Experienced-Based Versus Scenario-Based Assessments of Shame and Guilt and Their

Relationship to Alcohol Consumption and Problems

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ABSTRACT

Background: Empirical studies of the relationships between shame, guilt, and drinking are sparse and sometimes appear contradictory. However, a more coherent picture emerges when researchers differentiate between measures of experienced guilt and shame (i.e., questionnaires that ask how often people experience thoughts, feelings, and sensations associated with the emotion) versus proneness to guilt and shame (i.e., self-reports of likely responses to imagined situations). Objectives: Assess the extent to which experiential versus proneness measures of shame and guilt are associated with alcohol consumption and alcohol-related problems. Methods: Between 2012 to 2013, 89 community-dwelling non-abstaining adults were interviewed on a single occasion about their drinking and completed self-report measures of shame, guilt, and drinking-related behaviors. Results: Overall, shame and guilt were most strongly related to alcohol-related problems and not drinking amount per se, and shame was more strongly related to alcohol-related problems than was guilt. A measure of experienced shame, the Internalized Shame Scale, was the strongest predictor of drinking-related problems and predicted problems above and beyond other measures of shame and guilt. While guilt proneness was related to less problematic drinking, guilt experienced at the time of the assessment was related to more problematic drinking. Conclusions: Shame appears to be more central to the experience of problematic drinking than guilt. Results also support the idea that guilt/shame proneness is distinct from experienced shame and guilt. Incorporating this distinction appears to account for the inconsistencies in the literature regarding how shame and guilt are related to drinking.

Key words: shame, guilt, measurement, alcohol use, alcohol problems

Glossary:

Shame: Cognitions, emotions, and other behaviors related to the perception that the self is flawed in the eyes of oneself or others.

Guilt: Cognitions, emotions, and other behaviors related to the perception that the self has engaged in a negative action that caused harm.

Experiential measure: Assesses whether an individual consistently experiences or is currently experiencing target (e.g., shame-related) cognitions, feelings, and behaviors.

Proneness measure: Assesses likely responses to hypothetical scenarios where target (e.g., shame-related) cognitions, feelings, and behaviors could potentially be elicited.

Alcohol use: The rate of alcohol consumption in terms of frequency and quantity.

Alcohol problems: Negative consequences resulting from drinking alcohol.

1. Introduction

Both shame and guilt are so-called "self-conscious" emotions, as they require the ability to reflect on oneself and the relationship between oneself and others (Tangney, & Dearing, 2002). Shame relates to a perception that the self is flawed in the eyes of oneself or others, whereas guilt relates to a perception that the self has engaged in a negative action that caused harm (Dearing, Stuewig, & Tangney, 2005; Gilbert, 1998; Lewis, 1971). Although shame and guilt have been widely discussed as important variables in the maintenance of problematic drinking (Randles & Tracy, 2013; Treeby & Bruno, 2012), empirical study of these relationships is limited and seemingly conflicting findings are commonplace. Shame is related to a wide variety of problems in social and psychological functioning (Schmader & Lickel, 2006; Tangney, Stuewig, & Mashek, 2007), including addictive behavior (Luoma & Kohlenberg, 2012), though shame may sometimes play an adaptive role in certain contexts (de Hooge, Nelissen, Breugelmans, & Zeelenberg, 2011; Luoma & Kohlenberg, 2012). In contrast, guilt is more variably reported as being either adaptive or maladaptive across a variety of contexts (Meehan et al., 1996; Stuewig et al., 2014). Before reviewing some apparently conflicting findings, it will be useful to have a framework for interpretation, to which we now turn.

At least part of the apparent inconsistency in the literature linking shame and guilt to substance use is due to differing measurement approaches (Cook & Nathanson, 1996; Fontaine, Luyten, Estas, & Corveleyn, 2004). Two kinds of self-report measures of shame and guilt have been identified: experience-based measures (i.e. experiential measures) and scenario-based measures (i.e. proneness measures). Experience-based measures, such as the Internalized Shame Scale (ISS; Cook & Nathanson, 1996) and State Shame and Guilt Scale (SSGS; Marschall, Sanftner, & Tangney, 1994), ask participants whether they consistently experience or are

currently experiencing cognitions, feelings, and other behaviors associated with shame or guilt.

