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An Investigation of Interpersonal-Psychological Variables in Air Force Suicides: A Controlled-Comparison Study

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Joiner's (2005) theory attributes suicide to an individual's acquired capability to enact self-harm, perceived burdensomeness, and thwarted belongingness. This study evaluated whether Joiner's theory could differentiate United States (US) Air Force (AF) personnel (n = 60) who died by suicide from a living active duty AF personnel comparison sample (n = 122). Responses from AF personnel on several scales assessing Joiner's constructs were compared to data from a random sample of postmortem investigatory files of AF personnel who died by suicide between 1996–2006. This research also introduced a newly designed measure, the Interpersonal-Psychological Survey (IPS), designed to assess the three components of Joiner's theory in one, easy-to-administer instrument. Analyses of the psychometric properties of the IPS support initial validation efforts to establish this scale as a predictive measure for suicide. Findings support that one's score on the Acquired Capability to Commit Suicide subscale of the IPS and the IPS overall score reliably distinguished between the two groups. The implications of these findings in relation to suicide prevention efforts in the US military are discussed.

Keywords Air Force, interpersonal-psychological theory of suicide, military, self-inflicted harm, suicide, suicide prevention

As the 11th leading cause of death in the United States (Minino, Arias, Kochanek et al., 2002) and the 2nd leading cause of death among active duty military personnel (Centers for Disease Control and Prevention [CDC], 2005), suicide is a significant public health problem. There are considerable human and economic costs associated with the social and health-related aspects of suicide along with an estimated total economic burden of $111.3 billion (Miller, Covington, & Jensen, 1999).

In response to the US National Strategy for Suicide Prevention (US Public

Health Service, 2001), the current research aims to increase our understanding of suicide behavior and its correlates among US Air Force (AF) personnel. Recognized suicide risk factors include male gender, non-married status, mental health problems, relationship difficulties, legal and financial problems, poor coping skills, social isolation, negative life events, and history of self-harm (Brown, Beck, Steer et al., 2000; Institute of Medicine, 2002; Rudd, Joiner, & Rajab, 2001; Rudd et al., 2001). Protective factors include marriage, children, female gender, cognitive flexibility, hopefulness, support systems, physical health, and treatment utilization (Maris, Berman, & Silverman, 2000).

A number of sociological, psychological, neurobiological, and genetic theories have been postulated to explain suicide risk and behavior (see Berman, Jobes, & Silverman, 2006). An interpersonal-psychological model proposed by Thomas Joiner (2005) cites three precursors to suicide behavior: (1) an acquired capacity to enact lethal self-injury; (2) the sense that one has become a burden to one's loved ones (i.e., Burdensomeness); and (3) the sense that one is not interpersonally connected with a valued group or relationship (i.e., Thwarted Belongingness). Joiner explains that suicide attempts and deaths arise from the overlapping and synergistic impact of these precursors and that an individual will not resort to suicide in their absence.

The acquired capability to enact suicide is established through previous experience (or practice) with suicidal elements, such as history of facing violence, pain, injury, or past attempts that serve to numb one to the stigma, fear, and potential pain of attempting suicide (Joiner & Rudd, 2000; Levine, Abramovich, Stein et al., 1995). The capacity to induce self-harm also involves a sense of fearlessness to make an attempt, competence to make an attempt, and availability of means to and opportunity for attempt (Joiner, 2005). According to Joiner, repeated exposure to self-injurious behavior facilitates future suicidal behavior by two inter-related avenues: habituation to associated fear and pain and a diminishing of the "taboo" associated with suicide. This is similar to Solomon's (1980) opponent-process theory, which predicts that with repetition, the effects of provocative stimuli (e.g., fear of pain and self-harm) diminish, and the opposite effect, or opponent process (e.g., calming, pain-relieving effects of self-harm), is amplified.

The burdensomeness element of Joiner's theory (2005) involves the perception that one is so ineffective that loved ones are threatened and inconvenienced. This perception involves the mental calculation, "My death is worth more than my life to those I care about." In studies examining themes of suicide notes (Joiner, Johnson, & Soderstrom, 2002; Joiner & Rudd, 2002; Pettit et al., 2002), perceived burdensomeness is cited as a significant predictor of completer versus attempter status and lethality of method, even after controlling for other relevant dimensions. Interestingly, Pettit et al. (2002) edified the relationship of burdensomeness and suicide in an analysis of suicide notes from the People's Republic of China, wherein high levels of burdensomeness toward loved ones were significantly and *negatively* correlated with lethality of suicide method.

Finally, belongingness is defined as a powerful and fundamentally pervasive motivation. Those who die by suicide often seem to experience isolation and withdrawal prior to death (O'Reilly, Truant, & Donaldson, 1990; Trout, 1980). Magne-Ingvar and Oejehagen (1999) found that significant others of 81 suicide cases reported loneliness of the deceased as a prominent factor contributing to suicidal behavior. Joiner (2005) asserts that the need to belong is a basic human drive; if this need goes unmet, negative consequences may ensue.

Elements of Joiner's model are inherent in military life. Military service encompasses discipline and self-composure; necessary restrictions of personal freedoms in an aggressive, often masculine community; ready access to firearms; and discouragement of personal compassion (Rozanov, Mokhovikov, & Stiliha, 2002). Suicide risk may substantially increase subsequent to exposure to military-related work and stressors (Ritchie, Keppler, & Rothberg, 2003), or it may closely relate to life events (e.g., psychiatric history) prior to military admission (Rozanov, Mokhovikov, & Stiliha, 2002). Overall risk is heightened given an interaction of preexisting risk factors and those risks inherently common among personnel in the military, such as younger age, social isolation, elevated stress, aggression, and access to firearms (Brent, Johnson, Perper et al., 1994; Stea, Anderson, Bishop et al., 2002; Verona, Patrick, & Joiner, 2001). In this sense, a heightened acquired capability to suicide is expected among military personnel due to repeated exposure to violence and traumatic events.

Though military indoctrination builds cohesion and shared values (i.e., protective factors), separation from families and loved ones sometimes fosters a lack of belongingness and sense of becoming a burden to family, the community, or both. Those who have a low sense of belonging and effectiveness *within* the military (e.g., due to ostracization from their unit) may be especially vulnerable.

The current study examined the applicability of Joiner's interpersonal-psychological theory to suicide behavior evidenced by USAF military personnel. While there is substantial diversity within the USAF community, year-to-year variations are relatively minimal (Knox, Litts, & Talcott, 2003), making this population suitable for the examination of testable inferences about a theoretical model of suicide prevention.

