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Psychological Pain in Suicidal and Non-Suicidal Populations: Findings from the Translated German Mee-Bunney Psychological Pain Assessment Scale

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ABSTRACT

Objective: Assessing psychological pain is crucial for evaluating suicide risk. This study examined differences in psychological pain between patients with suicide attempts, those with suicidal ideation, clinical, and non-clinical controls using a newly translated German version of the *Mee-Bunney Psychological Pain Assessment Scale* (MBPPAS).

Method: A cross-sectional study was conducted with two independent samples collected at different sites (sample 1: $n = 409$; sample 2: $n = 171$), resulting in a total sample of $N = 580$ (59% female; age: $M = 34.6$, $SD = 13.2$). All analyses were conducted on the combined full sample. Participants were divided into four groups: patients with a suicide attempt (SUAT), patients with suicidal ideation but no lifetime suicide attempt (SUID), clinical control patients without suicidal ideation or attempts (CLIN), and non-clinical control participants (HLTH). MBPPAS scores were compared across groups.

Results: SUAT reported significantly higher psychological pain than SUID ($p < .001$, $d = 0.42$), CLIN ($p < .001$, $d = 1.46$), and HLTH ($p < .001$, $d = 1.04$). SUID had significantly higher MBPPAS scores than both CLIN ($p < .001$, $d = 3.01$) and HLTH ($p < .001$, $d = 2.57$). Internal consistency of the German MBPPAS was excellent ($\alpha = .93$, $\omega = .93$), and the scale showed good psychometric properties regarding convergent, incremental, and criterion validity.

Conclusions: The findings highlight significant differences in psychological pain across clinical and control groups, supporting the utility of the German MBPPAS in identifying psychological pain in patients at varying levels of suicide risk.

KEYWORDS

Assessment; psychological pain; psychometric characteristics; suicidal ideation; suicide attempt; suicide risk

INTRODUCTION

Suicide claims over 700,000 lives annually, making it the fourth leading cause of death among individuals aged 15 to 29 years (World Health Organization, 2021). Suicide attempts, which occur at rates about 20 times higher than suicide deaths, are one of the strongest predictors of future suicide (World Health Organization, 2014). These statistics emphasize the need for effective prevention.

Psychological pain, described as unbearable mental anguish and emotional torment, is a central factor in understanding suicidal ideation and behavior (DeLisle & Holden, 2009; Mee et al., 2011; Olié et al., 2010; Troister et al., 2013). Shneidman (1987, 1993) proposed that suicide is an attempt to escape intolerable psychological pain. Contemporary theoretical models of suicide consistently highlight psychological pain as a proximal contributor to suicidal ideation and behavior. The *Three-Step Theory* (3ST) posits that suicidal ideation arises when psychological pain and hopelessness co-occur and exceed feelings of connectedness (Klonsky & May, 2015). The *Integrated Motivational-Volitional* (IMV) model places psychological pain within the motivational phase, where it contributes to feelings of defeat and entrapment that may lead to suicidal ideation (O'Connor, 2011; O'Connor & Kirtley, 2018). The interpersonal theory of suicide includes psychological pain through perceived burdensomeness and thwarted belongingness (Joiner, 2005; Van Orden et al., 2010). Finally, the *Pain-Affect-Cognition-Behavior* (PACB) model conceptualizes psychological pain as a multidimensional driver of suicidal behavior via its effects on cognition and emotion regulation (Meerwijk & Weiss, 2011).

In patients with mood disorders, psychological pain has been linked to both suicidal behavior (Cáceda et al., 2014; Li et al., 2014; Mee et al., 2011; Olié et al., 2010; Yeşiloğlu et al., 2023) and suicidal ideation (Cáceda et al., 2014; Demirkol et al., 2020; Li et al., 2014). Similar associations were confirmed in other clinical (Levi et al., 2008; Pompili et al., 2008) and nonclinical samples (DeLisle & Holden, 2009; Shelef et al., 2015; Troister & Holden, 2013). Meta-analyses indicate that individuals experiencing suicidal ideation or a history of suicide attempts report higher psychological pain than those without (Ducasse et al., 2018). Inpatients at risk of suicide reported higher levels of psychological pain than those without such risk (Pompili et al., 2008). *Current* and *worst-ever* psychological pain have been linked to heightened suicide risk in psychiatric patients (Berardelli et al., 2019) and psychological pain has demonstrated unique predictive value for suicidality beyond well-established risk factors such as depression and hopelessness (Ducasse et al., 2018; Verrocchio et al., 2016).

