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A COMPARISON OF LANGUAGE USE IN SUICIDE NOTES FROM ATTEMPTERS AND COMPLETERS

Foluso M. Williams Lawal-Solarin, Sandor Fekete & David Lester

Atlanta, Georgia ***University of Pecs, Hungary*** ***Stockton University***

Abstract: Suicide notes from attempted and completed suicides from various countries were analyzed for differences in ratings of the presence of thwarted belongingness and perceived burdensomeness. Suicide notes from attempted and completed suicides did not differ in these ratings, nor did they differ in the relative use of singular and plural personal pronouns.

Joiner's (2005) theory of suicide identifies three psychological and interpersonal precursors to serious suicidal behavior. The first precursor is the sense that one does not belong to a valued relationship or group of people, hereafter referred to as *thwarted belongingness*. The second precursor is the perception that one's existence is a burden on loved ones, referred to as *perceived burdensomeness*. The third precursor is the *acquired ability and capacity to enact lethal self-injurious behaviors*. The theory proposes that the co-occurrence of these three factors is sufficient to produce serious suicidal behavior. Perceived burdensomeness and thwarted belongingness are the focus of this study.

To our knowledge, only four studies have used writing to assess directly the roles of either belongingness or burdensomeness in relation to completed suicide. Williams and Joiner (2004) analyzed language changes in a character who died by suicide in a fictional novel by William Faulkner. Using the LIWC, linguistic patterns were compared to another character in the same novel who did not die by suicide. The results demonstrated that the suicidal character's use of words denoting social processes decreased as suicide approached, supporting Durkheim's (1951) conceptualization of suicide as affected by social disengagement. Although the individuals analyzed were fictional, the results demonstrated Faulkner's ability to replicate some characteristics of suicide on a deep and meaningful level.

Stirman and Pennebaker (2001) used the LIWC to investigate systematic differences in the writing of poets who died by suicide and non-suicidal poets. The suicidal poets in the study were matched with a poet who died of natural causes. Each control poet was matched as closely as possible with the suicidal poet for nationality, era, education, gender, and age. Although the presence of mental illness was not explicitly matched for in the study, nearly half of the poets in the control group had depression or some sort of mood disorder, which was also found in their suicidal counterpart. Therefore, language differences between poets were not likely due to mental illness.

The results of the study did not find any support for the hopelessness theory of suicide. There were no significant differences in the number of death-related or negative words between suicidal poets and non-suicidal poets. However, results supported Durkheim's (1951) social integration theory. Suicidal poets used significantly more first-person singular pronouns than non-suicidal poets did. This indicated an increased focus on the self. In addition, they used fewer first-person plural pronouns, such as *We* and *Our* when compared to non-suicidal counterparts. Suicidal poets used these pronouns more than non-suicidal poets in the early and middle phases of their careers, but the usage of these words sharply decreased (below that of non-suicidal poets) in the final phases of the careers of suicidal poets. Although this word-by-phase interaction did not achieve statistical significance, the decreased usage of first-person plural nouns in the writings of poets who died by suicide suggested that they decreased in their identification and integration with the collective social network. First-person singular nouns did not increase over time in the writings of suicidal poets, which indicated that the poets' level of self-preoccupation was not influenced by increasing levels of fame or recognition.

In the third study, Joiner et al. (2002) assessed indices of burdensomeness in suicide notes and found that individuals who died by suicide displayed higher levels of perceived burdensomeness than those who attempted suicide. In the fourth study, Gunn, et al. (2012) studied a sample of 261 Australian suicide notes from completed suicides and found that 10.3% contained evidence of perceived burdensomeness, 30.7% evidence of thwarted belonging, and 4.2% contained both themes.

The purpose of the present study was to test the role of thwarted belonging and perceived burdensomeness in suicide by comparing suicide notes from completed and attempted suicides using a larger sample than hitherto.

Method

Sample of Suicide Notes

A 150 notes were collected. Ninety-six notes were from individuals who had died by suicide. Fifty-four notes were from individuals who attempted suicide but survived the attempt. The mean age of those who died by suicide was 40 (SD = 17.43; range 14-89). The mean age of those who attempted suicide was 29.5 (SD = 13.92; range 13-72). The sample of those who attempted suicide consisted of 20 males and 34 females. In the sample of those who died by suicide, 55 were male and 41 were female. Forty notes were from the United States (20 were from completed suicides and 20 were from attempted suicides). Forty notes were from Germany (all were notes from completed suicides). Seventy notes were from Hungary (36 notes were from completed suicides and 34 notes were from attempted suicides).