For many years, suicide researchers have relied on postmortem "psychological autopsy" data—accounts, interviews, and chart reviews that can be used to reconstruct lives that end by suicide (Beautrais, 2000; Cavanagh, Carson, Sharpe et al., 2003; Hawton, Appleby, Platt et al., 1998; Portzky, Audenaert, & van Heeringen, 2005). This approach has been identified worldwide (Beautrais, 2000, 2001; Cavanagh, Owens, & Johnstone, 1999; Cheng, Chen, Chen, & Jenkins, 2000) as the most direct and informative technique for examining the relationship between precursors to suicide and psychosocial circumstances prior to death (Cavanagh, Carson, Sharpe et al., 2003; Hawton, Appleby, Platt et al., 1998; Marttunen, Aro, & Lönnqvist, 1993). Criticisms of the psychological autopsy include assertions that findings are limited by "commonsense" assumptions made about the causal nature of "psychiatric antecedents" and suicide and discount the impact of biopsychosocial factors (Cavanagh et al., 2003; Gavin & Rogers, 2006). Nevertheless, if all factors are equally weighted, the psychological autopsy offers great promise in contributing to knowledge of suicide (Cavanagh, Carson, Sharpe et al., 2003; Gavin & Rogers, 2006; Hawton, Appleby, Platt et al., 1998). The current research placed no emphasis in any particular area and made no imperative for retrospective diagnosis.

The present research involved the application of Joiner's theory of suicide to AF suicides in an effort to determine whether this model differentiates between living and deceased (by suicide) AF personnel. It was hypothesized that greater acquired capability to suicide, a greater sense of burdensomeness, and greater thwarted belongingness would differentiate those who died by suicide from living controls. Additionally, the Interpersonal-Psychological Survey (IPS) was developed to more comprehensively assess for Joiner's three constructs.

METHOD

Participants

Files ($n = 60$) of active duty AF personnel who died by suicide between 1996 and 2006 were reviewed following appropriate institutional review board approvals. In an effort to protect the integrity of the present findings, data from three of these files was omitted from analyses due to missing data. The aggregate data collected from these files were HIPPA compliant and maintained confidentiality by exclusion of personal identifiers.

An active duty cohort ($n = 122$) was used as our comparison group. Participants in this cohort completed a battery of measures administered at the AF Base Exchange Store (BX). To preserve the integrity of the dataset, four participants were omitted from analyses due to incomplete data. Each participant included in the final analysis was assigned a code number to ensure confidentiality. Respondents were matched on gender, age, race, and marital status.

Measures

Suicide Death Investigation Template (SDIT). The SDIT is a 485-variable Microsoft Excel coding template of 13 domains developed and refined collaboratively by the 1st author and an expert team of suicidologists and professionals from the Air Force Suicide Prevention Program (AFSPP) and Air Force Office of Special Investigations (AFOSI). To increase the reliability of coding decisions, this suicide database was accompanied by a coding manual developed and refined as described above. The SDIT includes dichotomous, categorical, open-ended items capturing various psychological and factual elements of the deceased's life. Information is based on retrospective chart data. A random sampling procedure was applied to 10% of cases to assess inter-rater reliability, which was found to be high. Kappa ratings for item-by-item analysis were assessed (see Table 1). Due to limited variability, data were not available for 13 of the 34 IPS items. Of the remaining 21 items, 16 items demonstrated perfect inter-rater reliability ($K = 1$). This strong presence of perfect ratings among the items for which data is available supports reliability in data entry and analysis.

Interpersonal-Psychological Survey (IPS). The IPS (see Appendix) was created based on a series of discussions between study investigators (including TJ). The survey contains 34 dichotomous (i.e., True/False) items derived from the SDIT and deemed most highly correlated with the central constructs of Joiner's theory. The scale has three subscales, corresponding to Joiner's three constructs: (1) capability; (2) thwarted belongingness; and (3) burdensomeness. The IPS total score is calculated by summing "true" responses. Two checks were conducted to assess face and concurrent validity. To ensure that variables included in the scale closely loaded on the constructs of the theory, the IPS was administered to 120 living active duty participants. In demonstrating convergent validity of the newly developed assessment measure, scores on IPS subscales were correlated with scores from two scales (i.e., ACSS and INQ) used by Joiner to assess each of the three constructs in his theory.

Acquired Capability to Suicide Scale (ACSS; Van Orden, Witte, Gordon et al., 2008). The ACSS is a 20-item scale based on Joiner's model designed to assess one's acquired capability to enact suicide. Participants indicate the degree to which each item is true for them on a 5-point Likert-type scale. Higher scores in the latter half of the spectrum correspond to greater acquired capability to suicide. The ACSS has good reliability

TABLE 1. **Kappa Ratings per IPS Items**

Item	Kappa coefficient	Significance
1	No kappa calculated b/c ratings were constants	
2	No kappa calculated b/c ratings were constants	
3	1.0	.014
4	No kappa calculated b/c ratings were constants	
5	.571	.121
6	1.0	.014
7	1.0	.014
8	1.0	.014
9	.571	.121
10	1.0	.014
11	No kappa calculated b/c ratings were constants	
12	.333	.273
13	No kappa calculated b/c ratings were constants	
14	1.0	.014
15	No kappa calculated b/c ratings were constants	
16	No kappa calculated b/c ratings were constants	
17	1.0	.014
18	1.0	.014
19	.00	1.00
20	No kappa calculated b/c ratings were constants	
21	1.0	.014
22	No kappa calculated b/c ratings were constants	
23	No kappa calculated b/c ratings were constants	
24	No kappa calculated b/c ratings were constants	
25	1.0	.014
26	No kappa calculated b/c ratings were constants	
27	1.0	.014
28	No kappa calculated b/c ratings were constants	
29	.571	.121
30	1.0	.014
31	1.0	.014
32	1.0	.014
33	1.0	.014
34	1.0	.014

(*Continued*)

($\alpha = .85$), correlates well with similar measures, and is positively correlated with pain tolerance and threshold.