In contrast, scenario-based measures, such as the Test of Self-Conscious Affect (TOSCA;

Tangney, Wagner, & Gramzow, 1989), ask participants to indicate their likely response to

hypothetical scenarios where shame and/or guilt could be potentially elicited. As opposed to

experienced shame/guilt, the TOSCA therefore measures a global disposition or *proneness*

toward shame/guilt.

Many studies of the relationship between shame/guilt and substance use treat experience

and proneness measures as if they were equivalent. However, experienced shame/guilt may

differ from shame/guilt proneness in important ways. When examining cross-sectional between-

subjects effects, this distinction between reported experiences of shame or guilt (whether

prolonged or immediate) and a global response disposition becomes extremely important. This

distinction parallels the well-known distinction between situation and trait influences on

responding. Traits describe patterns of relatively stable responding across situations, but traits

can be overridden by situations that elicit relatively similar responding across most people. For

example, even people who are very extraverted can act introverted in certain contexts. Due to

measurement approach, shame and guilt proneness measures should be more trait-like, and less

affected by the person's current situation or life context. In contrast, experience measures should

be more responsive to life events and should fluctuate as the person encounters situations that

tend to elicit shame or guilt. For example, even a person who is not very prone to shame might

experience increased shame when encountering events that tend to elicit shame in most

individuals. Similarly, a person who is not very prone to guilt might experience increased guilt

when encountering events that tend to elicit guilt in most individuals.

The importance of this distinction between experience and dispositional measures is perhaps most clear when considering the example of guilt. A global, dispositional tendency toward guilt reflects a tendency toward taking reparative action when a person engages in behavior they perceive as harming others, as can happen in problem drinking (Tracy et al., 2007). This is consistent with recent data from Giguere, Lalonde, and Taylor (2014) who found that guilt in response to exceeding group norms predicted reduced drinking at a future occasion. Thus, a dispositional tendency toward guilt is likely to be protective against the development of alcohol use problems for those who are not currently problem drinkers. On the other hand, it is likely that people who are experiencing elevated negative consequences associated with problem drinking may experience elevated levels of both guilt and shame when reflecting on their alcohol use. This idea fits with the findings of Meehan et al. (1996) who found that people in residential addictions treatment had higher scores on measures of experienced guilt compared to non-addicted controls, while simultaneously scoring lower on guilt proneness measures. Since guilt is a relatively universal human emotion (at least in European-American populations), then guilt would be a natural reaction for many individuals when reflecting on the harms created by drinking. Based on these ideas, we would expect that, in a cross-sectional study, experienced guilt might be positively correlated with drinking-related problems, while dispositional guilt proneness might be negatively correlated (i.e., protective).

A different pattern of relationships is likely between shame and problematic drinking. Shame proneness appears to be a risk factor for the development of problematic substance use (Stuewig et al., 2014). The link between shame and the development of problematic drinking is based on the observation that shame tends to lead to problematic avoidance behaviors such as social withdrawal and substance use (Dearing et al., 2005). In this view, shame serves as an

antecedent for problematic drinking. At the same time, shame could also be a consequence of the problematic drinking, regardless of a strong dispositional tendency toward shame. Shame as a consequence of problematic drinking would be expected when drinking results in failures to meet role expectations (e.g., unemployment or failed relationships) or violations of important standards of behavior (Tracy, Robins, & Tangney, 2007). These violations of standards and norms are increasingly likely as drinking becomes more problematic, which should result in more and more shame as drinking increases. While these temporal considerations cannot be fully disentangled in a cross-sectional study, we would expect that both experienced shame and shame proneness would be positively correlated with drinking-related problems and that experienced shame would be more strongly associated with drinking-related problems than dispositional shame.