Ratings on Dimensions

Three raters (advanced undergraduate students in psychology), blind to the initial hypothesis of the study, as well as to whether the notes were from attempters or

completers, read each note in its entirety. Prior to reading actual suicide notes, raters were trained on "practice notes" until their ratings on the dimensions of burdensomeness, belongingness, general emotional pain and hopelessness achieved an acceptable rating of reliability. Each rater rated each variable on the following scale: 1=not at all, 2=a little, 3=moderately, 4=a lot, 5=very much.

The notes were checked for accuracy in spelling and word usage. The LIWC (Pennebaker, et al., 2001) was used to analyze and report frequencies for word categories of interest. Since belongingness was predicted to change over time, LIWC frequencies for first-person singular and plural pronoun usage were analyzed.

Results

Despite good agreement among raters, (the average intraclass correlation coefficient was 0.73), their ratings of belongingness and burdensomeness did not predict suicide status. LIWC ratings of the percentages of first-person singular pronouns and first-person plural pronouns also failed to predict suicide status. These results were unchanged after controls for age and sex.

Incidentally, the correlation between first-person singular self-references and first-person plural nouns was negative and significant. Thus, the more references to *Me* and *I*, the fewer to *We* and *Us*. In completed suicides, this correlation value was $r = -0.35$ ($p<.01$, two-tailed). In attempted suicides, this correlation value was $r = -0.34$ ($p<.01$, two-tailed). In addition, age and gender did not predict the frequency of first-person plural noun usage.

For the notes from completed suicides, there was a significant negative correlation between first-person singular self-references and references to others ($r = -0.31$, $p<.01$, two-tailed). For the notes from attempted suicides, the relationship between first-person singular self-references and references to others was non-significant ($r = -0.16$) and not significant, and the two correlation coefficients did not differ significantly.

Discussion

The present study failed to find any significant differences between the suicide notes of completed and attempted suicides in ratings of perceived burdensomeness, thwarted belongingness or the use of personal pronouns. Therefore, Joiner's theory of suicide did not distinguish between competed and attempted suicides.

The study was limited by the choice of suicide notes. There have been only two attempts to collect suicide notes from attempted suicides, and the sample sizes have been small. To overcome this, the two samples were combined for the present study, which is not ideal especially as the two samples came from two different countries. Adding the sample of suicide notes from completed suicides from a third country was also not ideal. Finally, two of the samples of suicide notes were from non-English speaking countries and had to be translated into English, again not ideal.

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AN ANALYSIS OF THE PSYCHOLOGICAL EFFECTS OF IMPENDING SUICIDE ON LINGUISTIC PATTERNS

Foluso M. Williams Lawal-Solarin, Donna Barnes & David Lester

Atlanta, Georgia Howard University Stockton University[a]

Abstract: The writings of four young men were analyzed using the LIWC, an objective linguistic analysis program. Two writing samples came from young men who died by suicide; one a college student, the other, musician Kurt Cobain. The other two writing samples were from non-suicidal men. It was predicted that the use of first-person pronouns (I and me) would decrease over time in the suicides, but this prediction was not confirmed.

The purpose of the present study was to examine changes in linguistic patterns as an individual approaches suicide. The writings of four young adult males were analyzed, using the LIWC, a linguistic program computer-based text-analysis program, known as the Linguistic Inquiry and Word Count. (Pennebaker, Francis & Booth, 2001). The LIWC produces a linguistic profile of the words used in writing by analyzing every word and assigning it to a linguistic/lexical category. Examples of such categories include emotion (words such as "joyful," "angry," "sad"), cognition (words such as "realize," "understand") and social processes (words such as "talk," "friend"). There are up to 82 categories into which words are classified. The analysis conducted by LIWC yields an output based on percentages.

The first male was a young adult college student in his twenties who died by suicide. His writings were composed of a series of 23 letters written over a period of two years to a friend, the last of which was a suicide note. Twenty-two letters and his final suicide note were collected and analyzed, making for twenty-three samples of writing. To protect his identity, he is referred to here as Ted.

The second individual was Kurt Cobain, lead singer of the music group Nirvana, who also died by suicide. He was twenty-seven years old at the time of his suicide. Twenty-two excerpts from his published journal were randomly selected for analysis, plus his suicide note. The journal entries were listed in chronological order. However, they were not dated, making the frequency of writing impossible to establish. Information in his final three entries strongly suggests that they were written within a month of his suicide. During this time, many believed he attempted suicide through a drug overdose (Wilkipedia contributors, 2006).

Consistent with the approach of Stirman and Pennebaker (2001), these passages were compared to two journals that served as controls from men who were of comparable age, but who were not suicidal at the time of their writing. One individual was depressed

at the time of the writing, and one individual did not demonstrate explicit symptoms of psychopathology.

