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Mental Pain, Communication Difficulties, and Medically Serious Suicide Attempts: A Case-Control Study

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Medical severe suicide attempts (MSSA) are epidemiologically very similar to individuals who complete suicide. Thus the investigation of individuals who have made MSSAs may add to our understanding of the risk factors for completed suicide. The aim of this study was to assess the role of mental pain and communication difficulties in MSSA. A total of 336 subjects were divided into 4 groups: 78 meeting criteria for MSSA compared with116 subjects who made a medically non-serious suicide attempt (MNSSA), 47 psychiatric controls with no history of suicidal behavior, and 95 healthy controls. Mental pain variants (e.g., hopelessness), facets of communication difficulties (e.g., self-disclosure), as well as socio-demographic and clinical characteristics were assessed. The MSSA had significantly higher communication difficulties than the other 3 groups. Moreover, the interaction between mental pain and communication difficulties explained some of the variance in suicide lethality, above and beyond the contribution of each component alone. This report underlines the importance of mental pain for suicide attempts in general while difficulties in communication abilities play a critical role in differentiating MSSA from MNSSA. The co-existence of unbearable mental pain with difficulties in communication significantly enhances the risk for more lethal forms of suicidal behavior.

Keywords medical lethality, mental pain, schizoid tendencies, self-disclosure

INTRODUCTION

Suicide research typically involves heterogeneous groups of patients who have attempted or completed suicide. Many studies compare disparate suicidal populations with non-suicidal controls. However, survivors of medically serious suicide attempts are epidemiologically very similar to individuals who complete suicide but different from individuals who attempt medically non-serious suicide (Daniel & Fleming, 2005). Thus it was found that mood disorders, history of psychiatric care, educational

disadvantage, and stressful circumstances play a similar role in completed suicide and medically serious suicide attempts (Beautrais, 2003). Consequently recent interest has focused on individuals who make medically severe suicide attempts, as the study of this subgroup can best shed light on suicide completers. Although self-report might be susceptible to recall and self-presentation biases, interviewing living individuals who have come as close as possible to death from suicide, enables researchers to glean vital information on risk factors and warning signs of completed suicide (Hawton, 2001). This is particularly important given reports showing that medically serious suicide attempters are twice as likely as medically non-serious suicide attempters to complete suicide (Beautrais, 2004).

Several categories of suicide risk factors and warning signs have been identified to date (Rudd, Berman, Joiner et al., 2006). These include stable, background qualities that are unlikely to change, such as gender, age, and race, and a history of psychopathology and more transient experiential factors that reflect the imminence of a suicidal crisis and may require immediate intervention, such as unbearable mental pain (Shneidman, 1993) and related experiences of depression and hopelessness (Hendin, 2009). Additionally, there is evidence that intrapersonal factors, such as help-seeking, social communication, and self-disclosure abilities may play a critical role in suicidal behavior in general (Horesh, Zalsman, & Apter, 2004; Pagura, Fotti, Katz, et al., 2009) and in serious suicidal behavior in particular (Apter, Horesh, Gothelf et al., 2001). In an earlier study (Levi, Horesh, Fischel et al., 2008), we found that the mental pain domain was a predictor of suicidal behavior, whereas the interpersonal and communication difficulties domain, consisting of low self-disclosure ability in particular, in addition to schizoid traits, alexithymia, and loneliness, was a predictor of the lethality and seriousness of suicidal behavior. However, the study included only a small sample of medically serious suicide attempters and lacked a non-suicidal psychiatric control group.

The aim of the present study was to replicate and expand our findings regarding the interaction between mental pain and communication difficulties on a larger sample of subjects. Mental pain has been extensively studied from theoretical, clinical, and empirical aspects. Probably the most extensive contribution was made by Shneidman (1993) who coined the term "psychache". Shneidman suggested that psychache, or unbearable mental pain, arises when essential needs (to love, to have control, to protect one's self image, to avoid shame, guilt, and humiliation, to feel secure) are frustrated or thwarted, thereby arousing a mixture of negative emotions such as guilt, shame, hopelessness, disgrace, rage, and defeat. These negative feelings then turn into a generalized state of emotional perturbation. The pain might be so intense that the individual may seek to escape by committing suicide. Shneidman (1993) postulated that psychache is directly associated with suicidality, and mediates the effects of other relevant psychological factors, such as depression and hopelessness, in their association with suicide. Mental pain describes feelings that are more than the sum of depression and hopelessness and denotes a qualitative experience which borders on the unbearable (Orbach, Mikulincer, Sirota et al., 2003). Moreover, mental pain seems to allow a window into the suffering of suicidal patients over and above those related experiences (Orbach, Mikulincer, Sirota et al., 2003). Another domain to be studied here is that of communication difficulties. This domain involves the subjective feeling of loneliness, the difficulty to self-disclose feelings, and schizoid tendencies.

