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# Do undiagnosed suicide decedents have symptoms of a mental disorder?

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## Abstract

**Background—**Psychological autopsy studies consistently report that the rate of *detected* mental disorders among suicide decedents is below 100%. This implies three possibilities: 1) a subset of suicide decedents did not have a mental disorder at the time of death; 2) all suicide decedents suffered from a mental disorder, however, some were undetected due to methodological limitations; and/or 3) suicide decedents with an undetected mental disorder displayed significant and perhaps subclinical features of a mental disorder.

**Aim—**In this manuscript, we examined these possibilities by evaluating the differences in symptoms and stressors between suicide decedents who were undiagnosed and those diagnosed with a mental disorder at the time of death.

**Method—**We reviewed 130 case studies of community-based suicide decedents originally described in Robins' (1981) psychological autopsy study.

**Results—**Without exception, suicide decedents in Robins' sample suffered either from a clearly diagnosable mental disorder or displayed features indicative of a significant, even if subclinical, presentation of a mental disorder. Undiagnosed and diagnosed suicide decedents did not significantly differ with regards to demographics, violence of suicide method, suicide attempt history, the number and intensity of stressful life events preceding death, and whether their death was a murder-suicide.

**Conclusions;—**Although clearly not all who suffer from mental disorders will die by suicide, these findings imply that all who die by suicide appear to exhibit, at minimum, subclinical psychiatric symptoms with the great majority showing prominent clinical symptoms. We conclude with clinical implications and recommendations for future study.

### Keywords

suicide decedents; psychological autopsy; suicide; mental disorder symptoms; stressful life events; stressors; psychiatric illness

In psychological autopsy studies of those who die by suicide, a consensus finding is that the rate of *detected* mental disorder among decedents is less than 100% (Cavanagh, Carson, Sharpe, & Lawrie, 2003; Milner, Sveticic, & De Leo, 2013). This repeatedly replicated

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result suggests at least three possibilities: 1) there is a subset of people who die by suicide who, at the time of their death, did not have a mental disorder; 2) all suicide decedents suffered from a mental disorder, but due to the inherent methodological limitations of psychological autopsy, some mental disorders went undetected; and/or 3) among those who die by suicide and whose mental disorder went undetected by psychological autopsy, all displayed features indicative of a significant even if subclinical presentation of a mental disorder.

Arbitrating between these possibilities matters, for several reasons. First, there are those who contend that suicide is a fully rational choice (Hewitt, 2013), including but not limited to those who advocate for physician-assisted suicide, and there are others who disagree; a finding that not all suicide decedents experienced a mental disorder or the symptoms thereof provides solace to one perspective but not the other. Second, efforts to promote suicide prevention via access to high-quality mental health care may be undermined, at least to some extent, by the suggestion that not all suicide decedents experienced a mental disorder or the symptoms thereof in the days and weeks before their deaths; incidentally, it is essential that those with a clear mental disorder seek treatment and it is worrying how relatively few do so. Third, to argue that those who died by suicide and who really did have a mental disorder/symptoms did not have one, may ironically encourage the stigmatization of mental disorders, by intimating that death by suicide is acceptable whereas having a mental disorder/symptoms is less so.

How to arbitrate? If there is a subset among suicide decedents who truly did not have a mental disorder/symptoms, this should be apparent in at least two ways. First, there should be at least a few suicide decedents who, despite careful questioning of their relatives, friends, etc., and careful scrutiny of any available records, were determined not to have met diagnostic threshold for any condition. Second, and even more importantly, this "undiagnosed" group, given that they were putatively free of mental disorder, should display many clinically relevant differences from a diagnosed group.