To review, guilt motivates people to discontinue behaviors that harm relationships and make reparations if damage has occurred (Tangney & Dearing, 2002), such that a single occasion of overdrinking followed by guilt would be expected to lead to subsequent drinking constraint for a period of time (Giguère, Lalonde, & Taylor, 2014). Because guilt prone individuals would likely make reparations after overdrinking, they would be less likely to accrue problems related to alcohol consumption. Therefore, one would expect a negative relationship between guilt proneness and alcohol-related problems. However, we propose that over extended periods of time, there may be factors more powerful than guilt that could lead to problematic drinking and subsequent alcohol-related problems. These negative alcohol-related consequences would give people ample material to feel guilty about, and thereby increase the frequency of personal guilt experiences among problem drinkers (even for those without a high proneness toward guilt). As such, one would expect a positive relationship between experienced guilt and global alcohol-

related problems. In contrast, shame proneness and shame experiences would not be expected to motivate reparations, instead potentially motivating behaviors such as social withdrawal. As such, one would expect both shame proneness and experienced shame to be positively related to global alcohol-related problems, though proneness-based measures may be less strongly predictive than experience-based measures.

With this shame/guilt *experience* versus *proneness* framework in mind, we can now turn to, and make better sense, of the literature on shame, guilt, and addictive behaviors. We begin with cross-sectional studies. A study of college students and jail inmates (Dearing et al., 2005) showed that shame proneness was related to drug and alcohol use problems, but guilt proneness was either unrelated or protective. A second study with a student sample demonstrated that shame proneness was positively correlated with alcohol-related problems, but guilt proneness was negatively correlated (Treeby & Bruno, 2012). A third study found that people attending peer support groups or in treatment for addiction had higher mean scores on shame proneness compared to a non-addicted control sample; the people with substance use problems evidenced lower scores on guilt proneness compared to controls (O'Connor, Berry, Inaba, Weiss, & Morrison, 1994). Similarly, a cross sectional study of college students (Ianni, Hart, Hibbard, & Carroll, 2010) found that experienced shame was positively correlated with severity of drinking. A study that combined measurement frameworks (Meehan et al., 1996) found that people in residential addictions treatment had higher scores on measures of shame proneness, experienced shame, and experienced guilt compared to non-addicted controls. In contrast, the residential addictions group had lower scores on guilt proneness. In general, correlations between shame/guilt proneness and measures of addictive behavior were smaller than correlations between experienced shame/guilt and addictive behavior. Finally, using a college student sample,

Giguère, et al. (2014) found that both experienced guilt and experienced shame were elevated after a drinking experience that was higher than normative levels.

Four studies have examined self-reported shame or guilt as prospective predictors of substance use. Stuewig et al. (2014) reported that children who were more shame-prone in the fifth grade started drinking at an earlier age and used a greater variety of drugs by the time they were 18 years of age. In contrast, guilt proneness in fifth grade was related to delayed age of onset for drinking and less drug use by age 18. Among people entering a smoking cessation program, an experienced shame measure predicted earlier smoking relapse and higher rates of smoking at follow up (Boudrez, 2009). A daily diary study with college students (Mohr, Brannan, Mohr, Armeli, & Tennen, 2008) used a single-item measure of experienced shame and guilt and found that daytime reports of experienced ashamed mood predicted drinking at home that evening better than reports of guilt or other reported emotions. Giguère, et al. (2014) found that shame following drinking that exceeded group norms predicted more drinking over the following week, while guilt experienced after drinking that exceeded group norms led to reduced drinking over the following week.

We have not provided an exhaustive literature review on the relationship between shame/guilt and substance misuse, however, our review does indicate the relationships between shame, guilt, and drinking is complex. The pattern of relationships between shame/guilt and substance misuse across studies can appear contradictory without an explicit appreciation for the distinction between experience and proneness measures and without consideration of the temporal trajectory involved in the development of problem drinking. Additional research advancements would likely be facilitated by a closer examination of such measures in a single study, thereby permitting direct comparison of their utility in predicting substance misuse.