As there are many common characteristics shared by individuals who are suicidal,

with individuals with a history of psychopathology who are not suicidal, we chose in this study to add a comparison group of non-suicidal psychiatric participants so as to isolate those factors specific to suicidality as well as a healthy control group.

The rationale of this study is based on our previous model (Levi, Horesh, Fischel et al., 2008): Mental pain is a major risk factor for a suicide attempt. People who are able to communicate their pain and agony to others tend to have stronger intimate relationships and are better able to cope with stress and pain. They are therefore less likely to attempt suicide. At the same time, low-lethal suicide behavior may in itself have communicative value (Nock, 2008; Shneidman & Farberow 1961). However, in people who do not feel connected, communication difficulties can catalyze feelings of distress into dangerous behavior. Thus the pernicious combination of unbearable pain and inability to communicate the pain may lead to both medically severe suicide attempts and to completed suicide.

We hypothesized that mental pain is a general risk factor for suicidal behavior; communication difficulties have a significant and specific impact on the *severity* of suicidal behavior; and the interaction between these two factors augments their effect on suicidal behavior, over and above the contribution of each one alone.

METHODS

Study Sample

The study described in this report is a combination of two consecutive studies conducted at tertiary university-affiliated general and psychiatric medical centers. Together, they included 336 participants (161 men, 175 women) aged 20–85 years divided into four groups. The medically serious suicide attempt group (MSSA) consisted of 78 consecutive patients (44 males; 34 females) admitted to a general or psychiatric hospital in 2004–2009 for a suicide attempt that required hospital admission for longer than 24 hours and treatment either in a specialized unit (including the intensive care or burn unit) or surgery under general anesthesia (e.g., for tendon repair, stabbing injuries) (Beautrais, 2003). The medically non-serious suicide attempt group (MNSSA; suicide control group) consisted of 116 subjects (65 males, 51 females) who had made a suicide attempt that warranted emergency room attention and/or hospitalization (for an overdose), but not meet the criteria for a medically serious attempt. The psychiatric control group consisted of 47 (14 males; 33 females) consecutive subjects with a psychiatric diagnosis. Psychiatric group reported some non-significant suicide ideation but no suicide intent or attempt.

All were admitted to a psychiatric hospital because of deterioration in their mental state. The healthy control group consisted of 95 subjects (52 males; 43 females) without any psychiatric diagnosis and with no history of suicidal behavior. We matched for the control group vs. the MSSA group. Psychiatric control group and the MNSSA group could not be matched but represented consecutive admissions to units.

Interviews and Self-Rating Questionnaires

A variety of instruments were used to capture demographic information, traits, states, and attempt characteristics.

Demographics. Information was collected from the participants on age, gender, religion, marital status, children, education, and employment.

Diagnosis. The psychiatric diagnoses were based on the Structured Clinical Interview for the DSM-IV-TR (First, Spitzer, Gibbon

et al., 1995). The Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) is a semi-structured interview for making the major DSM-IV Axis I diagnoses. Most sections begin with an entry question that would allow the interviewer to "skip" the associated questions if not met. The SCID is broken down into separate modules corresponding to categories of Axis I diagnoses. For all diagnoses, symptoms are coded as present, sub-threshold, or absent.

Lethality of the Suicide Attempt. The Lethality Rating Scale (LRS; Mann & Malone, 1997) is an interviewer-administered instrument that includes the Medical Damage Rating Scale (MDRS) designed by Beck and colleagues (Beck, Beck, & Kovacs, 1975). It measures the medical severity of a suicide attempt on a scale from 0 (*fully conscious and alert*) to 8 (*death*). Each of the eight subscales may be rated according to method of the attempt (shooting, jumping, drug overdose, etc.). The MDRS is based on an examination of the attempter's physical condition after hospital admission and review of the patient's medical record. In our study the MDRS was completed either by the patient's physician, who examined his physical condition after his admission to the general hospital or by the patients psychiatrist based on patient's medical record written after admission to the general hospital and medical treatment. Previous research has established an adequate level of inter-rater reliability (r=.80; Lester & Beck, 1975) and adequate concurrent validity with the Risk Rescue Rating Measure (Weisman & Worden, 1972). The distribution of the lethality rating scale (LRS) was close to symmetrical, as evidenced by both the skew (.175) and the kurtosis (−1.29).