Interpersonal Needs Questionnaire (INQ; Van Orden, Witte, Gordon et al., 2008). The INQ is a 25-item scale designed to measure beliefs about how connected one feels to others (i.e., belongingness) and the extent to which one may feel like a burden on others (i.e., perceived burdensomeness). Ten items were included to tap the construct of belongingness and 15 to assess perceived burdensomeness, as defined by Joiner's model. Participants indicate the degree to which each item is true for them on a 7-point Likert-type scale. Scores are coded such that higher numbers reflect more positive interpersonal beliefs (i.e., more belongingness and less burdensomeness). Internal consistency for the total scale ($\alpha = .94$), the belongingness items ($\alpha = .90$), and the perceived burdensomeness items ($\alpha = .92$) are high.

Procedure

Through a series of working group meetings, consultations, and iterative reviews of draft documents by an expert team of suicidologists, the AFSPP, the AFOSI, and collaborating AF personnel, the SDIT and associated training manual were created. Review of suicide files and data entry took place at AFOSI-designated and -approved sites. Coders reviewed closed files (i.e., no longer under investigation by OSI staff) of individual suicides

that occurred between 1996 and 2006. Coding, the majority of which was performed by EN and LJ, was conducted by 5 investigators, trained on the manual.

Suicide files contained information collected from first-hand interviews conducted by police and OSI staff with individuals known to the decedents, including family, partners, peers, and coworkers. When present, suicide notes were assessed for emotional themes about the mental state of the deceased prior to death.

The Chief of the AFSPP (SP) coordinated data collection for the living sample. Passing AF personnel were asked to stop by a booth at the AF BX to complete a brief series of surveys on suicide prevention. Each respondent completed four measures (i.e., the IPS, ACSS, INQ, and demographic questionnaire). Upon completion, study respondents received an informational handout on the purpose of the research. Information on therapeutic referrals was also provided.

Data Analyses

Because of the nature of the two samples, different data collection methods and measures were used per sample, as is typically done in psychological autopsy studies, given limitations in assessing the deceased. Surveys were used with the living sample, while a review of records was conducted with the suicide sample; data from the suicide sample were entered into the SDIT, while survey data (i.e., ACSS, INQ, IPS) were collected from the living sample.

Initial data analyses were conducted to describe and match samples on demographics. Preliminary validity of the IPS was established—face validity was established by evaluation and feedback from suicide experts, while concurrent validity was assessed through comparison of IPS responses to those on the ACSS and INQ. Chi square tests were conducted to examine demographic patterns between the suicide and living samples. Spearman's rho coefficients were run to assess content validity of the IPS. Two logistic regressions were conducted to determine the predictive value of the targeted suicide risk factors. One logistic regression included overall IPS score and the three variables from Joiner's theory as main effects entered first; a second included IPS subscale scores for second stage analysis. Further, kappa coefficients were calculated to assess inter-rater reliability on the SDIT.

RESULTS

Sample Demographics

The living sample was significantly older than persons in the suicide sample, $t(178) = 1.957$, $p = .05$. When controlling for other variables, however, age was not predictive of suicide. There were relatively more men than women in the suicide sample as compared to the living sample, χ^2 $(1, N = 182) = 13.602$, $p < .001$. Marital status reliably differentiated between these two groups, χ^2 $(3, N = 181) = 8.56$, $p < .05$, and significant between-group differences were found for race, χ^2 $(4, N = 180) = 16.27$, $p < .01$. Please see Table 2 for a comparison of demographic data among the present samples and the USAF population.

Scale Sample Statistics

Data included in the following sections on the IPS, ACSS, and INQ were collected from individuals in the living sample; data on the IPS is grounded in the suicide sample.

Interpersonal-Psychological Survey (IPS). The most frequent response on the IPS was "False"; the most frequent endorsement of "True" was on items assessing problems in romantic relationships. Average total IPS subscale scores were 1.5 for capability (scores ranged from 0 to 8 of a possible 17), 1.89 on belongingness (scores ranged from 0 to

TABLE 2. **Demographic Statistics of Suicide and Living Samples in Comparison with USAF**

	Suicide sample		Living sample		USAF	
	Mean	%	**Mean**	%	**Mean**	%
Gender						
Male	–	92.7	–	66.4	–	80.3
Female	–	8.3	–	43.6	–	19.7
Age						
	30.00	–	32.00	–	UK	–
Race						
Caucasian	–	72.9	–	46.3	–	74.5
AA	–	15.3	–	38.8	–	14.9
Hispanic	–	6.8	–	9.9	–	8.6
Asian	–	5.1	–	1.7	–	2.2
Other	–	0	–	3.3	–	UK
Marital status						
Single	–	33.9	–	22.1	–	35.0
Relationship	–	0	–	6.6	–	N/A
Married	–	47.5	–	59.8	–	60.8
Divorced	–	18.6	–	11.5	–	8.0

AA = African-American; Relationship = Currently in a Relationship; UK = Unknown.

11 of a possible 12), and 0.36 on burdensomeness (scores ranged from 0 to 4 of a possible 5).

General themes endorsed on the IPS capability subscale included items assessing one's engagement in suicide-preparatory behaviors, past suicide attempts or exposure, and problems with impulsivity. Please refer to Table 3 for data on the IPS subscales and total scores for the living and suicide samples. On the IPS Burdensomeness subscale, the only elevation concerned one's self-reported identification as a burden on others (Item 14; $M = .13$, $SD = .33$). Slight elevations found on the IPS Thwarted Belongingness subscale assessed such feelings as belonging among peers and family (Items 6, $M = .08$, $SD = .27$; Item 13, $M = .13$, $SD = .34$) and loneliness (Item 31, $M = .16$, $SD = .37$).

Acquired Capability to Suicide Scale (ACSS). The mean total score on the ACSS in the survey sample was 65.43 ($SD = 9.50$), with scores ranging from 41 to 94. Mean item scores ranged from 1.53 to 4.18 out of a possible total score of 5. Living active duty participants endorsed a moderate fear of death (e.g., Item 19, $M = 2.99$, $SD = 1.14$) and low to moderate capability to actually kill themselves (i.e., Item 20, $M = 1.52$,

TABLE 3. **Average IPS Subscale and Total Scores per Sample**

	Suicide sample		Living sample	
IPS	**Mean**	***SD***	**Mean**	***SD***
Burdensomeness	.78	1.21	.16	.55
Thwarted belongingness	2.92	2.19	1.39	2.21
Capability to enact suicide	3.10	2.32	.78	1.18
IPS Total	6.79	4.54	2.30	3.40

IPS = Interpersonal-Psychological Survey.