Among instruments assessing psychological pain in relation to suicidality (Charvet et al., 2022), the *Mee-Bunney Psychological Pain Assessment Scale* (MBPPAS) stands out for its brevity and dual focus on frequency and intensity of pain (Mee et al., 2011). However, no validated German-language instrument exists to assess psychological pain in such contexts. The primary aim of this study was, therefore, to translate the MBPPAS into German and evaluate its psychometric properties across inpatient, outpatient, and non-clinical samples, in order to establish its suitability for use in German-speaking clinical and research contexts. Based on previous findings, we expected a one-dimensional factor structure (Demirkol et al., 2020), strong internal consistency, and significant positive correlations with depression, suicidal ideation, and suicidal behavior, and negative correlations with positive mental health (Brailovskaia et al., 2019; Demirkol et al., 2020; Mee et al., 2011). In addition, we explored whether the German MBPPAS could distinguish between patients with suicide attempts (SUAT), those with suicidal ideation (SUID), clinical (CLIN) and non-clinical control (HLTH) groups, to assess its sensitivity to clinically relevant differences in psychological pain. We hypothesized that SUAT would report higher psychological pain than SUID, CLIN, and HLTH.

METHODS

Participants

This study used a combined dataset ($N = 580$; 59.0% female; age $M = 34.7$, $SD = 13.3$) from two independent samples collected at two different sites. Sample 1 ($n = 409$) included inpatients and non-clinical controls; sample 2 ($n = 171$) comprised outpatients. Participants were grouped based on suicidal ideation and behavior using psychometric assessments. Inclusion criteria were ages between 18 and 65, informed consent, and willingness to participate. Exclusion criteria included insufficient German-language proficiency, severe cognitive impairments, and psychotic disorders. Participation was voluntary, and all participants provided informed consent.

Sample 1: Inpatients and Non-clinical Controls

Participants ($n = 409$; 55.3% female; age $M = 34.0$, $SD = 12.9$) were recruited between June 2020 and August 2024 at the University Hospital of Psychiatry and Psychotherapy Bern, Switzerland, as part of a project on the expansion and reevaluation of the *Suicide-Implicit Association Test* (IAT-S). The study was approved by the local Ethics Committee (ClinicalTrials.gov ID: NCT04585802; BASEC ID: 2019-01410). Participants were grouped based on the suicidality items of the structured diagnostic *Mini-International Neuropsychiatric Interview* (M.I.N.I.; Sheehan et al., 1998; German version: Ackenheil et al., 1999). Inpatients reporting a suicide attempt within the past 4 weeks and/or lifetime were categorized as SUAT ($n = 136$). Those reporting passive or active suicidal ideation and/or planning a suicide attempt within the past 4 weeks but denying any lifetime suicide attempt were categorized as SUID ($n = 129$). Inpatients without current or lifetime suicidality were categorized as CLIN ($n = 90$). Non-clinical controls, not in treatment for a mental disorder and without a history of suicidality, were categorized as HLTH ($n = 54$). Participants in the HLTH group received a compensation of 30 CHF; all others participated without compensation. $n = 38$ participants were excluded from the originally recruited sample ($n = 447$) due to incompleteness of the study session ($n = 18$) due to concentration and cognitive difficulties, missing responses in the MBPPAS ($n = 16$), and psychotic symptoms based on the M.I.N.I. ($n = 4$).

Sample 2: Outpatients

Participants ($n = 171$; 66.7% female; age $M = 36.1$, $SD = 13.8$) from the Center for Psychotherapy at the Ruhr-University Bochum, Germany, were recruited between April 2019 and October 2019. The study was approved by the local Ethics Committee (ID: 318/2016) and the data protection officer of the Ruhr-University Bochum. Participants were grouped based on their responses to the *Scale for Suicidal Ideation and Behavior* (SIBS; Teismann et al., 2017). Those reporting a suicide attempt within the past 4 weeks and/or a lifetime suicide attempt were categorized as SUAT ($n = 29$). Participants reporting suicidal ideation within the past 4 weeks but no suicide attempt at any point in their lives were categorized as SUID ($n = 55$). Participants with no history of suicidal ideation or attempts were categorized as CLIN ($n = 87$). One participant was excluded from the originally recruited sample ($n = 172$) due to missing MBPPAS responses.

Design

In sample 1, participants completed computerized psychometric assessments and were interviewed with the M.I.N.I. (Ackenheil et al., 1999; Sheehan et al., 1998). In sample 2, participants were informed that the clinic is a research facility and that all clients are required to complete questionnaires prior to their intake and throughout the treatment process as a routine assessment. Patients provided written informed consent for the use of their data for research. No compensation was provided.

Measures

The *Mee-Bunney Psychological Pain Assessment Scale* (MBPPAS; Mee et al., 2011) is a 10-item self-report questionnaire that assesses current and past 3-month psychological pain. Items range from 1 (*none/never*) to 5 (*unbearable/always*), with total sum scores from 10 to 50. Scores of 32 or higher indicate heightened psychological pain. The MBPPAS has high internal consistency ($\alpha = .83$ to $.94$) and convergent validity with measures of depression, suicidal behavior, physical pain, and hopelessness. Psychological pain measured by the MBPPAS has accounted for unique variance in suicidality beyond depression and hopelessness. Significant differences in psychological pain between patients and non-clinical controls were demonstrated.

