Moderate/High PG		Total	
Scale/Sample	Mean (SD)	*N*	Mean (SD)	*N*	Mean (SD)	*N*
Task						
Men	26.69 (5.58)	502	26.67 (4.43)	87	26.69 (5.42)	589
Women	26.80 (6.06)	313	26.14 (6.41)	85	26.66 (6.13)	398
Total	26.74 (5.77)	815	26.41 (5.49)	172	26.68 (5.72)	987
Emotion						
Men	17.96 (6.27)	502	20.01 (5.89)	87	18.26 (6.25)	589
Women	15.63 (5.73)	313	17.34 (5.86)	85	15.99 (5.80)	398
Total	17.07 (6.17)	815	18.69 (6.01)	172	17.35 (6.17)	987
Avoidance						
Men	19.17 (5.57)	502	19.74 (4.47)	87	19.25 (5.42)	589
Women	15.71 (5.61)	313	18.35 (6.30)	85	16.28 (5.86)	398
Total	17.84 (5.83)	815	19.05 (5.48)	172	18.05 (5.79)	987

Note. Problematic Gambling was retrieved from the CIDI measured at wave 4. Task, Emotion, and Avoidance were assessed by the CISS-SF measured at wave 2.

Chapter 3: General Conclusions and Future Directions

The present thesis sought to examine the validity and reliability of the Coping Inventory for Stressful Situations – Short Form as a measure of coping styles, including its associations with both internalizing and externalizing behaviors over different time periods. To do this, longitudinal data from the Alberta *Leisure, Lifestyle, and Lifecycle Project* (LLLP) were used to test both internal and test-retest reliabilities, factorial structure, construct validity with respect to basic personality, and construct validity with respect to predicting internalizing and externalizing mental health (el-Guebaly et al., 2015).

Reliability of the CISS-SF

In terms of internal reliability, alpha coefficients from Study 1 showed the CISS-SF subscales all had acceptable internal reliabilities across gender, age groups, and time. Alpha coefficients in the LLLP data ranged from .76 to .90 for women, .81 to .93 for men, .75 to .90 for young adults, and .79 to .92 for older adults, which are all within the acceptable range (i.e., ≥ .70; Tavakol & Dennick, 2011). Additionally, test-retest correlations showed the CISS-SF has good temporal stability. All three CISS-SF subscales showed moderate test-retest correlations across time, both across one-year and two-year test-retest intervals. Beyond indicating that the CISS-SF is a reliable psychometric tool, this finding is significant as it provides support for coping theory that stipules coping styles are stable trait constructs and therefore should be consistent across time (Endler & Parker, 1990a).

Validity of the CISS-SF

Another key finding from both Studies 1 and 2 is support for the validity of the CISS-SF. Regarding factorial validity, confirmatory factor analyses (CFAs) and measurement invariance testing showed the three-factor theoretical model of the CISS-SF held well in the data, including

when comparing across genders and age groups. This suggests that the CISS-SF measures coping styles consistent with the factor structure of the original long form CISS and that the CISS-SF items function equivalently across gender and age groups.

Further, measurement invariance testing showed associations between the CISS-SF subscales were consistent across gender and age groups. Results showed that task-oriented coping is modestly and negatively related with both emotion and avoidance-oriented coping, while emotion and avoidance-coping are positively related to one another. This is in line with previous findings by Lazarus and Folkman (1980, 1985) and research on the long form CISS, suggesting that the CISS-SF can be thought of as an appropriate proxy for the long form. Also consistent with previous literature were findings from Study 1 regarding gender differences in coping styles, with women reporting more emotion-oriented coping than men (Cohan et al., 2006; Lawrence et al., 2006; Melendez et al., 2012). Likewise, consistent with previous literature, younger adults reporting more avoidance-oriented coping than older adults (Amirkhan & Auyeung, 2007). This further demonstrates the validity of the CISS-SF as it shows individual differences in coping behaviour across groups consistent with other coping measures.

Regarding the incremental predictive validity of the CISS-SF, results from Study 1 showed coping, as measured by the CISS-SF, predicts later internalizing mental health symptoms (i.e., depression and anxiety symptoms) above and beyond basic personality, as assessed by the NEO-FFI. For instance, the CISS-SF explaining an additional 4% of the variability in depression symptoms among women and 6% among men over and above basic personality. Meanwhile, the CISS-SF scales explained an additional 9% of the variability anxiety symptoms among women and 6% among men.