If, by contrast, many or all in an "undiagnosed" group in reality had some form of mental disorder or prominent symptoms thereof, albeit undetectable by psychological autopsy, then three conditions should hold. First, this "undiagnosed" group's relatives and friends may be more likely than the relatives and friends of the diagnosed group to refuse to be interviewed by psychological autopsy researchers. This refusal and the resulting lack of information couldrepresent one reason that a person who had a true mental disorder/symptoms nevertheless went undetected as such by researchers. On this point, another reason for a lack of information may be extreme social isolation of the decedent before death; however, a careful and comprehensive methodological approach (e.g., reaching out to clergy, physicians, other health care professionals) can mitigate this potential problem very substantially. Second, there may be individuals who researchers initially designate as "undiagnosed" who, upon receipt of further information from say a distant relative or hard-to-reach friend, researchers re-assign to a diagnosed group based on the new information, and there may be no or very few "vice-versa" scenarios in which originally diagnosed decedents' status is changed to "undiagnosed" based on subsequent information. Third, even despite this relative lack of information, we hypothesize that there will be substantial

evidence that those classified as “undiagnosed” were plainly distressed and/or impaired before their deaths, and that they resembled the diagnosed group regarding many clinically relevant features.

It is a very obvious point that suicide decedents are diverse, and it is also the case that the vast majority of those with mental disorders do not die by suicide (Nordentoft, Mortensen, & Pedersen, 2011). It is not difficult to nevertheless simultaneously hold two possibilities in one’s mind; namely, that mental disorders are a prodigious contributory cause to death by suicide, and, that mental disorders do not constitute a full explanation of suicide. Regarding the latter point, the fact is that most with mental disorders do not attempt much less die by suicide. Moreover, the diversity and nuance in the stories of the individual lives and deaths of suicide decedents are considerable.

An evaluation of these issues is possible using psychological autopsy materials originally described by Robins (1981). We benefited from the original materials themselves, as well as from some of the quantification of them provided by Robins. In addition, we pored back through the materials and further quantified them along numerous dimensions, many of which were relevant to the present effort. Important in light of this paper’s focus, approximately 20% of suicide decedents in the study were originally assigned by Robins to categories related to a lack of clear psychiatric diagnosis.

## Method

Case studies by Robins (1981) of suicide decedents in St. Louis, Missouri were examined. Via structured interviews with family members, friends and close associates of the decedents (e.g., attending physician; Robins, 1981), information pertaining to the decedents’ lives was obtained. Specifically, the interviews were conducted by six physicians during the first few months following the suicide. In addition, the original Robins (1981) team assessed medical and psychiatric records of decedents, obtained information pertaining to family and social experiences, and further additional details about the decedent’s life and death, including stressors precipitating death.

### Sample Characteristics

The Robins (1981) sample utilized in the present study included 134 decedents. For the current study, cases with any ambiguity regarding cause of death ($n = 4$) were removed, resulting in a total sample of 130 suicide decedents. The percentage of those originally assigned to the “Undiagnosed” group by Robins ($n = 25$) was 19.2%, a substantial subset. Additionally, there were 5 others who were assigned to a group labeled “Terminal Cancer,” and 3 who were assigned to a group labeled “No Diagnosis.” This latter “No Diagnosis” group differs from the “Undiagnosed” group in that in the “Undiagnosed” group, the Robins team strongly suspected mental disorder, whereas in the “No Diagnosis” group, the team believed there was too little information even to suspect mental disorder.

The majority of the 130 decedents included in the current effort were male (77.7%) and average age at death was 54.1 ($SD = 14.44$). The ethnic/racial composition of the final sample was 95.4% White/Caucasian and 4.6% African-American. Like most U.S. samples

of suicide decedents (Nock et al., 2008), this sample was largely male, largely Caucasian, and mostly 50 years old or older, suggestive of its representativeness of U.S. decedents. Overall, 78.5% of the decedents died on their first attempt, 13.8% on their second attempt, and 7.7% died after making multiple previous nonfatal suicide attempts.

The Robins team focused on primary diagnosis; diagnostic breakdown was as follows: 46.2% affective disorder, 24.6% alcohol use disorder, 3.8% organic brain syndrome, 2.3% schizophrenia, 1.5% drug dependence, 15.4% “undiagnosed” and 2.3% “no diagnosis.” 3.8% were diagnosed with terminal cancer. Robins (1981) used a structured clinical interview to assess for the following psychiatric conditions present in decedents: affective disorder, alcoholism, antisocial personality disorder, anxiety neurosis (cf. DSM-5 generalized anxiety disorder), drug-dependence, hysteria (cf. post-DSM-II cluster B personality disorders), mental retardation, obsessive compulsive neurosis, organic brain syndrome, phobic neurosis (cf. various avoidant syndromes in DSM-5), and schizophrenia. For detailed information regarding diagnostic criteria used, see Robins (1981). On the one hand these are of course dated criteria. On the other, these criteria formed the basis for the revolution represented by the transition from to DSM-II to DSM-III, a revolution of which the Robins project team members were key architects. There are relatively few differences between the essential definitions in DSM-III as compared to those in its successors, including DSM-5.