The *Beck Depression Inventory-II* (BDI-II; Beck et al., 1996; German version: Hautzinger et al., 1994) is a 21-item self-report questionnaire assessing depressive symptom severity, with higher sum scores indicating greater depression severity. The German version demonstrates good internal consistency ($\alpha = .84$), retest reliability ($r = .75$), and validity (Kühner et al., 2007).

The *Positive Mental Health Scale* (PMH; Lukat et al., 2016) is a nine-item self-report measure of psychological well-being, with a total score derived from the sum of all item responses. It has high internal consistency ($\alpha = .93$) and correlates negatively with stress, anxiety, and depression and positively with life satisfaction and self-efficacy.

The *Scale for Suicidal Ideation and Behavior* (SIBS; Teismann et al., 2017) is a 13-item self-report scale assessing suicidal ideation, intention, impulses, and plans, with responses ranging from 1 (*not at all*) to 4 (*often*). Additionally, it includes dichotomous items (*yes/no*) for recent, i.e., within the past 4 weeks, and lifetime suicide attempts and assesses the frequency of lifetime attempts. A total score is calculated from items 1 to 10. The SIBS has excellent internal consistency ($\alpha = .92$), good test-retest reliability (ICC = $.83$), and good validity (Teismann et al., 2021).

The *Suicide Behaviors Questionnaire-Revised* (SBQ-R; Osman et al., 2001; German version: Glaesmer et al., 2018) evaluates suicidal behavior with four items. The total score is the sum of item responses. The German version has sufficient internal consistency ($\alpha = .72$) and good convergent validity.

The *Beck Scale for Suicide Ideation* (BSS; Beck & Steer, 1993) is a 21-item self-report tool evaluating the current intensity of suicidal ideation. A total score is calculated from the first 19 items. The German version demonstrates excellent internal consistency ($\alpha = 0.94$), good reliability and validity (Kliem et al., 2017).

Translation Process

Two native German-speaking psychologists independently translated the English version of the MBPPAS into German. Discrepancies between the two translations were resolved by four German-speaking specialists in suicide research and psychotherapy. A back-translation into English was conducted to ensure accuracy.

Statistical Analysis

All analyses were conducted using SPSS (version 29.0.1.0; IBM Corp, 2023) and R (version 4.4.1; R Core Team, 2021) on the combined full sample. The MBPPAS score distribution showed a significant deviation from normality, $D(580) = .069$, $p < .001$. Therefore, outlier detection was conducted using the interquartile range (IQR) method, yielding bounds of -5.50 and 54.50 . As all observed scores fell within this range, no outliers were identified, and no cases were excluded.

The sample size was determined a priori based on recommendations for confirmatory factor analysis (CFA), requiring a minimum of $n = 10$ participants per estimated parameter (Kline, 2023; Worthington & Whittaker, 2006). Given the one-factor model of the MBPPAS comprising 10 items, $N = 100$ to 200 was considered adequate for model stability. Additionally, group comparisons in psychological pain were powered for medium-sized effects ($f = .25$, $1 - \beta = .80$, $\alpha = .05$), based on previous findings (Cáceda et al., 2014, 2017; Ducasse et al., 2018). At least $n = 45$ per group was needed to detect differences. The combined total sample ($N = 580$) exceeded both thresholds, ensuring sufficient power for all analyses.

Differences between the two independent samples were examined using chi-square and Mann-Whitney U-tests. Group differences in psychological pain between SUAT, SUID, CLIN, and HLTH were analyzed using a one-way analysis of variance (ANOVA) with post hoc Dunn-Bonferroni-tests.

Based on previous validation studies and the hypothesized unidimensionality (Demirkol et al., 2020; Mee et al., 2011), a confirmatory rather than exploratory modeling approach was pursued. A CFA was conducted using the lavaan package in R (version 0.6-13; Rosseel, 2012) to test the one-factor structure. Model fit was evaluated using Maximum Likelihood Estimation (MLE), Estimated value for the Root Mean Square Error of Approximation (RMSEA; criteria: $RMSEA \leq .08$; Hu & Bentler, 1999), Standardized Root Mean Square Residuals (SRMR; Criteria $\leq .05$; Yu, 2002), Comparative Fit Index (CFI; criteria $\geq .95$; Hu & Bentler, 1999), and Tucker-Lewis Index (TLI; criteria $\geq .95$; Hu & Bentler, 1999). To improve model fit without violating unidimensionality, modification indices (MI) were examined. Residual covariances were added between item pairs when the modifications were theoretically justifiable through high MI, indicating substantial shared unexplained variance (Boomsma, 2000).

Internal consistency was evaluated using Cronbach's alpha (α), McDonald's omega (ω), corrected item-total correlations, and Cronbach's alpha if items were deleted.