Mental Pain Domain. The mental pain domain was divided into four variables.

Mental pain experience

The experience of mental pain was evaluated by the self-rated Mental Pain Scale (MPS) of Orbach, Mikulincer, Sitora et al., (2003). The scale contains 45 items pertaining to 9 factors: irreversibility, loss of control, narcissistic wounds, emotional flooding, freezing, self-estrangement, confusion, emptiness, and social distancing. Each item is rated on a 5-point Likert scale. Higher values reflect higher mental pain. In our sample, Cronbach alpha coefficients for the first 8 factors ranged from .72 to .89. The social distancing factor was excluded from the data analysis because of a low Cronbach coefficient (.42). The subjects were asked about the most severe mental pain they felt during the month prior to their suicide attempt. For the control groups, subjects were asked about the most severe mental pain they felt during the previous month.

Depression

The Beck Depression Inventory (BDI; Beck, 1978) is a 21-item self-report measure of the cognitive, affective, physiological, and motivational symptoms of depression that the individual experienced over the past month. Each item is scored on a 4-point scale from 0 to 3; higher scores reflect more severe symptoms.

Hopelessness

The Beck Hopelessness Scale (BHS; Beck, Weissman, Lester et al., 1974) contains 20 items, each rated on a 5-point Likert scale. The sum of the scores on the individual items yields a total hopelessness score ranging from 20 to 100. The lower the score, the more hopeless the individual feels.

Life events

The Life Event Scale (LES; Levav, Krasnoff, & Dohrenwend, 1981) is a 70-item self-report questionnaire relating to

potentially negative events experienced during the last 24 months in the following areas: finance, work, education, psychical danger, illness, bereavement. The subject checks whether or not the event occurred and if yes, what its impact was on a 4-point Likert scale. The instrument has been shown to have sound psychometric properties; it was slightly modified for Israeli conditions (by adding events relating to terrorism, immigration, and war).

Communication Difficulties Domain. The communication difficulties domain was divided into three variables:

Self-disclosure

The self-report Jourard Self-Disclosure Questionnaire (JSDQ; Jourard, 1971) covers six areas of self-knowledge: attitudes and positions, interests, study and work, personality, finance, and body. Subjects are asked how much they share these areas in their life with others: father, mother, girlfriend, boyfriend, and stranger. Each item is rated on a 4-point scale (range 0–3). For the present study, we used a short version of the scale including 40 items and 2 target individuals: close person and stranger. The internal reliability of the short version was .95.

Schizoid tendencies

The Structured Clinical Interview for DSM–IV Personality Disorders (SCID-II; First, Gibbon, Spitzer et al., 1997) covers the 11 Axis II personality disorders of the *Diagnostic and Statistical Manual of Mental Disorders, 4th edition*. For the present study, we used the seven-item section of the SCID on symptoms and behaviors of schizoid personality disorder. Each item is rated on a 3-point scale; higher scores indicate a greater schizoid tendency. Cronbach alpha coefficient was high (.81). The moderate to high correlations that were found between this scale and related measures as self-disclosure and loneliness ($r=-.40$; $r=.46$ respectively) indicate a good construct validity.

Loneliness

The UCLA Loneliness Scale (ULS; Russell, Peplau, & Cutrona, 1980) was designed to detect variations in loneliness in everyday life. It consists of 20 statements, such as "I lack companionship." Subjects indicate how often each statement is true for them on a 4-point scale. In the present analysis, we calculated the mean response per item, yielding a final score ranging from 1 to 4.

Procedure

The study was conducted in accordance with the 1989 revised Helsinki Declaration. Candidates for the suicide and psychiatric groups were identified by the medical staff and were referred for physical examination to ensure their fitness for the study. Thus, subjects who were psychotic at the time of the interview, suffered from severe cognitive impairment or from severe medical pain were excluded from the study. They then met with a psychologist (M.A. degree) who explained the aims and purposes of the project and were asked for their written consent to participate. The interviews and questionnaires were administered in two sessions of approximately 1 hour each. If the patients showed acute distress, the interviewer requested assistance from the medical staff. Candidates for the healthy controls groups were selected from volunteers sample according to the matching procedure.