In context of the diagnostic breakdown, it is noteworthy that the designation of mental disorder via psychological autopsy has been criticized (e.g., Hjelmeland, Dieserud, Dyregrov, Knizek, & Leenaars, 2012). Given the obvious nature of these points, psychological autopsy researchers are not only aware of them, but routinely guard against them. As will be emphasized, Robins in particular guarded against threats to the validity of diagnostic data by adopting a highly conservative approach. Furthermore, to imagine that such issues thwart robust research is to suggest that research on others who cannot speak for themselves is not possible; thriving research programs on the psychology of infants and non-human animals, to take but two examples, demonstrate that this is of course not the case. With regard to the Robins effort, six psychiatrists were involved and came to consensus over assignment of diagnoses; some of these psychiatrists were widely influential leaders in 20$^{th}$ century mental health research with continuing impact and resonance into the 21$^{st}$ century (e.g., Tucker, Michaels, Rogers, Wingate, & Joiner, 2016).

## Measures

We quantified parameters such as negative life events and the violence of suicide methods. Regarding the latter, in line with previous research (Soloff, Lynch, Kelly, Malone, & Mann, 2000), suicide methods of overdose and poisoning via carbon monoxide were classified as nonviolent whereas all other methods (i.e., hanging, firearm, jumping, train/automobile, stabbing, drowning, and cutting of wrists) were classified as violent. Regarding negative life events, we utilized a combined measure which included the 12-item List of Threatening Experiences (LTE; Brugha, Bebbington, Tennant, & Hurry, 1985) and the Holmes and Rahe (1967) Social Readjustment Rating Scale (SRRS). The LTE assesses for the presence or absence of major significant life events (SLEs; e.g., major physical injury, death of loved

ones) in a dichotomous fashion. Research supports the test-retest reliability of the LTE ($\kappa$ = 0.61–0.87). Additionally, high LTE scores have been correlated with mental illness (Motrico et al., 2013). To achieve our composite measure, we applied weighted scores of stressfulness from items on the SRRS to equivalent LTE items, as the SRRS utilizes a 100-point scale wherein individual weights are assigned to different life events based on the stress severity they generate (Holmes & Rahe, 1967). Research supports the SRRS as a valid tool for measurement of stress-related outcomes (Scully, Tosi, & Banning, 2000).

In the present study, we created a composite measure which included LTE items, stressor ratings from the SRRS, but also items not included in the LTE or SRRS evident in decedents' case history that, according to empirical research, were identified as stress-related (i.e., family problems, hospitalizations, military service, miscarriage, relocation, separation from family, self-initiated employment termination, threat to well-being, and work/school conflict; Heikkinen, Aro, & Lönnqvist, 1994; Joukamaa, 1997). The coding scheme utilized in the present study was highly correlated with the original ($r$ = .71). Two of the current authors independently recorded SLEs from each case history and scored each event based on the composite measure. Any noted discrepancies between identifications and ratings of events were discussed with the first author until agreement was met. Interrater reliability was found to be acceptable ($\kappa$ =.69). Three stress-related outcome variables were calculated: total SLE number (number of stressors overall), total SLE score (summed stressfulness score of all stressors), and final SLE score (stressor score of SLE preceding death). To calculate the final SLE score, we reviewed the case records and identified the last reported stressor prior to death in which a clear time frame between stressor and suicide could be computed. The SRRS rating scale was then applied to the identified stressor. Most subjects (88.0%) experienced their final SLE during the 6 months preceding death by suicide.