Convergent validity was assessed via Spearman rank-order correlations between MBPPAS and BDI-II, PMH, SBQ-R, BSS, and SIBS scores. Multiple regression analysis tested whether MBPPAS scores explained additional variance in suicidality measured by SBQ-R, BSS, or SIBS beyond depression measured by BDI-II. To compare model fit,

Akaike Information Criterion (AIC) values were calculated for models with and without MBPPAS.

Since MBPPAS scoring requires calculating a sum score (Mee et al., 2011) and imputation techniques could bias the factor structure, records with any missing value in the MBPPAS were excluded ($n = 11$). For all other measures, mean imputation was used for missing items. All analyses were replicated using the complete-case dataset, yielding similar results in terms of direction, size, and significance of effects, suggesting that mean imputation did not substantially affect the findings.

RESULTS

Sample Characteristics

The MBPPAS sum score in the total sample ($N = 580$) was $M = 25.2$ ($SD = 9.2$), ranging from 10 to 48 (see Table 1). Between the two independent samples, participants differed significantly in psychological pain and positive mental health; participants from sample 1 reported higher levels of psychological pain ($W = 46,268$, $p < .001$, $r = .32$, 95% CI [0.23, 0.41]) and higher positive mental health ($W = 60,843$, $p < .001$, $r = 0.74$, 95% CI [0.69, 0.78]). No significant differences were observed in depressive symptom severity ($W = 36,550$, $p = .390$, $r = .05$, 95% CI [-0.06, 0.15]). In the total sample, 28.4% ($n = 165$) were categorized as SUAT, 31.7% ($n = 184$) as SUID, and 30.5% ($n = 177$) were categorized as CLIN; $n = 54$ (9.3%) non-clinical control participants (HLTH) were included.

Group Differences in Psychological Pain

There was an effect of group on psychological pain score with a large effect, $F(3, 576) = 124.67$, $p < .001$, $\eta_p^2 = .39$, $f = 0.81$. The distribution of MBPPAS scores per group can be seen in Figure 2. Post hoc tests indicated that SUAT ($M = 31.3$, $SD = 8.0$)

Table 1. Demographic and clinical characteristics.

	Sample 1 ($n = 409$)	Sample 2 ($n = 171$)	p (effect size)	Total sample ($N = 580$)
Gender, n (%)				
Females	226 (55.3)	114 (66.7)	.011 (.13) ^b	340 (58.6)
Males	174 (42.5)	57 (33.3)		231 (39.8)
Others ^a	9 (2.2)	—		9 (1.6)
Age in years, M (SD)	34.0 (12.9)	36.1 (13.8)	.095 (-0.07) ^c	34.6 (13.2)
MBPPAS, M (SD)	26.7 (9.3)	21.6 (8.0)	<.001 (-.26) ^c	25.2 (9.2)
BDI-II, M (SD)	22.4 (14.1)	21.3 (12.7)	.390 (-.04) ^c	22.1 (13.7)
PMH, M (SD)	21.1 (8.2)	10.1 (5.2)	<.001 (-.58) ^c	17.9 (9.0)
SBQ-R, M (SD)	9.5 (4.6)	—	—	—
BSS, M (SD)	7.4 (9.2)	—	—	—
SIBS, M (SD)	—	2.6 (4.6)	—	—

Note. BDI-II = Beck Depression Inventory-II; MBPPAS = Mee-Bunney Psychological Pain Assessment Scale; PMH = Positive Mental Health Scale; SBQ-R = Suicide Behaviors Questionnaire-Revised; BSS = Beck Scale for Suicide Ideation; SIBS = Scale for Suicidal Ideation and Behavior.

^aGender-variable "others" was not recorded in sample 2.

^bChi-square test was used with Cramer's V as effect size.

^cMann-Whitney U-test for unpaired samples was used with correlation coefficient r as effect size.

reported higher psychological pain than SUID ($M=28.0$, $SD=7.7$), $p < .001$, $d=0.42$, with a small-to-moderate effect. SUAT also reported higher psychological pain than CLIN ($M=20.4$, $SD=6.8$), $p < .001$, $d=1.46$ and HLTH ($M=13.1$, $SD=2.9$), $p < .001$, $d=1.04$, with large effects. SUID reported higher psychological pain than CLIN, $p < .001$, $d=3.01$ and HLTH, $p < .001$, $d=2.57$, with a large effects. CLIN reported higher psychological pain than HLTH, $p < .001$, $d=1.40$, with a large effect. In the SUAT group, 54.5% exceeded the psychological pain threshold (MBPPAS ≥ 32) compared to 33.7 % in SUID, 6.2 % in CLIN, and 0% in HLTH.