$SD = 1.06$). Similarly, the living cohort endorsed less anxiety regarding their own death than would be expected by someone at lesser risk of capability to suicide (Items 13 and 14, $M = 3.80$ and 3.20, respectively).

Interpersonal Needs Questionnaire (INQ). The average total score for the INQ Burdensomeness subscale was 97.04 ($SD = 8.42$), with scores ranging from 68 to 105, and 63.25 ($SD = 9.15$), with scores ranging from 22 to 70, on the Thwarted Belongingness subscale. INQ item scores fell between 5.57 and 6.90, with a mode of 7, suggesting identification with positively worded statements. Countering burdensomeness, living participants generally reported feelings of contributing to society and being important to people in their lives (i.e., Items 10, 13, and 15; $M = 6.29$, $SD = 1.02$; $M = 5.72$ and $SD = 1.57$; and $M = 6.50$, $SD = 1.09$, respectively). On the Belongingness subscale of the INQ, living active duty participants displayed a healthy sense of belongingness. Respondents generally endorsed feeling cared about by others, supported, and connected with others. Table 4 displays data on the three measures noted thus far.

TABLE 4. **Subscale Scores across Scales**

	Mean	*SD*
IPS		
Burdensomeness	.36	.87
Thwarted belongingness	1.89	2.31
Capability to enact suicide	1.53	1.96
INQ		
Burdensomeness	97.04	8.42
Thwarted belongingness	63.25	9.15
ACSS	65.43	9.50

ACSS = Acquired Capability to Suicide Scale; INQ = Interpersonal Needs Questionnaire; IPS = Interpersonal-Psychological Survey.

Scale Reliability and Validity Statistics

Interpersonal-Psychological Survey (IPS). Inter-rater reliability of IPS data was high, with a most frequent kappa rating of 1.0. Additionally, analysis of the Kuder-Richardson statistic denoted good internal consistency (KR20 = .85) for the IPS. IPS items that strengthen scale internal consistency include items 13 and 14, which assess feelings of loss of status and burdensomeness on others.

Acquired Capability to Suicide Scale (ACSS). Several items assessing avoidance of situations due to fear of injury, pain, or dying (i.e., 3, 8, 17, 18, & 20) demonstrated weakened consistency, suggesting less correlation with acquired capability to suicide; removal of these items may result in a more reliable measure for future samples. Problems with internal consistency may have stemmed from confusion in item wording, such as asking respondents to agree or disagree with unusually worded statements (e.g., Item 2: "The sight of my own blood does not bother me."). Disagreement with this item may have caused confusion given reverse-coding and negative wording. Conversely, items crucial to high internal consistency and overall validity included Items 2 and 19, assessing repulsion to the sight of one's own blood and fear of death. Mention of blood and death are highly specific to suicide and, thus, provide support for face validity and internal consistency.

Interpersonal Needs Questionnaire (INQ). High internal consistency was found for the overall INQ ($\alpha = .89$), Burdensomeness subscale of the INQ ($\alpha = .82$), and Belongingness subscale of the INQ ($\alpha = .87$). Likewise, strong inter-item correlation was found among most items on the INQ. Only one INQ item (i.e., Item 5) contributed little to the scale; this item assesses whether subjects would be missed if they "went away" and may have seemed

ambiguous given the nature of military life, which often involves separation from loved ones in the form of deployment or relocation. Items assessing number of caring and supportive friends and feelings of connectedness and belongingness were crucial to the high internal consistency of the INQ (e.g., Items 19 & 24). Other items highly predictive of burdensomeness (e.g., 10, 14, & 15) assessed feelings of worsening others' lives with one's presence.

Convergent and Discriminant Validity

The ACSS correlated weakly with the IPS full scale and IPS subscale for acquired capability to suicide, $r_s = .02$, $p = .83$ and $r_s = .15$, $p = .12$, respectively. The INQ burdensomeness subscale, however, correlated with both the IPS full scale score and IPS subscale score, $r_s = -.27$, $p < .01$ and $r_s = -.33$, $p < .001$, respectively. Similarly, the INQ thwarted belongingness scale correlated strongly with the IPS full scale score and associated IPS subscale score, $r_s = -.31$, $p < .01$ and, $r_s = -.27$, $p < .01$, respectively.

IPS Predictive Validity

A logistic regression was run including responses from 57 of the 60 suicidal individuals and 118 of the 122 non-suicidal respondents for a total of 175 subjects (see Table 5). The overall logistic regression was significant, χ^2 (7, $N = 175$) = 59.86, $p < .0001$. When controlling for all other variables in the regression simultaneously (i.e., gender, race, marital status, and IPS total score), age did not predict classification as suicidal or not, but gender emerged as a trend association, wherein males were at greater suicide risk than females. Specifically, when controlling for other variables, males were 2.58 times more likely than females to die by suicide, χ^2 (1, $N = 175$) = 2.78, $p < .095$ (95% confidence limits ranged from $-.15$ to 6.88).

Controlling for other variables, race was the only demographical variable that served as a significant predictor of suicidal risk in the regression, χ^2 (2, $N = 175$) = 6.8, $p < .05$. African Americans were 0.71 times less likely to be suicidal than Caucasians, χ^2 (1, $N = 175$) = 6.0, $p < .01$ (95% confidence limits ranged from -0.89 to -0.22). Marital status emerged as a trend association, χ^2 (2, $N = 175$) = 4.76, $p < .1$; divorced persons tended to be 2.74 more likely and single persons 2.39 times more likely to die by suicide than married persons, χ^2 (1, $N = 175$) = 3.00, $p < .1$ (95% confidence limits ranged from $-.10$ to 7.23) and χ^2 (1, $N = 175$) = 3.17, $p < .1$

TABLE 5. **Logistic Regression with Socio-Demographics and IPS Total: Odds Ratio Estimates**

Effect		Point estimate	95% confidence limits	
Age		0.975	0.928	1.024
Gender	1 vs. 2 (Male vs. Female)	2.584	0.847	7.883
Race2	2 vs. 1 (African American vs. Caucasian)	0.294	0.110	0.782
Race2	3 vs. 1 (Other vs. Caucasian)	0.418	0.130	1.340
Marital2	1 vs. 2 (Single vs. Marrid)	2.392	0.892	6.419
Marital2	3 vs. 2 (Divorced vs. Married)	2.735	0.904	8.278
IPSTOT		1.268	1.149	1.398

DF = Degrees of Freedom; Race2 = Caucasians : African Americans : Other; Marital2 = Married : Single : Divorced; IPSTOT = Total IPS Score.