## Results

### Receipt of Further Information Resulting in Re-Assignment from "Undiagnosed" to Diagnosed

Using stringent and very conservative criteria, the researchers in the Robins project originally designated as "undiagnosed" 25 decedents. Consistent with the stringency of the approach, these 25 went undiagnosed despite the fact that Robins and his staff suspected mental disorder in them based on information in hand – it will become clear as to why they suspected this – but nevertheless deemed this information insufficient for a formal diagnosis. Robins (1981) wrote regarding the "undiagnosed" category that:

> The use of the category is not as a residual one for subjects who do not fit into given diagnostic niches. My concept of 'undiagnosed' is that it specifies an illness that is suspected but whose symptoms are minimal… It can also indicate the suspected presence of more than one illness in which the symptoms are either insufficient or atypical (p. 361).

If, like the Robins team, psychological autopsy researchers take a careful and conservative stance toward diagnosis, then as more information becomes available to the team, that

information should push some cases from just below diagnostic threshold to above it. In fact, this was the pattern in the Robins project, as new information received later in the effort on 5 of the 25 (20% of the originally "undiagnosed") allowed definitive diagnosis. Moreover, a highly conservative posture toward diagnosis would render it unlikely that a decedent's status would be re-classified from diagnosed to "undiagnosed," because only the definitively diagnosable are included in the diagnosed group in the first place. In fact, Robins reported none of the latter kind of cases.

### Refusal of Decedents' Family and Friends to Participate in Research

Were the "undiagnosed" group's relatives and friends more likely than the relatives and friends of the diagnosed group to refuse to be interviewed by psychological autopsy researchers, perhaps resulting in lack of information including diagnostic information? Of the 20 decedents in the "undiagnosed" group, in 13 cases (65%) there was refusal of a primary informant. The rate of refusal in the rest of the sample was 6.3%, over ten times less frequent, a highly significant difference (chi-square [$df = 1$] = 44.70, $p < .01$).

### Mental Disorder, Symptoms, and Other Features in "Undiagnosed"/"No Diagnosis"/ Terminal Cancer Groups Vs. Diagnosed Decedents

Even despite this relative lack of information, there was evidence that those classified as "undiagnosed" and "no diagnosis" were distressed and/or impaired before their deaths, and that they resembled the diagnosed group regarding many features related to mental disorders, as well as regarding demographics. Specifically, the combined "undiagnosed"/"no diagnosis" group was compared to the diagnosed decedents on the following parameters: age at death, number of previous suicide attempts, and various dimensions related to life stress (e.g., cumulative amount of life stress). A Multivariate Analysis of Variance (MANOVA) was conducted, and returned no differences between the two groups ($F[5, 119] = 0.92$, $p = .47$). Consistent with this non-significant result, further support comes from the univariate findings, which were also uniformly non-significant (all $p$'s > .17; see results, including means/proportions in each group, in Table 1). We also completed $\chi^2$ difference tests to compare the "undiagnosed/no diagnosis" group to the diagnosed group on the following parameters: gender, violence of suicide method, and whether the decedent perpetrated a murder before suicide. No significant differences were observed between groups on gender and violence of suicide method. However, a significant difference was observed between the groups on whether the decedent perpetrated a murder before suicide. Specifically, the undiagnosed group was significantly *more* likely to have perpetrated a murder before suicide in comparison to the diagnosed group (see Table 1).

It is noteworthy that adding in the "no diagnosis" group ($n = 3$) to the "undiagnosed" group ($n = 20$) should amplify differences between a diagnosed group and a combined "undiagnosed"/"no diagnosis" group, because by definition relatively little information was available on the "no diagnosis" group and abundant data were available on the diagnosed group. In fact, we did utilize a combined "undiagnosed"/"no diagnosis" group in our analysis, and yet results were still non-significant ($p = .47$). Somewhat similarly, the addition of the terminal cancer group to the "undiagnosed"/"no diagnosis" group should heighten differences between a combined terminal cancer/"undiagnosed"/"no diagnosis" group,