Confirmatory Factorial Analysis

The one-factor CFA model showed insufficient initial fit, $\chi^2(35) = 209.68$, $p < .001$. RMSEA = .093 exceeded recommended thresholds, whereas SRMR = .035 indicated good fit. CFI = .95, and TLI = 0.94 were acceptable. The standardized factor loadings were all above .57 (see Figure 1). Each item was a significant ($p < .001$) indicator of the factor. MI suggested that items 1 and 9 (MI = 17.25), 2 and 4 (MI = 29.90), 2 and 5 (MI = 14.97), 3 and 4 (MI = 10.37), 4 and 8 (MI = 23.29), 4 and 10 (MI = 11.87), 5 and 9 (MI = 37.46), and 7 and 10 (MI = 32.49) shared more common variance than the single latent factor explained. Adding these residual covariances improved model fit, $\chi^2(27) = 60.25$, $p < .001$, RMSEA = .046, SRMR = .021, CFI = .991, TLI = 0.985. All items remained significant indicators ($p < .001$), with standardized loadings ranging .55 to .86.

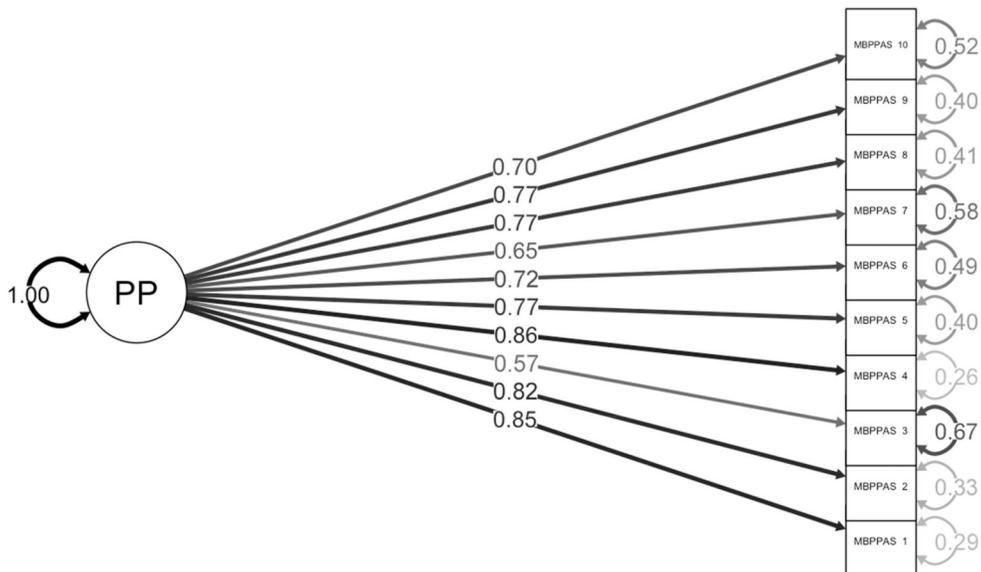


Figure 1. Structural equation model of the MBPPAS.

Note. PP = Psychological Pain; MBPPAS_1–10 = Mee-Bunney Psychological Pain Assessment Scale Items 1–10. Straight arrows represent the standardized factor loadings, curved arrows represent the variance of each item.

Table 2. Results of the item analysis.

MBPPAS-items	<i>M</i>	<i>SD</i>	<i>r</i> ₁	<i>r</i> ₂	<i>C</i> _?
1. Circle the number that best describes how often you experience severe psychological pain?	2.7	1.1	.80	.84	.91
2. Circle the number that describes your psychological pain at its worst intensity in the last 3 months:	3.3	1.3	.77	.82	.91
3. Circle the number that describes your psychological pain at its least intensity during the last 3 months	2.0	1.0	.52	.55	.93
4. Circle the number that describes your psychological pain intensity on most days during the last 3 months	2.6	1.2	.81	.86	.91
5. Circle the number that describes your psychological pain at this moment	2.1	1.1	.73	.77	.92
6. How much more psychological pain do you think you can tolerate before it becomes unbearable?	2.6	1.2	.67	.70	.92
7. Do you think about doing anything to make the psychological pain stop, regardless of the consequences or risks?	2.1	1.2	.63	.64	.92
8. How often is your psychological pain worse than the worst physical pain you have ever experienced?	2.5	1.2	.74	.76	.92
9. Compared to the worst physical pain you can imagine, how would you rate your psychological pain at the present time?	2.2	1.1	.75	.77	.92
10. Do you ever feel that the only way to make the psychological pain stop is to die?	2.1	1.2	.69	.70	.92

Note. *M* = item mean; *SD* = item standard deviation; *r*₁ = corrected item-scale correlation; *r*₂ = standardized factor load; *C*_? = Cronbach's alpha if item deleted; Total Cronbach's alpha: $\alpha = .92$ and McDonalds omega: $\omega = .94$. *N* = 479. Item analysis was made based on the combined sample 1 and 2. For the reader's convenience, the English version of the MBPPAS questionnaire has been printed here. The German translation used in the study can be found in the appendix.