The present study was, therefore, designed to examine the relative utility of three

commonly used measures of shame and guilt in predicting drinking-related behaviors in a

community sample of drinkers: the ISS measure of experienced shame, the SSGS measure of

experienced shame and guilt, and the TOSCA measure of shame and guilt proneness. The ISS

was specifically created for use with alcohol-misusing populations, though no studies have

empirically examined the relative utility of the ISS versus the SSGS and TOSCA in predicting

drinking or drinking-related problems. The SSGS has been found to be correlated with drinking-

related problems in one prior study (Ianni et al., 2010), and the TOSCA has been weakly but

consistently associated with drinking-related problems (Dearing et al., 2005; Meehan et al.,

1996; O'Connor et al., 1994; Treeby & Bruno, 2012). We hypothesized that both shame and

guilt would be more highly related to drinking-related problems than drinking per se, and that

experience measures would be more highly related to levels of alcohol use and drinking-related

problems than proneness measures. We also expected that experience-based measures of shame

and guilt and also shame proneness would be positively associated with drinking-related

problems, whereas guilt proneness would be negatively associated with drinking-related

problems. Finally, we hypothesized that measures of shame, as a whole, would be more

predictive of drinking-related problems than measures of guilt, as a whole.

2. Method

2.1. Participants

Data for the present study were collected during the intake of a larger longitudinal

investigation examining psychological predictors of drinking behavior; the protocol was

approved by an independent ethics committee. A community sample of drinkers was recruited

through online ads and posted flyers. Eligibility criteria included internet access, ability to travel

to the research center, and having at least one drink of alcohol in the two weeks prior to

screening. Exclusion criteria included inability to read English, pregnancy, or inability to provide

informed consent. One participant was an extreme outlier in regression analyses but his removal

did not substantially alter significance values of parameters; we nevertheless removed the case

from all analyses because his especially high level of drinking relative to the rest of the sample

(i.e., 428 drinks over the past 30 days) produced what appeared to be artificially inflated zero-

order relationships between that variable and self-reported shame. After removing that case, the

final sample consisted of 89 adults (57 female, 32 male; years of age $M = 33.75$, $SD = 12.83$;

years of education $M = 15.11$, $SD = 2.71$). Eighteen percent ($n = 16$) of the participants identified

themselves as non-Caucasian (Black or African-American, $n = 5$; Asian, $n = 1$; multiracial, $n = 10$), and 7% ($n = 3$) identified as Hispanic; one participant identified his race as Middle Eastern.

Just over half were employed ($n = 49$), some unemployed ($n = 31$), and others not in the labor

force ($n = 9$). Independent from employment status, a minority of participants identified as being

current students ($n = 19$). At the time of the study, the majority of participants were not receiving

any kind of mental health treatment ($n = 70$); 20% were receiving mental health treatment ($n = 17$), and 2 participants (2%) were being treated for alcohol misuse.

2.2. Measures

2.2.1 Measures of shame and guilt.

     2.2.2. Internalized Shame Scale. The Internalized Shame Scale (ISS; Cook, 1987;

current study $\alpha = .96$, $M = 1.13$, $SD = 0.77$) is a 24-item self-report questionnaire measuring

internalized shame. The measure has previously shown construct validity and reliability in both

clinical and nonclinical populations and is considered particularly appropriate for examination of

shame in substance dependent populations (Rybak & Brown, 1996). An example item is "I feel

intensely inadequate and full of self doubt," with scale anchors "Never" and "Almost Always."

    2.2.3. State Shame and Guilt Scale. The State Shame and Guilt Scale (SSGS; Marschall

et al., 1994) is a 15-item self-report measure with subscales measuring state shame, guilt, and

pride; only the state shame (SSGS-S; current study $\alpha = .80$, $M = 1.41$, $SD = 0.61$) and state guilt

(SSGS-G; current study $\alpha = .87$, $M = 1.82$, $SD = 1.01$) subscales were examined in the present

study. The measure is intended to assess shame in terms of present-moment global negative

feelings about the self, and assess guilt in terms of present-moment negative feelings about some

specific event. The SSGS has previously been shown to be sensitive to experimental shame

inductions (Marschall et al., 1994). An example SSGS-S item is "I feel like I am a bad person"

and an example SSGS-G items is "I feel bad about something bad that I have done," with scale

anchors "Not feeling this way at all" and "Feeling this way very strongly."