because on the “rational suicide” view, the cancer patients had no mental disorder whereas the diagnosed group did. However, a Multivariate Analysis of Variance (MANOVA) was conducted, and returned no differences between the two groups ($F$[5, 124] = 1.27, $p$ = .28). Consistent with this non-significant result, further support comes from the univariate findings, which were also uniformly non-significant (all $p$’s > .14; see results, including means/proportions in each group, in Table 2). In some cases, in fact, adding in the terminal cancer cases to the “undiagnosed”/“no diagnosis” group made the latter more not less similar to the diagnosed decedents. As was done previously, we also conducted $\chi^2$ difference tests to compare the “undiagnosed/no diagnosis/cancer” group to the diagnosed group on the following parameters: gender, violence of suicide method, and whether the decedent perpetrated a murder before suicide. Again, no significant differences were observed between groups on gender and violence of suicide method. However, the undiagnosed group was again significantly *more* likely to be categorized as “murder-suicide” than the diagnosed group (see Table 2). Unsurprisingly, comparison between diagnosed and terminal cancer groups and between “undiagnosed” and terminal cancer group yielded similar non-significant results (e.g., both multivariate $p$’s ≥ .69; all $\chi^2$ $p$’s > .41).

In light of some workers’ calls for qualitative approaches in suicide research (e.g., Hjelmeland et al., 2012) – a debatable notion (e.g., Joiner, 2011) – it may be of interest to add some narrative detail to these quantitative results. Of the 20 “undiagnosed” decedents, one individual stood out for having the fewest signs and symptoms of mental disorder. This individual had two characteristics: 1) due to refusal, virtually no information about him was forthcoming from relatives or friends; and 2) he had lost a significant and noticeable amount of weight in the weeks before his suicide. This latter sign is not only a classic feature of serious mood pathology (American Psychiatric Association, 2013), it was the single most frequent sign of the many dozens tabulated by Robins in the suicide decedent sample as a whole. Of the 19 other “undiagnosed” decedents, all had features indicative of psychopathology of either a moderate or severe degree. An exemplar case of a decedent with moderate severity had the following features: morose, tense, irritable, anger outbursts, boredom, restless, talked about suicide for years before death. An exemplar case of a decedent with extreme severity displayed the following signs: nervous, moody, anxious, irritable, severe insomnia, frequently talked about suicide, excessive intake of alcohol on a daily basis, numerous arrests, assaulted his wife and broke her nose, in a separate incident killed his wife in the hours before his suicide. That even this latter group was designated as “undiagnosed” by the Robins team is further evidence of their conservative approach. Similarly, descriptors of decedents from the “no diagnosis” and terminal cancer groups included: depressed, despondent, restless, nervous, apprehensive, insomnia, had spoken of suicide well before terminal cancer diagnosis, lacking vitality, suggested murder-suicide to wife before his suicide, significant family history of suicide, gloomy, sat for long periods looking at the floor in silence, joyless, loss of interest, irritable, remorseful, socially withdrawn. In every case in the terminal cancer and “no diagnosis” group, at least one of these terms applied, and in most, more than one applied.

## Discussion

The fact that there are “undiagnosed” decedents in a series of suicides like that described by Robins (1981) may be taken to mean that it is not rare for those free of mental disorders to kill themselves. We suggest otherwise; specifically, though “undiagnosed,” the Robins decedents were, to a person, distressed and/or impaired. One could take their eventual suicides as obvious proof of that fact, and in our opinion, one should. We acknowledge, however, the tautological nature of doing so, and thus focus instead on the current findings, all indicative of mental disorder symptomatology in all of the suicide decedents in the Robins project. Specifically, without exception, suicide decedents in Robins’ sample suffered either from a mental disorder of such clarity that diagnosis was possible despite the limitations of psychological autopsy and despite the Robins team’s highly stringent criteria, or they displayed features indicative of a significant even if subclinical presentation of a mental disorder.

In discourse on this topic, a common refrain heard at conferences and on relevant listservs goes along the lines of “if you had experienced x, y, and z, wouldn’t you consider taking your own life, wouldn’t that be rational?” X, y, and z can represent many things, but the two most common referents are terminal illness and extremely severe abuse including but not limited to extreme prisoner abuse. Posers of this question often fail to appreciate two essential points, one regarding the considerable difference between pondering suicide and enacting it, the other having to do with the fact that the majority of those who *do* experience x, y, and/or z, *do not* attempt much less die by suicide, a fact that applies in even the most harrowing circumstances imaginable (e.g., the Holocaust). Among those who *do* experience x, y, and/or z, what differentiates those who die by suicide from those who do not? A leading answer to this question is mental disorders.