Reliability

The German version of the MBPPAS demonstrated high internal consistency ($\alpha = .93$, $\omega = .93$) (see Table 2) (Bühner, 2011; Nunnally, 1978). Inter-item correlations ranged from $r = .35$ to $r = .76$, $p < .001$. Corrected item-scale correlations were high, $r = .54$ (item 3) to $r = .82$ (item 4) (Bühner, 2011). Deleting any item did not improve Cronbach's alphas, $\alpha = .91$ to $.93$, indicating all items fit the scale (Schecker, 2014).

Convergent Validity

MBPPAS scores correlated strongly with depression (BDI-II), positive mental health (PMH), and measures of suicidality (SBQ-R, BSS, SIBS) (see Table 3). Higher psychological pain was significantly associated with higher suicidality across samples. Item-level correlations showed that MBPPAS item 10 correlated most strongly with SBQ-R, $r(407) = .75$, $p < .001$, BSS, $r(407) = .70$, $p < .001$ and SIBS, $r(169) = .68$, $p < .001$. Item 7 also correlated with SBQ-R, $r(407) = .60$, $p < .001$, BSS, $r(407) = .57$, $p < .001$ and SIBS, $r(169) = .40$, $p < .001$. The MBPPAS score shared 51.7% variance with the BDI-II score, 11.2% with the PMH score, 43.7% with the SBQ-R score, 42.1% with the BSS score, and 20.7% with the SIBS score (Figure 2).

Incremental Validity

In sample 1, depression (BDI-II) significantly predicted suicidality, explaining 47% of variance in SBQ-R scores ($R^2_{\text{adjusted}} = .47$, $p < .001$) and 49% in BSS scores ($R^2_{\text{adjusted}} = .49$, $p < .001$) (see Table 4). Adding psychological pain (MBPPAS) to the regression

Table 3. Convergent validity of MBPPAS with established rating scales using Spearman rank-order correlation.

	MBPPAS	BDI-II	PMH
BDI-II	.72**		
PMH	-.34**	-.61**	
SBQ-R	.66** ^a	.68** ^a	-.61** ^a
BSS	.65** ^a	.72** ^a	-.65** ^a
SIBS	.46** ^b	.64** ^b	-.46** ^b

Note. BDI-II = Beck Depression Inventory-II; MBPPAS = Mee-Bunney Psychological Pain Assessment Scale; PMH = Positive Mental Health Scale; SBQ-R = Suicide Behaviors Questionnaire-Revised; BSS = Beck Scale for Suicide Ideation; SIBS = Scale for Suicidal Ideation and Behavior. Spearman rank-order correlation with two-tailed significance test. *N* = 479. ***p* < .001.

^aSample 1, *n* = 409.

^bSample 2, *n* = 171.

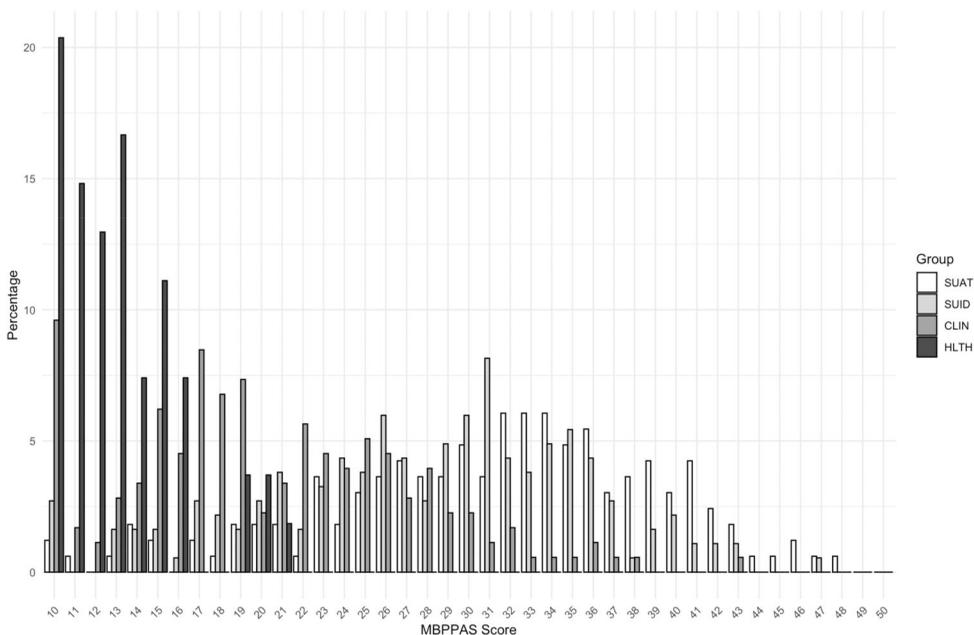


Figure 2. Distribution of MBPPAS scores per group.