TABLE 6. **Logistic Regression with Socio-Demographics and IPS Sub-Scale Totals: Odds Ratio Estimates**

Effect		Point estimate	95% confidence limits	
Age		0.985	0.936	1.037
Gender	1 vs 2 (Male vs. Female)	2.264	0.730	7.017
Race2	2 vs. 1 (African American vs. Caucasian)	0.335	0.121	0.933
Race2	3 vs. 1 (Other vs. Caucasian)	0.400	0.121	1.319
Marital2	1 vs. 2 (Single vs. Married)	2.227	0.778	6.370
Marital2	3 vs 2 (Divorced vs. Maried)	3.195	1.015	10.058
IPSBELON		0.943	0.748	1.188
IPSBURDE		1.287	0.733	2.257
IPSCAPAB		1.998	1.416	2.819

DF = Degrees of Freedom; Race2 = Caucasians : African Americans : Other; Marital2 = Married : Single : Divorced; IPSTOT = Total IPS Score.

(95% confidence limits ranged from −.11 to 5.42), respectively.

Finally, holding other variables constant, overall IPS total score significantly differentiated between those in the suicide group and living group, χ^2 (1, $N = 175$) = 22.50, $p < .0001$. That is, every point increase on the IPS total score corresponded with 1.27 times greater risk of suicide (95% confidence limits ranged from .15 to .40).

A follow-up logistic regression replaced IPS total score with IPS subscale scores (see Table 6). The likelihood ratio for the overall regression was significantly predictive of suicide status, χ^2 (9, $N = 175$) = 69.94, $p < .0001$. Race again emerged at a trend level, such that controlling for other variables, persons of races other than Caucasian tended to be at lower suicide risk than Caucasians, χ^2 (2, $N = 175$) = 5.39, $p < .1$). Specifically, Caucasians were 0.34 times more likely than African Americans to be suicidal, χ^2 (1, $N = 175$) = 4.38, $p < .1$ (95% confidence limits ranged from −.88 to −.07). Controlling for other variables, marital status also emerged as a trend, tending to differentiate those at higher risk of suicide, χ^2 (2, $N = 175$) = 4.78, $p < .1$. Divorced individuals were 3.20 times more likely than married individuals to suicide, χ^2 (1, $N = 175$) = 3.94, $p < .05$ (95% confidence limits ranged from .02 to 9.06).

Finally, when controlling for all other variables including IPS subscales, only the IPS capability subscale significantly predicted suicide risk, χ^2 (1, $N = 175$) = 15.50, $p < .0001$. Specifically, for every point increase on the IPS capability subscale score, persons were 2.00 times more likely to die by suicide, χ^2 (1, $N = 175$) = 15.50, $p < .0001$ (95% confidence limits ranged from .42 to 1.82).

DISCUSSION

This study sought to determine whether the three elements of Joiner's theory of suicide differentiate between a living and suicide sample of AF personnel. Findings indicate that the elements of Joiner's theory *collectively* differentiate between these two samples. When controlling for each element individually, however, only capability to enact suicide, as measured by the IPS (a new measure of suicide), emerged

as a significant predictor of suicide risk. Therefore, this component may serve as a stand-alone risk factor for suicide within the sample.

Moreover, this study examined the utility and psychometric properties of the IPS. Findings provide preliminary validation support for the IPS. Specifically, when controlling for other variables, higher scores on the IPS significantly predicted suicide risk and differentiated between persons in the living sample and those who died by suicide. The IPS capability subscale was the strongest predictor of suicide risk.

An examination of suicide death files in this study supported research on demographic suicide risk factors. While controlling for all variables including the IPS total score, being male, divorced, or Caucasian, and IPS total score generally predict suicide status. When controlling for all variables including IPS subscale scores, only the IPS capability subscale scores appeared significantly predictive of suicide.

Scale-Specific Findings

Interpersonal-Psychological Survey (IPS). Items assessing problems in romantic relationships were most frequently endorsed on the IPS. While certainly a cause of distress, problems in romantic relationships are generally endorsed by most people and are expected among military personnel, who are often separated from loved ones for unexpected and extensive periods of time. This finding is particularly interesting given that many who died by suicide experienced relationship discord prior to their respective deaths, including frequent arguments and/or infidelity. Analysis of suicide notes in a psychological autopsy conducted by Bhatia, Verma, and Murty (2006) supports the relationship between suicide and relationship discord, such that prominent themes of relationship problems were significantly noted in suicide notes.

Many in the living sample had elevated scores on IPS Thwarted Belongingness items, suggesting that they experience feelings of loneliness and thwarted belongingness among peers, family, coworkers, and the community. This finding is not entirely surprising, given that many persons who join the military do so at the cost of leaving the persons they care for in life. Moreover, some join the military at a time in their lives when they are young and seeking direction, thus less stable in their sense of belonging and purpose. Similarly, many living participants endorsed frequent desires to leave the AF early, which may again be explained by the challenging nature of military work and difficulty sustaining separation from loved ones while potentially living under the threat of being sent into combat.

Some IPS items were elevated in a less predictable manner. For example, a number of living recruits endorsed engagement in suicide-preparatory behavior (e.g., giving away valued possessions or rehearsing a plan), which is a combination of mentation and opportunity not inherently attributable to the nature of military work and invariably suggestive of imminent suicide risk. The living cohort also unexpectedly endorsed committal of past suicide attempts and problems with impulsivity. One explanation for these findings could be that persons with troubled pasts and in need of discipline turn to the military as an opportunity to relocate, start a new life, and find greater purpose.

Correlation of the IPS with the Acquired Capability to Suicide Scale (ACSS). The IPS correlated weakly with the ACSS. Two potential explanations for this observed weak correlation include: 1) ambiguity of item wording allowing multiple interpretations and 2) applicability challenges of the ACSS in this particular population. Perhaps due to the nature of military work, items that the general population tend to endorse in a negative direction are responded to

differently by persons seeking and subsequently performing military and combat-related work. Responses by personnel with desk jobs who do not expect to see violence would invariably differ, for example, from those of military personnel trained in combat or highly trained pilots, for whom a minor injury or deficit could end a promising career. Thus, socialization, vocational interests, and career choice likely greatly impact the validity and usefulness of the ACSS, which allows for multiple interpretations and applications of items. In fact, such an explanation might help elucidate why current findings differed from normative studies conducted by Joiner (2005).