The present study provides support for the view that underlying psychopathology of some degree is present in 100% of suicide decedents first described by Robins’ (1981), even those not categorized into a diagnostic category based on Robins’ (1981) conservative approach. Specifically, no significant differences were observed between those decedents who did not receive a psychiatric diagnosis and those who did on variables associated with severe psychopathology, including number of previous suicide attempts, violence of suicide method employed, and total number and intensity of precipitating life stressors. Regarding murder-suicide, the undiagnosed participants were *more* likely to perpetrate a murder before suicide, quite consistent with our view that the undiagnosed participants had underlying psychopathology. Additionally, analysis of those decedents who failed to meet criteria for a mental disorder revealed increased presence of methodological limitations inherent to psychological autopsies, including the lack of a primary informant – in fact, researchers advise against the use of psychological autopsies in such cases (Foster, 2011) and that Robins nonetheless included such cases is yet further evidence of his team’s conservative approach to the question of diagnosis. Despite these findings, a number of limitations are worth noting. First, the present study relied on the quantification of previously published data as the present authors did not have access to the raw data (although it should be noted that Robins’ [1981] published description of each case is rich, careful, and detailed [though for some cases, as noted, a lack of informants prevented detail]). Additionally, the present

study utilized a relatively small sample, important to emphasize given that we expected and found non-significant effects.

The results of the present study highlight the importance of adhering to specified protocol when conducting psychological autopsy studies. Specifically, caution is warranted with regard to the number and nature of informants interviewed when completing research of this nature. In our view, it may be best if suicide decedents are included in psychological autopsy research studies only if researchers are able to obtain information from multiple informants, with at least one serving as a "primary informant," indicating that he or she had sufficient knowledge of the decedent's life course and interacted with the decedent on a regular basis in the weeks and months preceding death. The utilization of such an approach will increase the likelihood that informants are capable of providing sufficient data to accurately characterize suicide decedents' life circumstances and symptoms prior to death.

Our view is that mental disorders serve as a necessary but not sufficient causal factor in death by suicide, consistent with the idea that all suicides involve some form of mental disorders (making mental disorders causally necessary) but that not all mental disorders involve suicide, far from it (making mental disorders causally insufficient). This view is relevant to at least three important topics. First, regarding physician-assisted suicide as a rational choice, it is plausible that in can be, but it is also the case that originally careful and rigorous criteria for physician-assisted suicide can erode to include categories like "mental disorder" and "weariness of life" (Fischer et al., 2008; Joiner, 2014). Almost half of euthanasia requests in those with psychiatric disorders in Belgium were approved on purely psychiatric grounds, and a clear majority of the requests were carried out (Thienpont et al., 2015). At the time of this writing, there is a proposed law in the Netherlands that would allow physician-assisted suicide for those who are in general healthy but who feel they have "completed life." Furthermore, those requesting physician-assisted suicide resemble suicide decedents in important ways (e.g., there is evidence that what differentiates terminally ill patients who seek physician-assisted suicide from those who do not are subclinical manifestations of mood pathology [Ganzini et al., 2003]).

Second, regarding some bereaved family members' sense of responsibility and guilt for their loved ones' deaths, absolving family members from blame does not contradict the facts that suicide stems from mental disorders, that mental disorders are treatable, and that suicide is preventable. Like natural disasters and cancer, mental disorders are forces of nature, and mental disorders are particularly insidious ones in that they can be invisible to others. That forces of nature like this sometimes kill people should come as no surprise, and to in any way blame family members for a suicide, or for family members to blame themselves, makes as much sense as blaming them for deaths stemming from earthquakes or from pancreatic cancer. Finally, to intimate that one should be open about suicidality but not about it connection to mental disorders is not just ironic, it is misinformed and is further unfair to non-suicidal people with mental disorders.

With regard to our findings' implications for clinical work with suicidal people and for suicide prevention more generally, they are straightforward. For example, if it is so as we contend that mental disorders are causally necessary for death by suicide, then the reduction

of mental disorders and the symptoms thereof is in itself a suicide prevention initiative, and a highly effective one at that. This presumes access to quality care; a second implication of our results thus involves the importance of increasing both the access to and the quality of mental health care. Ideally this would occur with regard to mental health specialty settings but also to primary care and other general health care settings as well. In all such settings, our findings suggest that clinicians should be aware that patients with mental disorders or the symptoms thereof may be at above-zero suicide risk; routine risk assessment and attendant safety planning thus seem indicated.