Note. SUAT = Lifetime suicide attempters (*n* = 165); SUID = Suicide ideators without lifetime suicide attempt (*n* = 184); CLIN = Clinical control group without suicidal ideation and without lifetime suicide attempt (*n* = 177); HLTH = non-clinical control participants (*n* = 54). MBPPAS = Mee-Bunney Psychological Pain Assessment.

model increased the explained variance in SBQ-R scores ($R^2_{\text{adjusted}} = .50$, $\Delta R^2_{\text{corr}} = .03$, $p < .001$) and modestly in BSS scores ($R^2_{\text{adjusted}} = .50$, $\Delta R^2_{\text{corr}} = .01$, $p = .006$). In sample 2, BDI-II explained 32% of variance in SIBS scores ($R^2_{\text{adjusted}} = .32$, $p < .001$). Adding the MBPPAS improved the explained variance to 34% ($R^2_{\text{adjusted}} = .34$, $\Delta R^2_{\text{corr}} = .02$, $p = .015$). Model comparisons using AIC supported these findings. For the SBQ-R, the model including the MBPPAS (AIC = 2127.38) showed better fit than the BDI-II-only model (AIC = 2153.45; $\Delta\text{AIC} = 26.08$). For the BSS, the model including the MBPPAS (AIC = 2699.57) also showed improved fit compared to the BDI-II-only model (AIC = 2705.12; $\Delta\text{AIC} = 5.55$), though less pronounced than for the SBQ-R.

Table 4. Stepwise regression with BDI-II and MBPPAS as independent variables and SBQ-R, BSS or SIBS as dependent variables.

Model	Variable	<i>B</i>	<i>SE</i>	β	<i>T</i>	<i>p</i>	$R^2_{adj.}$	$\Delta R^2_{adj.}$	<i>F</i>	<i>p</i> (model)	<i>p</i> (incremental)
SBQ-R ^a	Constant	4.55	.31		14.63	<.001			357.36	<.001	
	BDI-II	.22	.01	.68	18.90	<.001	.50				
2	Constant	2.26	.52		4.32	<.001	.50	.03	205.33	<.001	<.001
	BDI-II	.14	.02	.43	7.45	<.001					
	MBPPAS	.15	.03	.31	5.37	<.001					
BSS ^a	Constant	-2.86	.61		-4.68	<.001			390.61	<.001	
	BDI-II	.46	.02	.70	19.76	<.001	.49				
2	Constant	-5.22	1.05		-4.97	<.001	.50	.01	202.23	<.001	.006
	BDI-II	.37	.04	.57	9.77	<.001					
	MBPPAS	.16	.06	.16	2.75	.006					
SIBS ^b	Constant	-1.79	.57		-3.15	.002			81.63	<.001	
	BDI-II	.21	.02	.57	9.03	<.001	.32				
2	Constant	-3.30	.83		-3.97	<.001	.34	.02	45.04	<.001	.015
	BDI-II	.17	.03	.46	6.02	<.001					
	MBPPAS	.11	.04	.19	2.45	.015					

Note. BDI-II = Beck Depression Inventory-II; MBPPAS = Mee-Bunney Psychological Pain Assessment Scale; BSS = Beck Scale for Suicide Ideation; SBQ-R = Suicide Behaviors Questionnaire-Revised; SIBS = Scale for Suicidal Ideation and Behavior. In Model 1, a regression model with BDI-II as an independent variable and SBQ-R (Sample 1) and BSS (Sample 1) or SIBS (Sample 2) as dependent variable were applied. In Model 2, MBPPAS was entered in the regression model together with BDI-II.

^aSample 1: *n* = 409.

^bSample 2: *n* = 171.

For the SIBS, the model including the MBPPAS also showed improved fit (AIC = 940.81) over the BDI-II-only model (AIC = 944.83; Δ AIC = 4.02).

DISCUSSION

This study investigated the psychometric properties of the German MBPPAS in clinical inpatient, outpatient, and non-clinical samples. It is the first German-language instrument to assess psychological pain in the context of suicidality, supporting suicide risk assessment in clinical research and practice.

The original English MBPPAS and its Turkish version support a one-dimensional structure (Demirkol et al., 2020; Mee et al., 2011). Our initial one-dimensional model showed insufficient fit, which improved substantially after introducing residual correlations between selected item pairs. Items 5 and 9 inquire about current psychological pain intensity, with item 9 explicitly comparing it to worst-ever physical pain. These items likely share variance due to the conceptual and neural overlap between physical and psychological pain (Ehnvall et al., 2009; Eisenberger, 2015; Eisenberger et al., 2003; Mee et al., 2006; Meerwijk et al., 2013; Rizvi et al., 2017). Shared variance between items 7 and 10 may reflect their focus on behavior to end psychological pain, with item 10 explicitly and item 7 referencing risk of death. These items showed the highest correlations with measures of suicidal ideation and behavior, aligning with Shneidman's (1987) theory.