The data for the first of the controls was obtained from an online journal (blog) of a male individual of comparable age who did not die by suicide and did not appear to exhibit any suicidal behavior. However, in his writings, he reported a current diagnosis of major depression and suffering from recurrent episodes of major depression for eleven years. He discussed his treatment, which involved a combination of cognitive behavioral therapy and antidepressant medication. It appears that he did not receive treatment consistently. He reported being 30 years of age but did not disclose his name or any other identifying information. His writing frequency ranged from once a day to once every two weeks. His writings occurred over a span of approximately eight months. He is referred to here as Wayne.

The data for the other control was obtained from the online journal of a male whose self-reported age was 29. He did not refer to psychopathology, mental health issues, or treatment for mental health problems in his writing. He wrote primarily about his everyday experiences, his relationship with his live-in girlfriend, and family interactions. Twenty-three of his daily writings were collected over the span of a year. His writing frequency ranged from once daily to once weekly. He is referred to here as Joe.

Stirman and Pennebaker (2001) used the LIWC to investigate systematic differences in the writing of poets who died by suicide and non-suicidal poets. Stirman and Pennebaker conceptualized focus on the self (independent of the social framework) to be demonstrated through first-person singular noun usage and, conversely, focus on the self as part of the social framework was examined through first-person plural noun use. Suicidal poets used significantly more first-person singular nouns than non-suicidal poets did, indicating an increased focus on the self. In addition, they used fewer first-person plural pronouns, such as *we* and *our* when compared to non-suicidal counterparts. Suicidal poets actually used these pronouns more than non-suicidal poets in the early and middle phases of their careers, but the usage of these words sharply decreased (below that of non-suicidal poets) in the final phases of the careers of the suicidal poets. Although this word-by-phase interaction did not achieve statistical significance, the decreased usage of first-person plural nouns in the writings of poets who died by suicide suggested that they declined in their identification and integration with the collective social network. First-person singular nouns did not increase over time in the writings of suicidal poets, which indicated that the poets' level of self-preoccupation was not influenced by increasing levels of fame or recognition.

Consistent with this work by Stirman and Pennebaker (2001), it was predicted that as Kurt Cobain and Ted approached suicide, their usage of first-person singular nouns would increase, and their usage of first-person plural nouns would decrease, thus demonstrating thwarted belongingness.

Method

For each individual, twenty-three separate writing entries were analyzed arranged in chronological order. After being checked for proper spelling and grammar, writing entries were converted into text files and analyzed by LIWC.

Results and Discussion

All the aforementioned zero-order correlations between first-person singular pronouns and time were non-significant in the writings of all four individuals tested. There were no significant differences in these correlations between suicidal and non-suicidal individuals with regard to changes in day-to-day writing.

The results of this study failed to confirm the prediction that the use of singular and plural pronouns referring to the self would change over time in individuals who wrote extensively prior to their suicide.

The writing patterns did show some changes over time related to the individuals. Kurt Cobain used more words concerned with music over time. Ted was a college athlete and used more words concerned with sports and school over time. Wayne, who was depressed but not a suicide, used more words concerned with sadness over time. There were also some suggestions for future research. For example, both of the suicides used more religious words over time, more words related to certainty and optimism.

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Recent developments in the study of the psychology of suicide[1]

Israel Orbach

Abstract: The current essay will focus on several aspects of recent advances in the study of suicidal behavior. Within the last few decades suicide research efforts have been geared in several directions including attempts at finding alternative strategies for the prevention of suicide within population at large, attempts at finding effective forms of intervention suited for specific risk groups, and attempts at attaining a better understanding of the processes, not only causes, involved in suicidal behavior. This essay will present some of the fruits of these efforts, as they have contributed to the realms of theory and, pathways to suicide as well as to the assessment, prevention, intervention, and treatment of suicidal behavior. Finally, some common principles in the advances in the study of suicide are drawn on the basis of the presented material.

Suicide continues to be one of the major public health problems. It is estimated that almost one million people commit suicide worldwide every year (Leenaars, 2005). Such an epidemic phenomenon requires enormous efforts to reduce the proportions of this tragic epidemic.

Efforts to advance the understanding of suicide and its prevention have taken three main venues. One venue includes seeking out effective measures for the prevention of suicide within the general population. An example of such efforts includes the alliance against depression, which was successfully launched within two communities in Germany (Hegerl, Althaus, Schmidke and Nikleuski, 2006). The second primary venue has been to develop specific intervention and prevention strategies for specific risk groups (e.g. Brown, 2006). The third venue of efforts has been endeavors to understand the causes and processes that are involved in suicidal behavior and its dynamics.

This essay will discuss certain developments within these three primary venues in the study of suicidality, some advances in theory assessment and prevention and intervention in suicidal behavior.