This is the first study to apply Joiner's measures to a military population; thus, modification (i.e., rewording/replacement for more population-specific items) may be necessary prior to using this measure as an assessment tool with future AF and other military service members. One of the greatest areas of support for the acquired capability to suicide component of Joiner's theory, as assessed by the ACSS, was the overall negative response pattern to the item, "I could kill myself if I wanted to." The majority of respondents in the living sample endorsed that they lack the "capability" to enact suicide.

Correlation of the IPS and the Interpersonal Needs Questionnaire (INQ). In contrast to the ACSS, the INQ correlated strongly with the IPS. Scores on the INQ were consistently high, appearing to indicate a ceiling effect on the INQ Burdensomeness and Thwarted Belongingness subscales. This pattern provides strong support for healthy responses by living participants on the INQ subscales. Specifically, those in the living sample generally appear to feel that they contribute to society and do not identify themselves as burdens to others. Similarly, they seem to feel important to and cared for by others and fortunate to have supportive friends and people to whom they can turn in times of need. It is noteworthy that constructs like burdensomeness and thwarted belongingness may have greater significance in a structured society like the military, where everyone knows his/her duty and place.

The INQ Burdensomeness and Thwarted Belongingness subscales correlated strongly with the IPS full scale and correspondent IPS subscales. Findings provide preliminary support for the validity of the IPS as an assessment measure for harnessing the thwarted belongingness and burdensomeness constructs. Likewise, the INQ and IPS Burdensomeness and Thwarted Belongingness subscales seem to support these two constructs as separate and fundamental variables in Joiner's theory.

Response patterns on the scales were generally consistent with expectations. Active duty participants endorsed greater pain tolerance and less fear of threatening situations, objects, injury, and even of their own death than living cohorts and denied fear regarding the sight of a dead body. An investigation into the type of training personnel receive might lend insight into whether these traits were preexisting or developed as a result of military training. Given general expectations of military life, it seems reasonable that military personnel expect exposure to more life-threatening experiences or situations with greater potential for injury. It is likewise not unreasonable to presume that military personnel have a greater threshold for viewing blood. Item analysis may elucidate why normal controls acquired scores corresponding to higher capability to enact suicide, such that certain item elevations are not entirely surprising or counterintuitive for persons trained in military combat.

Findings Regarding Demographic Variables

Comparative data for the two samples and general USAF population is provided

in Table 1. Gender did not reliably predict suicide. Though national suicide statistics indicate that females attempt suicide three times more than men, the small proportion of females in the present suicide group is not surprising given that men die by suicide approximately four times more than women (CDC, 2007). It is noteworthy, however, that the proportion of females in the living sample was substantially higher than would be expected in military populations. Factors such as the location of data collection or agreeableness in completing a survey may have impacted the gender distribution of respondents. For example, given that data was collected at the entrance to the BX, it would be valuable to assess the percentage of shoppers who typically frequent the BX during the week and determine whether women are more likely to enter the BX during the week. Time of day would likely not be a significant factor given that data collection took place over the span of an entire day, from approximately 10 a.m. to 7:30 p.m. Further, it is possible that women might be prone to respond to surveys. This finding, however, did not appear prominent on the day of data collection, as males and females across demographic breakdowns appeared equally likely to participate when approached.

Specific to age, national suicide statistics indicate that suicide is the third leading cause of death among individuals 15 to 24 years old (CDC, 2007). In the current study, while the average age per sample surpassed 30, those in the living sample were significantly older than those in the suicide sample; age was *not* predictive of suicide when controlling for other variables. The age difference may be a source of sampling error, however, since age was not controlled for during recruitment efforts. Further, the suicide sample dates back to 1999, which provides for even greater age discrepancy between groups.

Marital status in the current living sample nearly mirrors AF statistics. Marital status in the suicide group significantly differed, however, wherein fewer persons were married and more were divorced and single. National statistics have repeatedly demonstrated that suicide rates are highest among the divorced, separated, and widowed and lowest among those married (Institute of Medicine, 2002). The proportion of married persons to single and divorced individuals in the present samples was significantly different from national and AF-specific statistics. This could be due to the greater prominence of stressors involved in military life, such as frequent absence from one's spouse, frequent relocation, exclusive nature of military housing, and reluctance to disclose personal stresses to helping professions and confidantes within the military subculture. Thus, military life provides a substantially different environment from life in the greater American society, and consequently the protective factors of marriage in the general population may not serve the same effect in military life.

Race is another factor found to relate strongly to suicidality. National statistics demonstrate that Caucasians have much higher rates of completed suicides (12 per 100,000) than African Americans (5.1 per 100,000) (CDC, 2007). Indeed, race distinguished between the current samples, consistently emerging as a predictor of suicidality, such that Caucasians were found to be at greater risk than those of other racial groups. Further, consistent with national data, being African American appears to be protective against suicide. Other races were also found to be at significantly lower risk of suicide than Caucasians but neither was as protective as being African American.

Summary and Recommendations

Results of this investigation provide partial support for Joiner's theory. Taken together, capability to enact suicide,

burdensomeness, and thwarted belongingness hold promise in distinguishing between persons at differential suicide risk. The capability to enact suicide scale of the IPS was the only reliable predictor of suicide risk. Weak correlations between this scale and Joiner's ACSS raise questions as to the actual factors underlying this measure. Limited sample size, limited response variability, and differences in AF populations versus general populations might explain the lack of significant overall support for Joiner's theory in this investigation. Further, the breadth of content assessed by "acquired capability to suicide" is highly diverse, suggesting that multiple factors must be accounted for in predicting suicide risk. Such factors include but are not limited to history of past trauma, pain, injury, suicide exposure, relationship discord, risk-taking behavior, and psychological distress.

The current findings may enhance suicide risk assessment. Accurate and early identification of acquired capability to suicide, feelings of burdensomeness, and feelings of thwarted belongingness may lead to more effective intervention. Preliminary support for the validity of the IPS supports its potential in playing a key role in identification of at-risk persons. Scores on both the Acquired Capability to Commit Suicide subscale of the IPS and the IPS overall score reliably differentiated suicidal persons from non-suicidal persons. Given weak correlations between the Acquired Capability to Commit Suicide subscale of the IPS and Joiner's ACSS, future research is needed to specify what factor(s) this subscale of the IPS in fact assesses.