    2.2.4. Test of Self-Conscious Affect. The Test of Self-Conscious Affect (TOSCA-3;

Tangney et al., 1989) is a 16-item measure of self-reported shame and guilt proneness in

response to shame or guilt potentiating scenarios. Following the scoring procedure recommended

by Tangney and Dearing (2002) we regressed raw shame and guilt scores on each other to

produce residual scores of guilt-free shame (TOSCA-GFS; current study raw-score $\alpha = .75$, $M =$

2.76, $SD = 0.74$) and shame-free guilt (TOSCA-SFG; current study raw-score $\alpha = .65$, $M = 4.04$,

$SD = 0.50$). The measure has generally shown good psychometrics across studies (Tangney &

Dearing, 2002). An example scenario is "You make plans to meet a friend for lunch. At 5

o'clock, you realize you stood him up." With scales anchored by "Not Likely" and "Very

Likely," participants then rated the extent to which they would have a shame reaction (e.g., "You

would think 'I'm inconsiderate'") and also the extent to which they would have a guilt reaction (e.g., "You'd think you should make it up to him as soon as possible").

2.2.5 Measures of alcohol consumption and problematic drinking.

2.2.6. Time Line Follow Back. The Time Line Follow Back (TLFB; Sobell & Sobell, 1992) involves retrospectively reporting the number of drinks participants consumed on each of the last 30 days. With the assistance of a calendar and prompts from the research assistant, participants were interviewed about their drinking in order to determine the number of drinking Days (TLFB-Days; current study $M = 10.71$, $SD = 7.26$), the total number of standard Drinks (TLFB-Drinks; current study $M = 33.98$, $SD = 33.03$) they consumed, and the number of Binges (TLFB-Binges; current study $M = 2.78$, $SD = 4.56$) in which they engaged. Binges were defined as 4 or more drinks in a day for women and 5 or more drinks in a day for men (c.f. Courtney & Polich, 2009); sixty-four percent of participants had binged at least once within the last month. Sobell, Brown, Leo, and Sobell (1996) found the TLFB to have an alternate-forms test-retest reliability of .90.

2.2.7. Alcohol Use Disorders Identification Test. The Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, de la Fuente, & Grant, 1993; current study $\alpha = .85$, current study $M = 9.44$, $SD = 6.28$) is a 10-item self-report measure of intake, dependence, and problems related to the consumption of alcohol. Using an AUDIT raw-score cutoff of 8 or more, 53% of the sample was identified as engaging in "problematic" use of alcohol (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001), whereas 35% of participants exceeded a cutoff of 10 or more and were therefore identified as engaging in "hazardous or harmful" levels of alcohol misuse (Saunders et al., 1993). The AUDIT is a reliable and valid

measure of alcohol abuse, dependence, and harmful use (de Meneses-Gaya, Zuardi, Loureiro, & Crippa, 2009).

3. Results

3.1. Checking assumptions. Where indicated, variables were root or logarithmically transformed prior to regression analyses to correct for skewness (Tabachnick & Fidell, 2007); the positively-skewed SSGS-S distribution was corrected by recoding raw scores into a binary variable (i.e., absence or presence of any shame coded as 0 and 1, respectively). A negative skew in the raw TOSCA-G distribution was corrected via logarithmic transformation prior to calculation of residual TOSCA-SFG and TOSCA-GFS scores.

3.2. Correlations. Spearman correlational analyses (see Table 1) showed that measures of shame and guilt did not predict alcohol drinking days, total drinks, nor number of binges, with the exception that ISS scores were positively correlated with number of binges. Levels of alcohol-related problems (i.e., AUDIT scores) were significantly related to all measures of shame and guilt; relationships were positive with the exception of a significant negative relationship between problematic drinking and scenario-based guilt proneness (i.e., higher TOSCA-SFG was protective against drinking problems). The strongest associations were with the ISS, followed by the other shame and then guilt measures. It is also worth noting that zero-order correlations between shame measures and state guilt were all positive, whereas the correlation between guilt proneness and state guilt was negative.