Theoretical Advances

Mental Pain

The theory of suicide as an immediate outcome of unbearable mental pain (psychache) has been suggested by Shneidman (1993). From this perspective suicide is paradoxically, a goal directed act of self-defense employed against subjectively unbearable pain. Admittedly, it may appear to be a blatant contradiction to say that

[1] Israel Orbach sent me this essay for inclusion in a book (which never materialized) but, as far as I know, it has never appeared in print elsewhere.

suicide is self-defense, being that the result of suicide is self-annihilation. However, suicide is often subjectively perceived to be an act of self-preservation when it is reduced to a choice between the lesser of two evils- a prolonged, uncontrollable painful life versus a concise painful, self-inflicted death (see Raabe 2002).

According to Shmeidman, psychache can be defined as a mixture of emotions, including hurt, anguish, sorrow, shame, humiliation, loneliness, sadness and dread. This mixture hodgepodge of emotions ultimately forms a general, unitary, and overwhelming experience- that of emotional perturbation. Shmeidman also suggests that mental pain is enervated by the frustration of an individual's most essential existential needs, such as the intra-psychic and interpersonal functions that provide an individual with a sense of self-constancy and self-definition.

In recent years several empirical investigations were conducted with the purpose of testing Shneidman's theory. Holden, Mehta, Cunningham, and McLeod (2001) constructed a psychache scale consisting of 13 self-report items used to measure the experience of mental pain (e.g "I feel psychological pain," "I seem to ache inside") and the experience of being able to tolerate mental pain (e.g. "I can't take it any more"). This scale was found to be significantly correlated with other scales that measure suicide, depression, and hopelessness. Furthermore, the psychache scale appeared to mediate the relationship between hopelessness and suicidality. In a further study Mills, Green, and Reddan (2005) demonstrated that Holden's psychache scale is strongly associated with measures of hopelessness, depression, psychiatric symptoms, and a history of prior suicide attempts.

In a further empirical elaboration (Orbach, Mikulincer, Sirota, and Gilboa-Schichtman 2003a; Orbach, Mikulincer, Sirota, and Orbach, Mikulincer 2003b) a mental pain scale was constructed comprised of experiential factors such as a sense of irreversibility of the loss of control, narcissistic wound, emotional flooding, emotional freezing, estrangement, social withdrawal, and emptiness. On the basis of their studies, Orbach and his colleagues (2003a) defined mental pain as a mixture of negative experiences stemming from perception of negative transformations within one's self and the self's functions (see also Janoff-Bulman 1992). Studies on the relationship between mental pain and suicidal behavior may further contribute to the understanding of suicidal behavior. In addition, Orbach, Mikulincer, Gilboa-Schechtman, and Iohan (2004) constructed a measure of the ability to tolerate mental pain (e.g "I must get immediate relief," "There is no way I can get rid of the pain").

The mental pain scale correlates highly with suicidal tendencies, hopelessness, depression, anxiety, coping styles, and lack of meaning in life. The scale was found to successfully distinguish distinguished between a group of suicidal adolescents, a group of psychiatric adolescents, and a group of non-clinical adolescents (Orbach et al., 2003 a, b). A subsequent study (Becker ,2006) showed that the mental pain tolerance scale was shown to distinguish between suicidal adolescents and non-suicidal psychiatric adolescents, even after controlling for depression and hopelessness.

Levi (2006) studied mental pain in adults and its unique contributions of mental pain and communication difficulties to serious and non-serious suicidal attempts. He found that mental pain was the main contributor to the development of suicidal behavior but difficulties in communication contributed to the distinction between serious and non serious attempters.