Nevertheless, this research supports that careful attention to endorsed items and given patterns of response on the IPS may be useful in guiding immediate clinical interventions for suicide. For example, if individuals endorse items on the IPS belongingness subscale, therapeutic intervention might target fostering increased perception of support while decreasing feelings of alienation. Elevations on the burdensomeness subscale may inform interventions targeting the restructuring of distorted thoughts, while elevations on the capability subscale may guide interventions to reduce impulsive behaviors.

Present use of the psychological autopsy format allowed for a holistic view of deceased individuals' mental state and situation prior to death. This study weighed equally all aspects of the decedents' experience prior to death and involved no direction for diagnostic imposition. This is a great advantage over other research, which tends to involve imperatives for retrospective diagnosis (Cavanagh, Carson, Sharpe et al., 2003; Gavin & Rogers, 2006). This method of data collection is a form of suicide surveillance that is likely to enhance suicide prevention efforts. This may also help preserve military integrity and strengthen cohesion within military units. Although the retrospective nature of this method may be criticized because of its over-reliance on third-person reports, high inter-rater reliability amongst trained reviewers in conjunction with convergence of data from third-person reports lends weight to the utility of this strategy.

With respect to the validation measures of the IPS, methodological limitations may impact the generalizability of the current findings. The absence of reverse-coding with the IPS was in fact an oversight during the design of this study. In spite of this oversight, the intellectual integrity of this research remained intact, evidenced by the demonstration of significant findings. Future validation efforts of the IPS may benefit from reverse-coding of items.

Another methodological flaw of the present study lies in its development of the sample population, which was used for validation. Ideally, we would have pursued separate samples for validation purposes and regressions. However, difficulty in getting sufficient data to run these

analyses because of this low base rate phenomenon and limited access to postmortem data justified the design of the study. Additionally, in the absence of a comparison sample, the regressions were conducted on both samples. While the alternative of splitting the samples was considered, the limitations imposed by reducing an already limited sample would have compromised the power of both the regression and validation statistics. Nevertheless, these findings still underscore the value of the IPS in predicting suicide risk in military samples. As a result, the authors are confident that the present findings highlight the importance of further examination of the IPS with larger samples in follow-up research.

A possible limitation of this study was the omission of combat-related experience as a variable included in the analyses. However, fewer than 2 of the 60 files reviewed included details of combat and/or deployment history. Therefore, the authors chose to omit combat as a factor, because combat experience was unlikely to have been a factor in the suicides of the present group. For this same reason, deployment and combat information was not collected from the living sample. While assessing the differential effects of combat experience on suicide in follow-up research would be a worthwhile endeavor, the present study strongly supports the use of the IPS as an efficacious measure in identifying suicide potential that may have implications for planning clinical interventions for those at risk.

AUTHOR NOTE

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REFERENCES

Beautrais, A. (2000). Risk factors for suicide and attempted suicide among young people. *Australian and New Zealand Journal of Psychiatry*, *34*(3), 420–433.

Beautrais, A. (2001). Suicides and serious suicide attempts: Two opulations or one?. *Psychological Medicine*, *31*, 837–845.

Berman, A. L., Jobes, D. A., & Silverman, M. M. (2006). *Adolescent suicide: Assessment and intervention* (2nd ed., Vol. ix). Washington, DC: American Psychological Association.

Bhatia, M. S., Verma, S. K., & Murty, O. P. (2006). Suicide notes: Psychological and clinical profile. *International Journal of Psychiatry in Medicine*, *36*(2), 163–170.

Brent, D. A., Johnson, B. A., Perper, J. A. et al. (1994). Personality disorder, personality traits, impulsive violence, and completed suicide in adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, *33*, 1080–1086.

Brown, G. K., Beck, A. T., Steer, R. A., et al. (2000). Risk factors for suicide in psychiatric outpatients: A 20-year prospective study. *Journal of Consulting and Clinical Psychology*, *68*, 371–377.

Cavanagh, J. T. O., Carson, A. J., Sharpe, M., et al. (2003). Psychological autopsy studies of suicide: A systematic review. *Psychological Medicine*, *33*(3), 395–405.

Cavanagh, J., Owens, D., & Johnstone, E. (1999). Suicide and undetermined death in south east Scotland. A case-control study using the psychological autopsy method. *Psychological Medicine*, *29*, 1141–1149.

Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. (2007). *Web-based injury statistics query and reporting system (WISQARS)*[Online]. Retrieved November 12, 2007, from http://www.cdc.gov/ncipc/wisqars/default.htm

Cheng, A., Chen, T., Chen, C., et al. (2000). Psychosocial and psychiatric risk factors for suicide. *British Journal of Psychiatry*, *177*, 36–365.

Gavin, M., & Rogers, A. (2006). Narratives of suicide in psychological autopsy: Bringing lay knowledge back in. *Journal of Mental Health*, *15*(2), 135–144.

Hawton, K., Appleby, L., Platt, S., et al. (1998). The psychological autopsy approach to studying suicide: A review of methological issues. *Journal of Affective Disorders*, *50*, 269–276.

Institute of Medicine. (2002). In S. K. Goldsmith, T. C. Pellmar, A. M. Kleinman, & W. E. Bunney (Eds.), *Reducing suicide: A national imperative*. Washington, DC: National Academy Press.

Joiner, T. E. (2005). *Why people die by suicide*. Cambridge: Harvard University Press.

Joiner, T. E. Johnson, F., & Soderstrom, K. (2002). Association between serotonin transporter gene polymorphism and family history of completed and attempted suicide. *Suicide & Life-Threatening Behavior*, *32*, 329–332.

Joiner, T. E., & Rudd, M. D. (2000). Intensity and duration of suicidal crisis vary as a function of previous suicide attempts and negative life events. *Journal of Consulting and Clinical Psychology*, *68*(5), 909–916.

Knox, K. L., Litts, D. A., & Talcott, W. G. (2003). Risk of suicide and related adverse outcomes after exposure to a suicide prevention programme in the US Air Force: Cohort Study. *British Medical Journal*, *327*(7428), 1376–1378.

Levine, A. D., Abramovich, Y., Stein, D., et al. (1995). *Differences in psychological reactions to an experimental "suicide experience" between suicide attempters, suicide contemplators, andnon-suicidal patients*. Tel-Aviv, Israel: Presented at Israel Association of Suicidology Conference.

Magne-Ingvar, U., & Oejehagen, A. (1999). Significant others of suicide attempters: Their views at the time of the acute psychiatric consultation. *Social Psychiatry & Psychiatric Epidemiology*, *34*, 73–79.