Table 1. Spearman Correlations between Shame, Guilt, and Drinking Measures

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. ISS	1								
2. SSGS-S	.62**	1							
3. TOSCA-GFS	.56**	.44**	1						
4. SSGS-G	.51**	.63**	.30**	1					
5. TOSCA-SFG	-.29**	-.42**	-.56**	-.24*	1				
6. TLFB Days	-.01	.04	-.07	.02	-.02	1			
7. TLFB Drinks	.19	.19	.06	.17	-.09	.75**	1		
8. TLFB Binges	.24*	.18	.15	.14	-.10	.46**	.81**	1	
9. AUDIT	.46**	.34**	.34**	.28**	-.23*	.26**	.64**	.74**	1

*$p < .05$, ** $p < .01$

3.3. Regression analyses. All predictor variables were entered into two-step regression analyses to assess their capacity to predict drinking outcomes, with shame variables entered in the first step and guilt variables entered in the second step (see Tables 2 and 3). We compared model fit for overdispersed Poisson regression and negative binomial regression in predicting TLFB Binges, a count variable. A Vuong test revealed that the negative binomial model was a better fit to the data ($Z = 2.56$, $p > .05$) and thus the negative binomial model is reported. All other regressions were conducted using ordinary least squares regressions. TLFB Days and Drinks were not significantly predicted in overall models at either step; the addition of guilt variables in the second step did not improve prediction, and no variable emerged as a unique predictor. TLFB Binges was significantly predicted in overall models when only shame variables were included, but this relationship weakened to be only marginally significant once guilt variables were included in the second step. No variable emerged as a unique predictor of binges at either step. Finally, AUDIT scores were significantly predicted at both steps, though the addition of guilt variables in the second step did not significantly improve prediction. The ISS was a significant unique predictor of AUDIT scores at both steps, whereas no other variable was a significant unique predictor at either step.

We ran additional models to address potential confounds. As the AUDIT includes items measuring both alcohol consumption and alcohol-related problems, we ran models that statistically controlled for levels of drinking in predicting AUDIT scores. In models predicting AUDIT scores that controlled for TLFB total drinks and TLFB drinking days, results were essentially unchanged from those reported in Table 2. Exact parameters changed slightly in the models, but all results were identical in terms of whether parameters were statistically significant or not. We do not present these results in detail since they did not affect results appreciably. We also ran stepwise regressions on AUDIT scores entering guilt variables in the first step ($F = 6.68$, $p = .002$, $R^2 = .13$) and found the addition of shame variables significantly increased prediction in the second step (F change $= 4.46$, $p = .006$, R^2 change $= .12$); the SSGS-G was a significant unique predictor in the first step but not in the second.

Table 2. Ordinary Least Squares Stepwise Regressions of Shame and Guilt scores on Days, Drinks, and AUDIT scores.

| Criterion | Step | Predictor | Unstandardized | | Standardized | | | | | |
			B	SE	β	Sr	t	p	F	R^2
TLFB Days	1	(Overall)						.557	0.70	.00
	2	(Overall)						.840	0.41	.00
TLFB Drinks	1	(Overall)						.209	1.54	.02
	2	(Overall)						.426	1.00	.00
AUDIT	1	(Overall)						.000**	9.27	.22
		ISS	0.43	0.15	0.36	.27	2.82	.006**		
		SSGS-S	0.11	0.11	0.12	.09	0.96	.338		
		TOSCA-GFS	0.04	0.05	0.08	.07	0.74	.465		
	2	(Overall)						.000**	5.67	.21
		(Change)						.639	0.45	.01
		ISS	0.42	0.16	0.36	.26	2.69	.009**		
		SSGS-S	0.04	0.13	0.04	.03	0.31	.756		
		TOSCA-GFS	0.02	0.06	0.05	.04	0.38	.705		
		SSGS-G	0.17	0.21	0.10	.08	0.81	.423		
		TOSCA-SFG	-0.03	0.06	-0.06	-.05	-0.50	.617		

** $p < .01$

Note: Sr = semipartial correlation. F and adjusted R^2 are reported for Overall models; *F Change* and ΔR^2 are reported with respect to model Changes resulting from the addition of guilt variables in Step 2. No individual variables were unique contributors in days and drinks models and therefore they were not reported for space purposes.