Data Analysis

In the first step of the analysis, multivariate analyses of variance (MANOVA) were performed to determine group differences in measures of mental pain and communication difficulties. This was followed by analyses of the relationships among the clinical and interpersonal variables and the medical lethality of the attempt using a series of Pearson

correlation tests, hierarchical multiple regression analysis, and simple slope post-hoc analysis. The level of statistical significance was set at $p=.05$. The Statistical Package for the Social Sciences (SPSS, version 17.0 for Windows) was used for all analyses.

RESULTS

Demographic and Clinical Characteristics

There were no significant differences among the four groups in gender and age. Also, no significant differences were found in marital status and living status (Table 1). The non-suicidal psychiatric patients had a significantly lower socioeconomic status (M=2.2, SD=0.9) than the other groups ($P<.05$), and the healthy controls had significantly more years of education (M=14.1, SD=0.9) than the other groups ($P<.05$).

The most common psychiatric diagnoses in the two suicide-attempter groups were affective disorder, schizophrenia, and anxiety disorders. There were no significant differences between the groups in the distribution of diagnoses, although the medically serious suicide attempters were slightly more likely to have an affective disorder as the main diagnosis ($P<.05$). Also, there were no significant between-group differences in the number of psychiatric hospitalizations (MSSA: M=4.6, SD=4.3; MNSSA: M=3.9, SD=4.1) or number of suicide attempts in the past (MSSA: M=3.8, SD=5.2; MNSSA: M=4.5, SD=5.9).

TABLE 1. **Demographic Characteristics of the Study Groups (N=336)**

Characteristic	Medically serious suicide attempters (n=78)	Medically non-serious suicide attempters (n=116)	Non-suicidal psychiatric controls (n=47)	Healthy controls (n=95)	Statistical analysis
Sex, n(%)					
Male	44 (56.4)	65 (44.0)	14 (29.8)	52 (54.7)	χ^2=3.54
Female	34 (43.6)	51 (56.0)	33 (70.2)	43 (45.3)	
Age (yr)	38.5 (14.2)	38.5 (13.9)	40.9 (14.0)	38.5 (14.2)	F=.39, NS
Marital status, n(%)					
Single	40 (51.3)	56 (48.3)	21 (44.7)	19 (44.2)	χ^2=6.93, NS
Married	23 (29.5)	36 (31.0)	12 (25.5)	19 (44.2)	
Divorced/widowed/separated	15 (19.2)	24 (20.7)	14 (29.8)	5 (11.6)	
Living status, n(%)					
Alone	21 (26.9)	25 (21.6)	14 (29.8)	19 (22.3)	χ^2=2.43, NS
Not alone	57 (73.1)	91 (78.4)	33 (70.2)	76 (72.7)	
Income*	3.1 (1.2)	3.0 (1.1)	2.2 (0.9)	2.0 (0.9)	F=13.6, $P<.001$
Education (no. yrs)	12.0 (2.7)	11.6 (2.7)	12.4 (1.0)	14.1 (1.0)	F=17.6, $P<.001$
Primary current DSM-IV category, n(%)					
Mood disorder	47 (60)	57 (50)	20 (42)	0 (0)	χ^2=17.60
Non affective Psychosis	21 (27)	35 (30)	25 (53)	0 (0)	$P<.05$
Anxiety disorder	5 (6)	18 (15)	1 (2)	0 (0)	
Misuse of Alcohol	4 (5)	4 (4)	1 (2)	0 (0)	
No diagnosis	1 (1)	1 (1)	0 (1)	95 (100)	

Note. *Rated on 5-point scale.

Suicide Attempt Characteristics

Comparison of the characteristics of the suicide attempts between the two suicide attempter groups yielded several differences (Table 2). As expected, the subjects who attempted medically serious suicide spent significantly more time in the general hospital (MSSA: M=19, SD=30; MNSSA: M=1.3, SD=3.7; $P<.01$) and had significantly higher scores on the LRS (medical lethality of the suicide attempt) (MSSA: M=5.44, SD=0.96; MNSSA: M=1.53, SD=1.24; $P<.01$). The medically serious suicide attempters were more likely to use violent methods (shooting, hanging), although the difference did not reach statistical significance.