In conclusion, we considered three possible explanations for the observation that in any series of suicides, not all decedents had a detected mental disorder. Our re-analyses of a classic psychological autopsy study supported two explanations – that suicide decedents suffered from a mental disorder, but were undetected due to methodological limitations, and that suicide decedents with no diagnosis displayed significant, subclinical features of a mental disorder. A third possibility – that some of the decedents simply had no mental disorder – was not supported. Mental disorders/symptoms thus appear to operate as necessary but not sufficient causes of suicide, a view that facilitates non-stigmatizing and clear-eyed compassion.

## References

American Psychiatric Association. DSM 5. American Psychiatric Association; 2013.

Brugha T, Bebbington P, Tennant C, Hurry J. The List of Threatening Experiences: A subset of 12 life event categories with considerable long-term contextual threat. Psychological Medicine. 1985; 15:189–194. DOI: 10.1017/S003329170002105X [PubMed: 3991833]

Cavanagh JT, Carson AJ, Sharpe M, Lawrie SM. Psychological autopsy studies of suicide: a systematic review. Psychological Medicine. 2003; 33(3):395–405. http://dx.doi.org/10.1017/S0033291702006943. [PubMed: 12701661]

Foster T. Adverse life events proximal to adult suicide: a synthesis of findings from psychological autopsy studies. Archives of Suicide Research. 2011; 15(1):1–15. DOI: 10.1080/13811118.2011.540213 [PubMed: 21293996]

Heikkinen M, Aro H, Lönnqvist J. Recent life events, social support and suicide. Acta Psychiatrica Scandinavica. 1994; 89(s377):65–72. DOI: 10.1111/j.1600-0447.1994.tb05805.x

Hewitt J. Why are people with mental illness excluded from the rational suicide debate? International Journal of Law and Psychiatry. 2013; 36(5–6):358–365. DOI: 10.1016/j.ijlp.2013.06.006 [PubMed: 23838292]

Hjelmeland H, Dieserud G, Dyregrov K, Knizek BL, Leenaars AA. Psychological autopsy studies as diagnostic tools: Are they methodologically flawed? Death Studies. 2012; 36:605–626. [PubMed: 24563941]

Holmes TH, Rahe RH. The social readjustment rating scale. Journal of Psychosomatic Research. 1967; 11(2):213–218. DOI: 10.1016/0022-3999(67)90010-4 [PubMed: 6059863]

Joiner TE Jr. Editorial: Scientific rigor as the guiding heuristic for SLTB's editorial stance. Suicide and Life-Threatening Behavior. 2011; 41(5):471–473. DOI: 10.1111/j.1943-278X.2011.00056.x [PubMed: 21974724]

Joukamaa M. Prison suicide in Finland, 1969–1992. Forensic Science International. 1997; 89(3):167–174. DOI: 10.1016/S0379-0738(97)00119-9 [PubMed: 9363625]

Milner A, Sveticic J, De Leo D. Suicide in the absence of mental disorder? A review of psychological autopsy studies across countries. International Journal of Social Psychiatry. 2012; 0020764012444259. doi: 10.1177/0020764012444259

Motrico E, Moreno-Küstner B, deDios Luna J, Torres-González F, King M, Nazareth I, Montón-Franco C, Gómez-Barragáni MJG, Sánchez-Celayaj M, Díaz-Barreirosk MA, Vicensl C, Moreno-Peralm P, Bellónm JA. Psychometric properties of the List of Threatening Experiences—LTE and its association with psychosocial factors and mental disorders according to different scoring methods. Journal of Affective Disorders. 2013; 150:931–940. DOI: 10.1016/j.jad.2013.05.017 [PubMed: 23726778]

Nock MK, Borges G, Bromet EJ, Cha CB, Kessler RC, Lee S. Suicide and suicidal behavior. Epidemiologic Reviews. 2008; 30(1):133–154. DOI: 10.1093/epirev/mxn002 [PubMed: 18653727]

Nordentoft M, Mortensen PB, Pedersen CB. Absolute risk of suicide after first hospital contact in mental disorder. Archives of General Psychiatry. 2011; 68(10):1058–1064. DOI: 10.1001/archgenpsychiatry.2011.113 [PubMed: 21969462]

Robins, E. The final months: A study of the lives of 134 persons who committed suicide. New York: Oxford University Press; 1981.