Table 3. Negative Binomial Stepwise Regressions of Shame and Guilt Scores on Number of Binges.

Criterion	Step	Predictor	Unstandardized B	SE	Deviance	OLS Sr	χ^2	p	OLS adj. R^2
TLFT Binges									
	1	(Overall)			93.34		9.23	.026*	.02
		ISS	0.93	0.56		.15	2.71	.100	
		SSGS-S	0.47	0.37		.05	1.64	.201	
		TOSCA-GFS	-0.10	0.20		-.01	0.25	.618	
	2	(Overall)			93.10		10.77	.056	.00
		(Change)					1.54	.463	.00
		ISS	0.77	0.59		.14	1.67	.196	
		SSGS-S	0.27	0.44		.03	0.38	.537	
		TOSCA-GFS	-0.04	0.26		-.02	0.02	.876	
		SSGS-G	0.90	0.74		.01	1.50	.221	
		TOSCA-SFG	0.04	0.21		-.02	0.03	.856	

* $p < .05$

Note: Likelihood Ratio χ^2 is shown for tests of Overall model effects and Wald χ^2 is shown for tests of parameter estimates. Semipartial correlations (*Sr*) and adjusted R^2 were calculated using Ordinary Least Squares (OLS) multiple regressions on the transformed Binges variable, and therefore represent only approximate effect sizes.

4. Discussion

Overall, findings were consistent with previous studies showing shame to be predictive of alcohol consumption and alcohol-related problems (Meehan et al., 1996; O'Connor et al., 1994; Randles & Tracy, 2013; Treeby & Bruno, 2012). However, this study provides additional information about what shame and guilt measurement methods may be most important in relation to alcohol misuse. In general, shame and guilt measures were predictive of alcohol-related *problems* and not *drinking per se*. None of the shame or guilt variables, either alone or in combination, were related to days of drinking or number of drinks over the

last 30 days; only the ISS was predictive of binges. In contrast, all the shame and guilt

variables correlated with problematic drinking as measured by the AUDIT. When entered into

simultaneous regression, shame and guilt measures, as a whole, predicted little variance in

number of drinking days, drinks, or binges over the last 30 days (R^2's $\leq .02$). In contrast, when

shame and guilt measures were entered into a regression predicting problematic drinking,

variance accounted for was much larger ($R^2 = .21$). Together, these results suggest that shame

and guilt are more highly related to problematic drinking or drinking consequences than

amount of drinking per se. This makes sense in that shame and guilt are both emotions that

relate to the violation of social standards or harms to relationships, which are likely

consequences of problematic drinking.

Shame was clearly a stronger predictor of problematic drinking behavior than was guilt.

Zero-order correlations showed that shame measures were more strongly associated with

problematic drinking than were guilt measures. Regression analyses showed that shame

measures, as a whole, were able to predict approximately 22% of the variance in problematic

drinking. In contrast, guilt measures did not contribute any additional variance in prediction

once shame measures were already taken into consideration. Overall, these patterns suggest

that shame is likely to be more influential in the maintenance of problematic drinking

compared to guilt.

In terms of individual predictors, internalized shame stood out as the most robust and

unique predictor. Internalized shame was the only measure able to independently predict

variance in problematic drinking after controlling for other shame and guilt variables. One

explanation could relate to the fact that the ISS was specifically created for alcohol misusing

populations; perhaps the content of the items more specifically reflects the shameful experiences

of people struggling with alcohol misuse. Another possible explanation is that experienced shame may be more strongly associated with drinking problems because repeated drinking-related problems may tend to lead to an experience of shame even in the absence of a strong dispositional tendency toward shame.