Group Differences in Mental Pain and Communication Difficulties

Mental Pain Domain. The first MANOVA showed a significant group effect of mental pain [Wilks F approximation (12,333)=18.66, $P<.001$]. Table 3 shows the mean scores and standard deviations for the various questionnaires. The univariate ANOVA yielded a significant group effect of all four measures of mental pain. On post hoc testing, suicide attempters (both MSSA and MNSSA) scored significantly higher than the non-suicidal psychiatric and healthy groups on level of depression (BDI), feelings of hopelessness (BHS), and subjective experience of mental pain (MPS) ($P<.05$ for all). They also had a significantly higher number of negative life events. Interestingly, separate comparison of the two suicide attempter groups yielded no significant differences between them in any of these measures.

Communication Difficulties Domain. The second MANOVA revealed a significant group effect of communication difficulties [Wilks F approximation (9,333)=19.81, $P<.001$]. Table 3 shows the mean scores and standard deviations for the various questionnaires. The univariate ANOVA yielded a significant group effect for all the three

TABLE 2. **Characteristics of Suicide Attempters and Severity of Suicide Attempts (n=194)**

Characteristic	Medically serious suicide attempters (n=78)	Medically non-serious suicide attempters (n=116)	Statistical analysis
Method, n(%)			
Sedative overdose	38 (48.7)	66 (57.9)	χ^2=11.48, NS
Nonsedative overdose	9 (9.0)	10 (8.8)	
Shooting	0 (0)	2 (1.8)	
Immolation	2 (2.6)	4 (3.5)	
Cutting	9 (11.5)	19 (16.7)	
Jumping	13 (16.7)	8 (7.0)	
Hanging	7 (9.0)	5 (4.4)	
Lethality rating scale (LRS) score	5.44 (0.96)	1.53 (1.24)	t=23.42 $P<.01$
Hospital admission after attempt (days)	18.9 (33.2)	*1.29* (3.70)	t=3.12 $P<.05$
Number of suicide attempts	3.84 (5.20)	4.52 (5.94)	t=−.82, NS
Family history of suicide attempt, n(%)			
Yes	19 (24.4)	27 (24.7)	χ=.01, NS
No	59 (75.6)	87 (76.3)	

TABLE 3. **Means, Standard Deviations, and MANOVA Results of Dependent Measures in the Groups (n=336)**

Characteristic	Medically serious suicide attempters (n=78)	Medically non-serious suicide attempters (n=116)	Non-suicidal psychiatric controls (n=47)	Healthy controls (n=95)	Statistical analysis
Mental pain variables					
MPS	3.86[a]	3.65[a]	3.32[b]	2.62[c]	F=46.00
	(0.75)	(0.70)	(0.86)	(0.76)	P<.001
BDI	34.9[a]	30.9[a]	21.9[b]	5.52[c]	141.38
	(13.2)	(13.1)	(13.9)	(6.14)	P<.001
BHS	3.42[a]	3.25[a]	2.71[b]	2.11[c]	50.07
	(0.86)	(0.85)	(0.90)	(0.48)	P<.001
LES	9.48[a]	9.47[a]	7.63[b]	7.09[c]	4.52
	(5.16)	(5.92)	(6.54)	(4.02)	P<.01
Communication difficulties variables					
SDQ	1.99[a]	2.40[b]	2.14[a]	2.31[b]	13.08
	(0.47)	(0.54)	(0.59)	(0.42)	P<.001
Schizoid tendency	1.82[a]	1.43[b]	1.47[b]	1.21[c]	22.78
	(0.58)	(0.47)	(0.48)	(0.34)	P<.001
ULS	2.82[a]	2.36[b]	2.34[b]	1.67[c]	51.05
	(0.66)	(0.67)	(0.66)	(0.44)	P<.001

Note. MPS=Mental Pain Scale; BDI=Beck Depression Inventory; BHS=Beck Hopelessness Scale; LES=Life Events Scale; SDQ=Self-Disclosure Questionnaire; ULS=UCLA Loneliness Scale.
[a,b,c]Significant differences in means on Scheffe post hoc test (p<.05).

measures of communication difficulties. On post hoc test, the medically serious suicide attempters had a significantly lower self-disclosure score than the medically non-serious suicide attempters and the healthy participants (P<.05 for both) and a similar self-disclosure score to the non-suicidal psychiatric patients. In addition, the medically serious suicide attempters had significantly more schizoid tendency and loneliness than the other three groups (P<.05).