Maris, R. W., Berman, A. L. & Silverman, M. M. (2000). *Comprehensive textbook of suicidology*. New York: Guilford Press.

Marttunen, M. J., Aro, H. M., & Lonnqvist, J. K. (1993). Mental disorders in adolescent suicide. DSM-III-R axes I and II diagnoses in suicides among 13- and 19-year-olds in Finland. *Archives of General Psychiatry*, *48*, 834–839.

Miller, T., Covington, K., & Jensen, A. (1999). *Costs of injury by major cause, United States, 1995: Cobbling together estimates in measuring the burden of injuries*. In S. Mulder & E.F. van Beeck (Eds.), Proceedings of a conference in Noordwijkerhout, May 13–15, 1998 (pp. 23–40). Amsterdam: European Consumer Safety Association.

Minino, A. M., Arias, E., Kochanek, K. D., et al. (2002). Deaths: Final data for 2000. *National Vital Statistics Reports*, *50*(15). Hyattsville: National Center for Health Statistics. DHHS Publication No. (PHS) 2002–1120.

O'Reilly, R. L., Truant, G. S., & Donaldson, L. (1990). Psychiatrists' experience of suicide in their patients. *Psychiatric Journal of the University of Ottawa*, *15*, 173–176.

Pettit, J. W., Lam, A. G., Voelz, Z. R., Walker, R. L., Perez, M., Joiner, T. E. Jr., et al. (2002). Perceived burdensomeness and lethality of suicide method among suicide completers in the People's Republic of China. *Omega: Journal of Death and Dying*, *45*(1), 57–67.

Portzky, G., Audenaert, K., & van Heeringen, K. (2005). Suicide among adolescents: A psychological autopsy study of psychiatric, psychosocial and personality-related risk factors. *Social Psychiatry & Psychiatric Epidemiology*, *40*(11), 922–930.

Ritchie, E. C., Keppler, W. C., & Rothberg, J. M. (2003).Suicidal admissions in the United States Military. *Military Medicine*, *168*(3), 177–181.

Rozanov, V. A., Mokhovikov, A. N., & Stiliha, R. (2002). Successful model of suicide prevention in the Ukraine military environment. *Crisis: The Journal of Crisis Intervention and Suicide Prevention*, *23*(4), 171–177.

Rudd, M. D., Joiner, T., & Rajab, M. H. (2001). *Treating suicidal behavior: An effective, time-limited approach*. New York: Guilford Press.

Solomon, R. L. (1980). The opponent-process theory of acquired motivation: The costs of pleasure and the benefits of pain. *American Psychologist*, *35*, 691–712.

Stea, J. B., Anderson, M. A., Bishop, J. M., et al. (2002). Behavioral health force protection: Optimizing injury prevention by identifying shared risk factors for suicide, unintentional injury, and violence. *Military Medicine*, *167*(11), 944–949.

Trout, D. L. (1980). The role of social isolation in suicide. *Suicide & Life-Threatening Behavior*, *10*, 10–23.

U.S. Public Health Service. (2001). *National strategy for suicide prevention: Goals and objectives for action*. Rockville, MD: U.S. Dept. of Health and Human Services.

Van Orden, K., Witte, T., Gordon, K., et al. (2008). Suicidal desire and the capability for suicide: Tests of the interpersonal-psychological theory of suicide behavior in adults. *Journal of Consulting & Clinical Psychology*.

Verona, E., Patrick, C. J., & Joiner, T. E. (2001). Psychopathy, antisocial personality, and suicide risk. *Journal of Abnormal Psychology*, *110*(3), 462–470.

APPENDIX

IPS

Circle yes or no to the following statements, as they are true for you.

In the past three months:

1.	I have tested positive or been found in possession of illegal drugs.	Yes	No
2.	I have frequently avoided interaction with peers.	Yes	No
3.	I have frequently wanted to leave the Air Force early.	Yes	No
4.	I have felt as though I have lost status.	Yes	No
5.	I have engagaed in behaviors in preparation for suicidal (e.g., rehearsing a plan; giving away belongings; acquiring means to enact suicide).	Yes	No
6.	I have frequently had problems with peer relationships.	Yes	No
7.	I have gotten in a physical fight with a significant other.	Yes	No
8.	I have frequently felt as though I do not belong in the community.	Yes	No
9.	I have frequency experienced problems in my romantic relationships.	Yes	No
10.	I have been arrested/detained for a non-alcohol/drug-related incident.	Yes	No
11.	I have committed past suicide attempts.	Yes	No
12.	I have frequently had problems maintaining my romantic relationships.	Yes	No
13.	I have frequently felt like I do not belong in my family.	Yes	No
14.	I have felt like a burden on others.	Yes	No
15.	I have gotten in a physical fight with someone other than a significant other or family member.	Yes	No
16.	When at work, I have frequently felt like I do not belong.	Yes	No
17.	I have told a family member of thoughts or intentions to hurt/kill kill myself.	Yes	No
18.	I have received a past Axis I, II, or III diagnosis	Yes	No
19.	I have frequently felt rejected.	Yes	No
20.	I have had past exposure to suicide (e.g., family member; friend; other)	Yes	No
21.	I have had problems with impulsivity (e.g., gambling; promiscuity; speeding when driving)	Yes	No
22.	When in the presence of supervisors, I have frequently felt as though I do not belong.	Yes	No
23.	I have lost a stripe.	Yes	No

24.	I have been arrested/detained for an alcohol/drug-related incident.	Yes	No
25.	I have committed past suicide gestures (i.e., nonlethal acts of self-harm that indicate possible suicidal intention).	Yes	No
26.	I have written a note, e-mail, or letter stating or hinting that I have experienced a loss of status.	Yes	No
27.	I have told a romantic partner of thoughts or intentions to hurt/kill myself.	Yes	No
28.	I have written a note, e-mail, or letter stating or hinting that I have felt like a burden on others.	Yes	No
29.	I have told a friend or coworker of thoughts or intentions to hurt/kill myself.	Yes	No
30.	I have told a supervisor or helping services professional of thoughts or intentions to hurt/kill myself.	Yes	No
31.	I have frequently felt lonely.	Yes	No
32.	I have frequently felt like I do not belong among my peers.	Yes	No
33.	I have gotten in a physical fight with a family member.	Yes	No
34.	I have been cited for alcohol-related activity (e.g., public intoxication; underage drinking; excessive drinking; DUI)	Yes	No