Results confirmed our expectations that shame proneness and experience-based measures of shame and guilt would be positively associated with drinking-related problems, whereas guilt proneness would be negatively associated with drinking-related problems. Shame proneness, experienced shame, and experienced guilt were all positively correlated with each other, but negatively correlated with guilt proneness. This pattern is consistent with previous findings of guilt proneness being protective against problematic substance use (Dearing et al., 2005; Treeby & Bruno, 2012). These findings highlight the importance of being precise in one's definition of shame and guilt, and measuring accordingly. We speculate that a disposition toward guilt proneness (i.e., as measured by the TOSCA-SFG) may be protective against people developing problematic drinking in that they would be likely to cut back their drinking if it results in relationship harm to others. However, when a person who has had episodes of embarrassing or problematic drinking behavior is asked to recall their drinking experiences, they may tend to experience guilt over the harms that have occurred as a result of their drinking. Longitudinal studies and studies including other assessment methods are needed in order to further disentangle these possible explanations.

A major strength of this study was the use of a community sample of drinkers (versus an only college student sample), most of whom were not receiving any treatment, which may make the results more generalizable to drinkers as a whole. Our sample was also representative in terms of overall levels of shame in that mean levels of shame were similar to the only

previous study to publish ISS means, which used a college student sample (del Rosario & White, 2006). We also included individuals exhibiting a wide range of drinking behavior, thereby avoiding restricted ranges that can occur when only including problematic drinkers.

While a relatively small sample size is a potential limitation of the study, the sample size exceeds published recommendations of at least 10 participants per predictor (Vanvoorhis & Morgan, 2007). Another potential limitation is the use of the AUDIT as a measure of drinking-related problems; it includes items related to drinking frequency and therefore is not a pure measure of negative drinking consequences. This weakness of the AUDIT is mitigated somewhat given the minimal relations between shame/guilt and drinking frequency that were observed. In addition, models statistically controlling for drinking days and drinking amount did not alter results involving the AUDIT. Finally, the cross-sectional nature of this study limits our ability to determine the temporal pattern of associations. On one hand, problematic drinking involving norm violations, role violations, and/or harms caused to the self or others (Klingemann & Gmel, 2001) could cause heightened experiences of shame and guilt. On the other hand, shame and/or guilt could serve as antecedents for problematic drinking, since these emotional states are typically aversive and may lead to avoidant coping through drinking (Cooper, Frone, Russell, & Mudar, 1995). Current evidence that shame serves as a direct antecedent to drinking is limited. Future studies, such as ecological momentary assessment approaches or daily diary studies, are needed to understand temporal patterns. The investigation of relevant measures in the present study is an important first step in that direction.

While there is increasing consensus in the literature regarding conceptual distinctions between shame and guilt, researchers are often not clear about the distinctions between

experience and proneness measures. In our study, a proneness measure of guilt actually

correlated in the opposite direction with problematic drinking compared to a measure of

experienced guilt, suggesting that this distinction is important. The development of new and

improved temporally and contextually-sensitive measures is needed to accurately capture the

full range of guilt and shame experiences in relation to drinking.

Our findings support the conclusions of other researchers who have called for a

reevaluation of confrontational interventions for substance abuse (Meehan et al., 1996;

O'Connor et al., 1994). Our data indicate that confrontational approaches that increase shame

are likely to be iatrogenic or at least not helpful. This conforms with other research on the often

problematic nature of shame (Wong & Tsai, 2007). As such, treatments that specifically target

the elicitation of adaptive guilt, are non-shaming, reduce maladaptive shame, or alter shame to

function adaptively could prove to be more effective than shame-inducing interventions. To

expand on these possibilities, future research should focus on determining temporal and causal

relations between interventions, shame and guilt responses, and problematic alcohol use.

Author Contributions

Jason Luoma, Ph.D. served as principal investigator and contributed to experimental design, data analyses, and manuscript preparation. Paul Guinther, Ph.D. served as laboratory coordinator and contributed to experimental design, data collection, database management, data analyses, and manuscript prepraration. Jacqueline Potter and Megan Cheslock served as research assistants and contributed to data collection, preliminary data analyses, and manuscript preparation.

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