Relationship of Clinical and Interpersonal Characteristics with Medical Suicide Lethality

Preliminary Analysis. To examine our hypothesis that communication difficulties explain a high proportion of the medical seriousness of suicide attempts, we first tested the correlation of the clinical and interpersonal variables with lethality (Table 4). Using two-tailed Pearson correlation tests, we found a weak but significant association between one mental pain variable—Beck hopelessness scale—and medical lethality (r=.14 p<0.05). On the other hand, variables from the communication difficulties construct were highly correlated with medical lethality. A significant negative correlation was found for self-disclosure (r=−.33 p<0.001), and a significant positive correlation was found for schizoid tendency (r=.36 p<0.001) and loneliness (r=.35 p<0.001).

As expected, the communication difficulties variables were significantly correlated, though not to the degree that multi-co linearity in the regression analyses was a major concern (Tolerance=.75 VIF=.1.39).

Communication Difficulties as Predictors of Suicidal Lethality. To determine if clinical and interpersonal characteristics predict the

TABLE 4. **Inter-correlations among Study Variables (n=336)**

Measures	1	2	3	4	5	6	7	8
1. MPS	—							
2. BDI	.35***	—						
3. BHS	.57***	.29***	—					
4. LES	.23**	.17**	.14**	—				
5. SDQ	−.05	.10	−.20**	.10	—			
6. Schizoid tendency	.18**	.06	.34***	−.03	−.41***	—		
7. ULS	.51***	.27***	.58***	.12*	−.38***	.46***	—	
8. Lethality	.10	.00	.14*	.00	−.33***	.36***	.35***	—
Mean	3.35	11.3	2.87	8.48	2.26	1.46	2.27	3.66
SD	.91	16.1	.94	5.40	.54	.51	.74	2.23

Note. MPS=Mental Pain Scale; BDI=Beck Depression Inventory; BHS=Beck Hopelessness Scale; LES=Life Events Scale; SDQ=Self-Disclosure Questionnaire; ULS=UCLA Loneliness Scale.
*P<.05; **P<.01; ***P<.001.

lethality of suicidal behavior, we applied a hierarchical regression analysis, as recommended by Cohen, Cohen, West, et al. (2003). A regression equation was constructed with the LRS score as the dependent variable. To statistically control for the mental pain variables (depression, hopelessness, mental pain experience, and negative life events), they were entered into the equation in the first step. The main effects of the communication difficulties variables, namely, self-disclosure, schizoid tendencies, and perceived loneliness, were entered in the second step. Finally, the two-way interaction of the global score for all the mental pain variables and the global score for all the communication difficulties variables were entered into the equation. (For this purpose, self-disclosure scores were reversed to fit the direction of response of the other questionnaires).

Overall, the model was significant and together all the variables accounted for 23% of the variance of lethality. Specifically, In step 1, the model containing all mental pain variables accounted for less than 3% of the variance and did not significantly predict medical suicide lethality [$F(4, 177)=1.08$, $P>.05$]. In step 2, the model containing the main effects of the communication difficulties variables accounted for another 17% of the variance (over and above the contribution of mental pain) and significantly predicted the lethality of the suicide attempt [$F(3, 174)=12.00$, $P<.001$]. Self-disclosure [partial correlation (pr)=−.15, $t(171)=1.84$, $P=.05$], schizoid tendencies [$pr=.21$, $t(171)=2.60$, $P<.01$], and perceived loneliness [$pr=.20$, $t(171)=2.25$, $P<.05$] were all significant independent predictors of the lethality of the suicide attempt. In step 3, the interaction of mental pain and communication difficulties significantly predicted medical lethality after all other variables had been entered, accounting for another 3% of the total variance in lethality [$pr=.52$, $t(169)=1.92$, $P=.05$].