The Suicidal Scheme

Following Beck's (1996) redefinition of his original Cognitive Therapy Model, Rudd (2000) constructed a cognitive theory of suicidal behavior. According to this theory, suicidal behavior is activated by suicidal schema. The suicidal schema/mode consists of four interrelated and interacting subsystems: 1. The cognitive subsystem includes a set of beliefs, such as beliefs about one's worthiness or unworthiness of love ("I don't deserve to live"), perceptions of one's competence or hopelessness ("I cant solve this"), beliefs about one's ability or inability to tolerate their own distress ("I cant stand the pain anymore"). 2. The affective subsystem includes a set of negative emotions, such as sadness, anger, anxiety, guilt, depression, hurt, suspiciousness, and fearfulness. 3. The behavioral-motivational subsystem includes death-related behaviors, such as preparing, planning, rehearsing, and attempting suicide 4. The physiological subsystems include arousal mechanisms, such as activation of the autonomic, sensory, and motor nervous system. Thus, according to this model, suicidality is the end product of the activation of suicidal schema, which are set-off by external or internal triggers. Recently, Rudd (2004, 2006) further developed the Cognitive Theory of suicide by introducing the Fluid Vulnerability Theory (FVT). The FVT contributes to the Cognitive Theory of suicide by better accounting for inherent fluctuations in suicidal schema manifest in suicidal individuals over both short and long-term spans of time. The FVT also seeks to explain why some people make a single suicide attempt and never repeat it, while others make multiple attempts within brief or long intervals of time. This theory suggests that suicidal episodes are time-limited and that imminent risk does not endure beyond periods of heightened activation suicidal mode subsystems. FVT does not deny the existence of chronic suicidality, but rather suggest that chronic suicidality is best understood as episodes of heightened activation, reoccurring during discrete periods of imminent risk, rather than a long-term enduring risk. Those who make frequent suicide attempts have a higher baseline risk level and lower thresholds of activation of the suicidal mode. Suicide risk is elevated by specific triggers which act across all four subsystems of the suicidal mode which are unique to each individual and how they infiltrate the system. The severity of the suicidal episode depends on the interaction between individuals baseline risk threshold and severity of their stressors. Rudd's FVT suggests that suicidal behavior can be better treated and prevented by recognizing the individuals suicidal mode, it specific triggers and thresholds.

The Facilitating Process of Suicidal Behavior

The two most important questions about suicide are simply why and how. Why would someone commit suicide? How can someone come to commit suicide? The question of how is charged by and strewn with questions about how one can commit

suicide despite what this act entails beyond the actual wished-for death: social taboos, the life instinct, the instinctual fear of death, aggressing against one's own body.

Joiner, Rudd and Rajab (1997) have attempted to answer these two questions by attributing each question to a different realm of suicidality. Regarding the first question of why would someone commit suicide, the authors speak of suicidal ideation and desires that are rooted in disruptions in one's sense of belongingness and a sense of one's self as a burden. Regarding the second question of what makes suicide possible, the authors speak of a process of habituation to the idea of suicide in theory and actuality The habituation process can be accomplished in several ways, including preparing and planning the act, practicing less lethal acts, entertaining the idea of suicide, and Joiner, Steer, Brown, Beck, Petti and Rudd (2003) have empirically examined the above stated theory and confirmed the two-dimensional structure of suicide symptoms consisting of desire, and preparation factors. In addition, they found that preparation (dimension) was the only significant predictor related both to a history of past suicide attempts and eventual suicide.

Orbach (1994) also dealt with the distinction between suicidal motivation and the actual ability to carry through with committing suicide. He argued that in order to commit suicide a facilitory processes of suicide must be activated. A primary facilitator of suicide is what Orbach calls the Suicidal Body (Orbach 1996) which is characterized by bodily dissociation, physical anhedonia, and high thresholds for physical pain. A Suicidal Body is also accompanied by perceptions such as negative attitudes toward the body and a lack of protection and care for the body. The Suicidal Body is an end result of negative early care interactions with the caretaker and/or trauma and/or abuse. In the presence of negative triggers a suicidal urge may emerge, and the suicidal body will enable the suicidal act to be carried out. Empirical conformation for the facilitating effects of the suicidal body have been provided by several studies (e.g. Orbach, Mikulincer, King, Cohen and Stein 1997) also Orbach,Gilboa-Sechctman, Shefer, Har-Even, Sorin and Steine, 2006).

One of the latest theoretical implications of the suicidal body hypotheses is that suicidal individuals are characterized by a combination of low thresholds for mental pain and a high threshold for physical care. The first is related to the motivation for suicide and the second is related to the process that facilitates suicide.

The Narrative Approach to Suicide

A relatively new theoretical perspective to the understanding of suicide, its assessment, intervention and treatment is a combination of the narrative approach and the action theory approach (Michel, Maltsberger, Jobes, Leenars, Orbach, Stadler, Dey, Young, and Volach, 2002). Accordingly, suicidal behavior is conceived not merely nceptualized neither as a matter of the immediate present nor as the result of a simple cause. This approach takes into account the suicidal person's subjective view of the culmination of his / her negative life events through a developmental history. Further --- this approach is based on a model of self destructive actions in terms of goal directed

processes. Patients' lives seem to be organized around midterm and long term life goals. Suicide is not a result of alterations of the mind or impulsivity. Rather, the suicidal act contains clear goal setting, including a series of steps, steering, controlling and regulating processes (Volach, Young, Lynam, 2002). The narrative approach avers that Suicide is best understood as a solution to a subjectively unbearable situation- when life goals that are perceived as essential to one's emotional integrity and well-being are believed to be out of reach.