Scully JA, Tosi H, Banning K. Life event checklists: Revisiting the Social Readjustment Rating Scale after 30 Years. Educational and Psychological Measurement. 2000; 60:864–876. DOI: 10.1177/00131640021970952

Tucker RP, Michaels MS, Rogers ML, Wingate LR, Joiner TE. Construct validity of a proposed new diagnostic entity: Acute Suicidal Affective Disturbance (ASAD). Journal of Affective Disorders. 2016; 189:365–378. http://dx.doi.org/10.1016/j.jad.2015.07.049. [PubMed: 26476421]

**Table 1**

Descriptive Statistics for Undiagnosed and Diagnosed Decedents (N = 125)

| | Undiagnosed | | Diagnosed | | | | |
|---|---|---|---|---|---|---|---|
| **Variables** | ***M*/%** | ***SD*** | ***M*/%** | ***SD*** | ***F*/$\chi^2$** | ***df*** | ***p*** |
| Gender (% male) | 82.6% | -- | 77.5% | -- | 0.07 | 1, 125 | .79 |
| Violent suicide method (% violent) | 73.9% | -- | 78.4% | -- | 0.04 | 1, 125 | .85 |
| Murder suicide (% murder-suicide) | 8.7% | -- | 3.9% | -- | 14.84 | 2, 125 | .001 |
| Age at death (years) | 56.70 | 16.14 | 53.23 | 14.20 | 1.07 | 1, 123 | .30 |
| Number of previous attempts | 0.17 | 0.39 | 0.37 | 0.80 | 1.36 | 1, 123 | .25 |
| Total number of SLE | 5.39 | 4.11 | 7.13 | 7.08 | 1.28 | 1, 123 | .26 |
| Total SLE score | 260.26 | 188.25 | 371.63 | 377.97 | 1.88 | 1, 123 | .17 |
| Final SLE score | 47.57 | 17.18 | 47.10 | 12.53 | .02 | 1, 123 | .88 |

Note. Undiagnosed ($n$ = 23), Diagnosed ($n$ = 102). Suicide decedents classified as having “terminal cancer” were excluded from these analyses. SLE = stressful life event. Gender (0 = male, 1 = female); Violent suicide method (0 = non-violent, 1 = violent); Murder suicide (0 = ambiguous death, 1 = suicide, 2 = murder suicide).

**Table 2**

Descriptive Statistics for Terminal Cancer, Undiagnosed and Diagnosed Decedents (N = 130)

| | Undiagnosed + Terminal Cancer | | Diagnosed | | | | |
|---|---|---|---|---|---|---|---|
| **Variables** | ***M*/%** | ***SD*** | ***M*/%** | ***SD*** | ***F*/$\chi^2$** | ***df*** | ***p*** |
| Gender (% male) | 78.6% | -- | 77.5% | -- | .02 | 1, 130 | .90 |
| Violent suicide method (% violent) | 78.6% | -- | 78.4% | -- | <.001 | 1, 130 | .99 |
| Murder suicide (% murder-suicide) | 7.1% | -- | 3.9% | -- | 11.88 | 1, 130 | .003 |
| Age at death | 57.29 | 15.11 | 53.23 | 14.20 | 1.75 | 1, 123 | .19 |
| Number of previous attempts | 0.14 | 0.36 | 0.37 | .80 | 2.21 | 1, 123 | .14 |
| Total number of SLE | 5.46 | 3.98 | 7.13 | 7.08 | 1.42 | 1, 123 | .24 |
| Total SLE score | 266.61 | 187.25 | 371.63 | 377.97 | 2.02 | 1, 123 | .16 |
| Final SLE score | 48.21 | 15.65 | 47.10 | 12.53 | 0.16 | 1, 123 | .69 |

Note. Undiagnosed ($n$ = 28), Diagnosed ($n$ = 102). SLE = stressful life event. Gender (0 = male, 1 = female); Violent suicide method (0 = non-violent, 1 = violent); Murder suicide (0 = ambiguous death, 1 = suicide, 2 = murder suicide).