To probe the significant interaction between mental pain and communication difficulties, a simple slopes analysis was conducted as described by Aiken and West (1991). The analysis was conducted for communication difficulties at high, average and low levels of mental pain. Figure 1 shows the pattern of moderation effects of mental pain in the prediction of medical lethality. At low levels of mental pain (1 SD below the mean), no significant relationship was found between communication difficulties and medical lethality of suicide

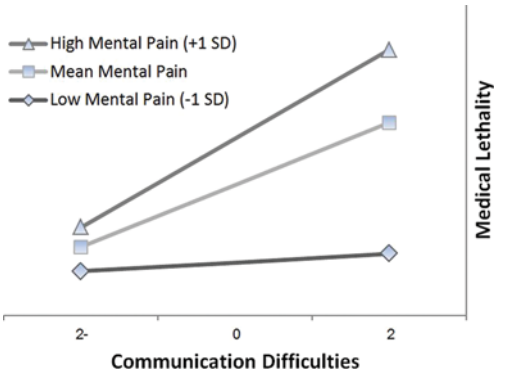

FIGURE 1. *Findings of simple slope analysis for the relation between communication difficulties and medical lethality of suicide attempts as function of mental pain levels (N=194). (Color figure available online.)*

attempt (simple slope coefficient $\beta = .18$, $t(54) = 1.65$, NS). However, at high levels of mental pain (1SD above the mean), significant positive relationship was between communication difficulties and medical lethality, ($\beta = .56$, $t(47) = 4.73$, $p < .001$). A similar relationship was found among individuals at the mean level of mental pain, ($\beta = .38$, $t(76) = 3.72$, $p < .01$). Therefore, communication was unrelated to lethality among low mental pain, but was significantly associated with higher lethality among average and especially high mental pain.

DISCUSSION

Although demographics and mental pain experiences are well known correlates of suicidal behavior, little is known about the specific role of mental pain and communication difficulties in the context of medically serious suicide attempts. An in-depth understanding of the risk factors of severe suicidal behavior is important because of the resemblance of medically serious suicide attempts to completed suicide (Beautrais, 2001). The results of the present study confirm and extend our previous finding that both communication difficulties and mental pain play an important role in medically serious suicide attempts, but the contribution of each is different.

Specifically, we showed that mental pain variables differentiate suicide attempters from psychiatric and healthy controls. Thus, these variables can be understood as important risk factors for attempted suicide. However, only communication difficulties variables appear to distinguish medically serious suicide attempters from medically non-serious suicide attempters. These results indicate that prominent interpersonal problems, such as low ability of self-disclosure, schizoid tendencies, and loneliness, are important risk factors for more lethal suicide attempts. Furthermore, we found that the interaction between mental pain and communication difficulties explains some of the variance in suicide lethality, above and beyond the contribution of each component alone. Bearing in mind that medically serious suicide attempts are in themselves an important risk factor for further suicide attempts and eventual completed suicide (Beautrais, 2004), these interactions indicate that the combination of unbearable mental pain and difficulties in communication has an augmenting effect on the risk for lethal behavior and the presence of both of these factors together can be an important warning sign indicating the need for intervention.

Interpersonal Problems as a Risk Factor

The ability of an individual to communicate with others has a wide range of benefits to well-being, from the development of intimate relationships to coping with stress and negative events (Kennedy-Moore & Watson, 2001). Thus, it is not surprising that communication difficulties are related to a wide range of psychopathologies including anxiety, psychiatric illness, low self-esteem, and hostility (Kahn & Garrison,

2009). The study of the relationship of communication difficulties with suicide has a distinguished history, dating back to the classic work of Durkheim and Simpson (1951) and the concept of anomie. In general, people who feel connected to their community are less likely to take their own life, even in the face of great life stress. However, in people who do not feel connected, communication difficulties can catalyze feelings of distress into dangerous behavior. At the same time, as suggested by the classic work of Shneidman and Farberow (1961) and others (Nock, 2008), low-lethal suicide behavior may itself have communicative value. Gilligan and Machoian (2002) coined the phrase "learning the language of suicide" to describe the propensity of adolescent girls to engage in such behaviors.

On the basis of the present results, we propose several explanations whereby communication difficulties are specific risk factor for more lethal suicide attempts. First, distressed people with communication difficulties cannot ask for assistance and therefore do not receive any support. Indeed, suicide often comes as a complete shock to friends and close relatives of the victim (Apter, Bleich, King et al., 1993). Second, social communication may play a central role in organizing the intrapsychic response to perceived stress and anguish, helping the person to acquire a relative perspective regarding his/her situation (Brown & Heimberg, 2001). Third, the loneliness and lack of social support consequent to communication difficulties may further aggravate underlying psychopathology, which is often the major risk factor for suicide (Mann, 2002). Naturally, the lack of disclosing information to others can decrease dramatically the possibility for early detection and intervention. People who communicate their suicidal desires and thoughts are likely to be detected and helped while the low disclosing and lonely individuals will continue without interference and end up with more dangerous forms of suicidal behavior.