Beyond internalizing symptoms, findings from Study 2 also showed the CISS-SF has important associations with internalizing disorders at a diagnostic level. For instance, regarding major depressive disorder (MDD), Study 2 found those with MDD exhibited reduced task-oriented coping and greater emotion- and avoidance-oriented coping compared to those with MDD. The same result was found with GAD, in which Study 2 found greater use of emotion- and avoidance-oriented coping among those who have higher GAD.

For externalizing behaviors, the CISS-SF also showed results in-line with existing research. Antisocial behavior was found to be more positively associated with emotion- and avoidance-oriented coping, as was aggressive behavior, risky behavior, and illicit drug use. When it came to specific externalizing disorders, the CISS-SF found that individuals with a lifetime substance use disorder (SUD), alcohol use disorder (AUD), or cannabis use disorder (CUD) were found to use less task-oriented coping and more emotion- and avoidance-oriented coping. This aligns with previous research on other coping measures and SUDs (Cerea et al., 2017; Coriale et al., 2012). The results that were obtained for people with problematic gambling similarly demonstrate greater use of emotion-oriented coping in both men and women, as well as greater use of avoidance-oriented coping in women. This finding aligns with previous research, which has found the severity of a gambling addiction to be associated with an individual's use of these two coping styles (Bergevin et al., 2006; Gupta et al., 2004; Neophytou et al., 2023). This implies that the CISS-SF is ability to predict internalizing and externalizing disorders in individuals as expected; thus, opening the measure to clinical use and emphasizing its strong construct validity.

Limitations and Future Directions

Despite obtaining these expected results, a few limitations for the studies in this thesis should be acknowledge. Firstly, the results are limited to data collected in four regions in Alberta, Canada. The issue with confining the data to one specific region in Canada is that this prevents the generalizability of these findings to other regions with differences in broader economic, environmental, and social influences. Future studies could address this issue by using the CISS-SF with samples from other regions or countries, to allow a broader understanding of the measure's psychometric properties and to take into account these contextual unique factors.

While the study did explore age and gender differences, there may be differences with respect to other demographic variables as well. As mentioned prior, the influence of environment, culture, and economic status can all have an impact on an individual's ability to cope and are all factors that extend outside of age and gender. A more diverse population may produce different results for the psychometric properties of the CISS-SF. This can be examined in future studies by testing the measure in different countries and regions, as well with direct questions to obtain broader demographics.

Another limitation is that we did not assess whether participants were receiving treatment for any of the internalizing or externalizing disorders examined in these studies. If an individual had received treatment, there could have been changes in their coping behavior that were not controlled for in this thesis. A way to mitigate this in future research would be to include questions asking if the individual has sought any form of therapeutic treatment over the course of the year between waves. This way, the analysis could take treatment status into consideration.

Additionally, there was a limitation regarding some of the subgroups for externalizing disorders assessed. Some of the externalizing disorder subgroups examined had modest sample sizes, with problematic gambling having vastly differentiating sample sizes across low,

moderate, and high groups, requiring a combination of moderate and high groups to obtain sufficient statistical power. This could have influenced the findings of the present study with respect to relationships among the CISS-SF scales and these externalizing behaviors. This should be addressed in future studies by increasing the number of participants to gain a more robust sample size for each subgroup without the need to combine or potentially exclude individuals.

This thesis also only examined MDD and GAD as internalizing disorders; thus, the presence of unique associations with other internalizing disorders (e.g., other anxiety disorders) still needs to be verified with this coping measure. Similarly, the disordered behaviors examined in this thesis were limited to aggression, antisocial, risky behavior, and illicit substance use. Disordered behavior expands more broadly beyond these four categories into a wider legal context and thus could use further examination. For instance, other internalizing and externalizing disorders, such as Obsessive-Compulsive Disorder, Narcissistic Personality Disorder, and Attention Deficit Hyperactivity Disorder (ADHD), in the DSM-5 should also be examined in relation to the CISS-SF in the future. Seeing how the CISS-SF subscales are associated with these other mental health conditions will help further understand the psychometric value of the measure. Likewise, exploring how the CISS-SF is associated with criminal behaviors, such as petty crimes and major crimes, is another avenue for future studies to examine associations between the measure and externalizing behaviors. Although it is unlikely that individuals will admit to acts of severe criminal behavior, even with the promise of anonymity, pulling from pre-existing databases or collaborating directly with prisons is a way to enable future research with the CISS-SF to explore these associations.

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