The German MBPPAS demonstrated excellent reliability, comparable to the original version (Mee et al., 2011). Convergent validity was supported by strong positive associations with depression, suicidal ideation and behavior and moderate negative associations with positive mental health, similar to previous findings (Demirkol et al., 2020).

Stepwise regression indicated that psychological pain explained variance in suicidal outcomes beyond depression, emphasizing its unique relevance beyond other common risk factors (DeLisle & Holden, 2009; Mee et al., 2011; Troister & Holden, 2012). This suggests that psychological pain is not merely a symptom of depression (Richard-Devantoy et al., 2021). Although prior research proposed that psychological pain mediates the relationship between depression and suicidal ideation (Campos & Holden, 2015), we did not test such models in the current study. The strong collinearity between psychological pain and depression in our data may reflect conceptual overlap or shared variance; however, mediation pathways need to be clarified in future longitudinal studies.

Criterion validity was supported by robust differences in psychological pain across all four subgroups. Psychological pain increased with the severity of suicidal ideation and behavior, consistent with previous findings (Cáceda et al., 2014; Demirkol et al., 2020; Levi et al., 2008; Li et al., 2014; Mee et al., 2011; Olié et al., 2010; Pompili et al., 2008). While most studies have primarily focused on comparing suicidal and non-suicidal individuals (Ducasse et al., 2018), fewer have directly differentiated psychological pain levels between suicide ideators and attempters, and results across studies have been mixed (Cáceda et al., 2014, 2017; Ducasse et al., 2018). Our findings showed a consistent gradation across all four subgroups, including differentiation between ideation and behavior. This pattern supports theoretical models, such as the 3ST, IMV and PACB model or the interpersonal theory of suicide, which posit that while many individuals may experience suicidal ideation, only a subset transition to action, and this shift is often driven by acute, unbearable psychological distress (Joiner, 2005; Klonsky & May, 2015; Klonsky et al., 2016; Meerwijk & Weiss, 2011; O'Connor & Kirtley, 2018; Van Orden et al., 2010).

Still, like other risk factors associated with suicidality, such as suicidal ideation, hopelessness, loneliness, or burdensomeness, psychological pain fluctuates considerably over time (Bryan et al., 2020; Hallensleben et al., 2018, 2019; Kleiman et al., 2017; Witte et al., 2005), and our cross-sectional findings do not capture these temporal dynamics. Additionally, meta-analyses show that single risk factors, including psychological pain, are only modestly predictive of suicidal outcomes when considered in isolation (Franklin et al., 2017). To improve the understanding of the role of psychological pain in the development and escalation of suicidal states, future research should employ longitudinal designs to track real-time fluctuations and interactions with other proximal risk markers.

The inclusion of a clinically relevant sample in the investigation enhances generalizability to treatment-seeking populations. A strength of this study is the comparison across four different groups (SUAT, SUID, CLIN, HLTH), which has rarely been done but is important for understanding the role of psychological pain in the ideation-to-action transition. However, the clinical nature of the sample, i.e., primarily treatment-seeking patients, limits generalizability to community or non-treatment-seeking populations. Additionally, gender imbalance may further constrain generalizability. Future studies should include community-based and gender-balanced samples to enhance external validity.

Another limitation concerns the exclusion of participants with any missing MBPPAS item to prevent biasing the factor structure with imputation techniques. For clinical

application, future investigations should explore patterns and implications of non-response. This may provide important insights, especially in high-risk assessment.

Additionally, participants across the two samples were grouped using different tools (M.I.N.I. and SSEV), which could have introduced variability and limited comparability. Previous studies showed that item wording and mode of assessment of suicidal ideation and behavior, e.g., surveys vs. interviews, influence prevalence estimates (Ammerman et al., 2021; Deming et al., 2021), which could impact groupings. Future studies should use consistent measures and compare methods to enhance robustness and generalizability.

CONCLUSION

Our findings suggest that the German MBPPAS is a psychometrically reliable instrument for assessing psychological pain in German-speaking settings. While the initial one-factor model showed insufficient fit, it improved after allowing residual correlations. Its reliability, validity, and ability to distinguish between clinically relevant subgroups highlight its utility in suicide risk assessment. The availability of a validated instrument to assess psychological pain in German-speaking areas can facilitate further investigation on the role of psychological pain in suicidality.

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USE OF GENERATIVE AI TOOLS

The authors utilized the language model ChatGPT (OpenAI) during manuscript preparation to enhance clarity, improve flow, and condense specific sections. All content generated with the assistance of this tool was carefully reviewed and edited by the authors, who accept full responsibility for the final version of the manuscript.

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DATA AVAILABILITY STATEMENT

The dataset underpinning the findings of this study will be made publicly available on Mendeley upon manuscript acceptance. Relevant DOIs and accession details will be shared to facilitate transparency and further investigation.

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