This narrative goal directed perspective has multiple important implications for understanding the assessment and treatment of a suicidal individual. First, it allows for an understanding of suicidal behavior based on the narrative of the patient. Second, the construction of life narratives ending up in suicidal behaviors should be led by the patient and not by the therapist alone. Thirdly, interaction and treatment can be best planned on the basis of the collaborative process by the patient and therapist rather than on the authoritative knowledge of the therapist alone. One practical application of this narrative approach was suggested by Jobes (2002). Jobes developed the collaborative assessment and management of suicidality (CAMS). This assessment and therapeutic approach is characterized by collaboration between a patient and therapist. When a patient acknowledges some degrees of current suicidality the therapist and patient proceed to literally and figuratively sit side by side to conduct a collaborative assessment of the patient's suicidality. A shared perspective is fostered as the therapist and patient evaluate and complete an initial assessment form together. While the identification of specific clinical disorders (e.g depression) is still valued the larger focus within this approach is of constructs such as mental pain. The therapist and patient have a shared understanding about some of the underpinnings of the patient's suicidal state. The clinician shares with the patient the range of options for clinical care and offers his own recommendations. However, the therapist and patient formulate a treatment plan together, collaboratively. Ultimately, it is the patient's input that is solicited directly and used to inform, order, and shape the treatment process and goals. Other narrative approaches to suicide have been proposed by Meichenbaum (2006) and Neinger and Winter (2006)

Assessment and Pathways of Suicidal behavior

Assessment

Suicidal risk is usually manifest in a multitude of signs, symptoms, behaviors, and situational changes. However, risk factor and warning signs are often confused. In order to clarify this confusion Rudd, Berman, Joiner, Nock, Silverman, Mandrusik, Van Orden and Witte (2006) distinguish between these two categories of predictors of suicidal behavior. These researchers accepted the definition of risk factors as the presence of any factor empirically shown to correlate with suicidality, including age, sex, and psychiatric diagnosis, and past suicide attempts. In addition, Risk factors are considered distal and long-term factors relating to suicide.

Warning signs, on the other hand, are defined as episodic and varying manifestations, which signify an intense affective state, suggesting that there is imminent danger to commit or attempt suicide. Warning signs include, in a hierarchical order:

hopelessness, rage, anger, vengefulness/vindictiveness, recklessness or engaging in risky activities, feelings of entrapment, increased alcohol or substance abuse, social withdrawal, anxiety, agitation, irregular sleep or increased sleeping, emotional labiality, a sense of meaninglessness, and a sense of purposelessness.

Recently, Gutierrez (2006) made efforts to promote the detection of suicide risk in adolescents by empirically investigating the various scales of suicidality, with the purpose of deciphering the most effective measures. In his investigation he empirically found the four most effective and valid measures of detection: the Living Inventory for Adolescents, the Self Behavior Questionnaire, the Reynolds Adolescents Depression Scale, and the Reynolds Suicide Ideation Scale. Furthermore, Gutierrez provided empirical evidence for the effectiveness of using these four scales combined in one battery of testing in order to best identify suicide risk.

Distinguishing between risk factors and warning signs, and deciphering the most effective measures of suicide risk is a particularly important advancement as far as screening within the schools and communities is concerned.

Pathways to Suicide

Achenbach (1991) has distinguished between externalizing pathologies and internalizing pathologies in youth. Externalizing pathologies include such symptoms as delinquent behavior, aggressive behavior, impulsivity, oppositional behavior, and hyperactivity. Internalizing pathologies include symptoms such as withdrawal, somatic complaints, anxiety, depression, inhibition, and self-demandingness. These two types of pathologies can be linked to different pathways of suicidal behavior in adolescents independent of negative life events. Supporting empirical findings were reported by Vermerien, Ruchkin, Leckman, Debouttte, and Schwab-Stone (2002).

Wagner and Hustead (2002) have a different conceptualization of the pathways to suicide. They perceive the pathway to suicide as embedded in the child-family dynamic. One pathway is the child-driven pathway. Within this pathway, The parents are both supportive and competent, yet the child has developed an insecure or disrupted attachment towards his/her parents. The child's relationship with and treatment of his/her parents is distinctively negative and aggressive. Attempts that are the result of this pathway tend to be highly lethal and he or she are driven by an attempt to escape pain. In summation, within the child-driven pathway, as its name suggests, the suicidal behavior is primarily enabled by the child's problems. A second pathway is the parent-driven pathway, wherein the child's suicidal behavior is primarily enabled by parents. This pathway involves parents who are poorly competent and are insecure in their attachment to their suicidal child. Their treatment of and relationship with the suicidal child is marked by aggression and negativity. In this pathway, the parents are highly psychopathological and the child is low in psychopathology. Attempts that are the result of such a pathway are usually described as interpersonal and communication based. A third pathway is the reciprocal pathway, characterized by poor parental competence and support, high parental and child psychopathology, and mutual (parent and child) insecure

attachment. This pathway is believed to manifest itself in a long history of suicidal behavior.