The specific interaction between mental pain and communication difficulties can be conceptualized within the framework of the interpersonal theory of suicide (Van Orden, Witte, Cukrowicz et al., 2010). The interpersonal theory of suicide posits that the most dangerous form of suicidal desire is caused by the simultaneous presence of two constructs: perceived burdensomeness and thwarted belongingness. While burdensomeness can be seen as partly related to the mental pain domain, which captures the specific feeling that one's existence burdens family and friends; thwarted belongingness is somewhat overlapping construct with the communication difficulties domain, as expressed by low self-disclosure, social withdrawal, and loneliness. Our findings show that while emotional pain is a key etiologic component of suicide; the risk multiplies if it is accompanied by feelings of isolation and alienation from others. Furthermore, our study emphasizes that these two factors are particularly important for severe and more lethal suicide attempts.

Taken together, our findings highlight the importance of the combination of clinical and interpersonal variables in the process contribute to suicidal behavior. Due to the cross sectional nature of our study, we were not able to determine the process in which these variable interact over time. However, it is probably reasonable to theorize that the experience of intrapsychic pain, depression and hopelessness could form the basis of suicidal behavior (Orbach, 2003; Shneidman, 1993). When combined with the inability to communicate the stress these feelings remain unaddressed, help is not available and more serious forms of suicidal behavior might ensue. Obliviously, only a longitudinal study could test this line of thoughts.

The low ability to seek help and communicate distress probably interacts with other factors, such as demographics

(gender, age, family status, living alone) and suicide history, culminating in a potentially fatal attempt. Moreover, personality factors, such as aggression or anger (not tested here), also can incite a medically serious suicide attempt or eventual completed suicide. Thus, unrelieved mental pain generates an unbearable psychic state which, together with problems of signaling to significant others, may become life-threatening.

Strengths and Limitations of the Study

This study overcomes the methodological limitations of earlier investigations of medically serious suicide attempts, namely the inclusion of only one or two control groups and the use of insufficiently stringent criteria to define medically serious suicide attempts (e.g., by suicide attempt method or hospital admission). In the present study, medically serious suicide attempters served as the research group. This made it possible to clinically and psychiatrically assess living individuals who closely resemble suicide completers. Furthermore, the medically serious suicide attempters were compared to three different groups: Medically non-serious suicide attempters, non-suicidal psychiatric patients, and healthy subjects. In this manner, we were able to clearly differentiate near-lethal attempts from other categories on the spectrum of suicidality and psychopathology. Another advantage of this study is our application of the criteria of Beautrais (2003) to assess medically serious suicide attempts with confirmation by the LRS. This increased our confidence in the accuracy of the differences identified between the suicide groups in terms of severity of the suicide attempt.

The main drawback of this study is its cross-sectional design which precluded conclusions regarding cause and effect. Longitudinal, prospective studies are recommended for further research in the field. Additionally, the psychiatric diagnoses in the medically serious suicide group were made on the basis of interviews conducted days to weeks after the attempt and may not necessarily agree with diagnoses made right after the act. We also found that the instruments used to detect difficulties in communication need to be further refined. A more rigorous definition of the concept would improve understanding of the integrated role of interpersonal variables in severe suicidality. Finally, the only Axis II diagnosis included in this study was schizoid personality disorder. The results of this study, emphasizing the value of interpersonal abilities, imply that individuals with other personality disorder (e.g., borderline, avoidant) can also be at risk for MSSAs. Their role needs to be clarified in further studies.

Implications

Our findings have several important clinical and therapeutic implications. First, clinicians should be alerted to the strong risk of medically serious suicide in individuals who score high on both mental pain and difficulties in communication. This is true particularly in males, in whom self-disclosure abilities have been found to be considerably lower than in females (Dindia & Allen, 1992) and may account in large part for the gender differences in medically serious suicide attempts. Improving patient abilities of social communication should be an essential focus of treatment (by, for example, interpersonal psychotherapy (Markowitz & Weissman, 2004), above and beyond treatment of the underlying psychiatric illness. In addition, health-promotion and suicide-prevention campaigns should encourage help-seeking behavior, especially in males with depression and mental pain experience.

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