From a different perspective, Blatt (1995) posits that personality develops as a consequence of a complex interaction between two fundamental lines which can lead to two different pathways to suicide: (a) the development of the capacity to establish mature and satisfying interpersonal relationships and (b) the development of a realistic, positive, and integrated self-definition and identity. An overemphasized interpersonal relatedness may lead to an anaclitic or dependent depression, whereas overemphasized individuality and self-definition may result in self-critical or introjective depression. Anaclitic depression involves a deep longing to be loved and cared for. The overly individualized person is characterized by self-criticism, feelings of inferiority, and guilt. Each of these imbalances was found to be related to suicidal behavior in different ways (see also Brunstein-Klomek, Orbach, Meged & Zalsman, in press).

Applying a cognitive approach, Dieserud, Roysamb Ekeberg and Kraft (2001) offer a two path model of suicide attempt for all ages that is somewhat parallel to Blatt's two pathway model. The first pathway begins with low-esteem, loneliness, and separation or divorce, which develops into to depression, then hopelessness, suicide ideation, and finally suicide attempt. The second pathway begins with low self-esteem and a low sense of self-efficacy, followed by a negative self appraisal of one's own problem solving capacity, and poor interpersonal problem-solving skills, and, finally, leading up to suicide. This model emphasizes the importance of addressing depression and hopelessness, as well as problem-solving deficits when working with suicide attempters.

Advances in Intervention and Prevention

Intervention

Brown (2006) has recently summarized the biosocial theory of suicidal behavior and the comprehensive multidimensional treatment that stems from this theory, the principle of the Dialectical Behavior Therapy (DBT). This therapeutic approach has received extensive empirical validation in the last decade.

The DBT theory (Linahan, Contois, Murry, Brown, Gullop and Heara, 2005) suggests that suicidal behavior is a learned method for coping with acute emotional suffering. This behavior is viewed as a skill deficit that leads people to seek death as a solution to their suffering in light of the fact that they can not conceive of other effective solutions for coping with their problems. Furthermore, the DBT theory suggests that the critical factors to be considered in evaluating suicidal behavior, such as stressful environment factors, faulty cognitions, poor emotional regulation, and ineffective skills and behavior. DBT avers that the course of suicide is very individualistic, and that treatment should be mindful of this individuality while taking into account theoretically-dictated critical factors.

Simultaneously holistic DBT is based on an integration of cognitive behavior therapy strategies with strategies of acceptance and validation of experiences, and

mindfulness. The primary dialectic of DBT is that of acceptance and change. A therapist may validate their patient's perception that they are working as hard as they can and yet simultaneously stress that they must work harder to achieve change. The change pole is based on teaching behavioral skills, emotional regulation and interpersonal effectiveness. The acceptance pole is based on mindfulness and distress tolerance. DBT contends that just as there are many pathways to suicidal behavior multiple strategies and techniques should be used to treat suicidal behavior (see Williams and Swales, 2004, for an extensive review of the theory, strategies, and empirical findings on the mindfulness based approach for suicidal behavior).

Prevention

One recent attempt to prevent suicidal behavior on a large community based level was provided by Hegerl et al (2006), who ran a two year intervention program using a community in Nuremberg, Germany as a study group, and using a community in Wuerzburg, Germany as a control. The study program consisted of four intervention strategies: training family physicians to treat depression; formulating a public relations campaign geared at educating the general public about depression; initiating collaborative efforts among community figures (teachers, priests, local media etc.); and recruiting support within the community at large for self-help activities for high-risk groups. The result of this program was a reduction in the frequency of suicide attempts during the four years of intervention as compared to the control city. The reduction was most noticeable in high-risk suicide attempts.

Conclusions

This selective review of the advances in the psychology of suicide does not allow for wide and definite conclusions about the recent developments in the area of suicide. The conclusions presented are limited to the few topics that are dealt with in the present essay. The present review suggests that there is a growing consent regarding the importance of the suicidal persons subjectivity in the understanding and treatment of suicidal behavior (e.g. mental pain). There is a growing consent among researchers and theoreticians that the study of suicide should focus on internal factors and processes involved in suicidal behavior (e.g. dissociation, habituation, vulnerability to stress and not only on the causes and pathologies that statistically correlate with suicide. Furthermore, suicidologists seem to agree that there are many pathways and dynamics of suicidal behavior and that suicide cannot be explained by one general dynamic. Further advances in the study of suicide are dependent on long-term prospective investigation. Many obstacles exist in carrying out such investigations, yet the efforts in this direction can result in better comprehensive and integrative models in the understanding of suicide as well as its intervention, prevention, and treatment.

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THE OTHER SURVIVORS

David Lester

The term *survivor* typically refers to those who have lost a loved one or significant other to suicide. However, there are others who become involved with suicides who are, in a sense, also survivors. For example, Lindsay and Lester (2004) analysed suicide-by-cop, in which an individual provokes a police officer into killing him or her. In this scenario, there is a police officer involved and often several bystanders. The officers involved are traumatized by the event, and this is made worse by the fact that onlookers and critics often accuse the officer of using deadly force without sufficient justification. The officers report depression, anger at the victim, feelings of terror during the incident, and agitation afterwards. They report flashbacks and nightmares in the subsequent days and weeks. Rivard, et al. (2002) found that 11% of the officers involved report symptoms of PTSD and 3% the full syndrome.

This essay draws attention to those who are often neglected in studies of survivors, those for whom the suicide is not a significant other, but rather encountered during and sometimes as part of their job.

Suicide by Jumping in Front of a Train

Tranah and Farmer (1994) interviewed 76 drivers of subway trains in London (England) whose trains ran over a person jumping onto the tracks. Seventeen percent had PTSD, and16% had other psychiatric disorders including depression and phobias. The drivers took an average of 21 days of sick leave after the event. Tang (1994) interviewed the 22-year-old driver of a train in Denmark who ran over a woman sitting on the tracks. At the time, he experienced shock and nausea and was unable to talk to the passengers over the speaker system. In the following weeks, he experienced anxiety and depression, and he kept trying to understand what motivated the woman. Although he did not see the actual impact (it was below his window), he kept imagining it. He considered quitting the job, but his psychotherapist helped him adjust, even sitting in the driver's cabin with him when he drove trains. See also Bardon and Mishara (2015).

The Impact of the Method for Suicide: Chemical Suicides

Anderson (2016) noted a growing trend for suicides in the United States to mix chemicals to produce hydrogen sulphide or hydrogen cyanide in a closed space in closed space (such as a car). This poses health problems for emergency first responders. Anderson found 22 chemical suicides in five states during the period 2011-2013, with 22 victims, 15 of whom died and 7 of whom survived the suicide attempt. In addition, 8 responders and 4 employees at the coroner's office were harmed by the chemicals. None of the injured responders had received HazMat technical level training and none had appropriate, personal, protective equipment (such as clothing). In one case, responders

suffered from central nervous system issues, respiratory issues, skin irritation, and headaches. (See also, CDC [2011].) The following is an example of this danger from the CDC report.

> In 2010, a "detergent suicide" victim was found deceased in a vehicle. A bucket inside the vehicle contained mixed chemicals that caused acute thiosulfate poisoning. Two law enforcement officers were exposed, one of whom was treated at the hospital. Local emergency responders evacuated the surrounding homes. The regional response team removed and decontaminated the corpse of the suicide victim before transporting it to the medical examiner.

Similar issues can arise for those who are bystanders and those who respond to suicide bomber attacks (de l'Escalopier, et al., 2016) for whom there may be danger of biological harm from infections resulting from wounds caused by fragments of the explosive and parts of the suicide bomber's body.

Suicide in Public

Many suicides choose to die in public by such methods as jumping off a building or bridge (or jumping in front of a train as discussed above which is often witnessed by those standing on the platform). After the airplanes hit the World Trade Center Towers on September 11, 2001, it is estimated that between 50 and 200 people jumped from the towers. A total of 104 jumpers were caught on camera. None survived. The New York City medical examiners certified these deaths as homicides caused by the perpetrators of the attack, but they are suicides. Pictures and videos of the people jumping and falling were censored, perhaps to protect the dignity of those jumping and the emotions of their loved ones, but also because the images were thought to be too traumatic for viewers of the images (Lester, 2013). The situation for first responders (fireman, police and medics) on the ground was horrific.

> …the loud thud of bodies hitting the ground – "it was raining bodies" as one firefighter wailed in shock once he was safely back at his station. (Kroes, 2011, p. 4)

Those watching screamed, "My God, Oh, my God." Leonard (2011) noted that the bodies hit the ground at roughly 200 miles per hour. One hit and killed a fireman. Those on the ground could not bear to watch and turned away to face the wall, but they could still hear the sound.

Rescuing Suicides (or Their Bodies)

Suicides by jumping from bridges are common. The Delaware Bridge joins New Jersey to Delaware in the United States, and about five people jump to their death from the bridge every year. Don Sapatkin, a reported for the *Evening Journal* (Wilmington, DE) interviewed members of the local fire department who go out in boats to recover the bodies of these suicides. They reported feeling anxiety and nausea at the time and

flashback afterwards. One fireman said, “It’s a job that few people want to do. You don’t know what makes you do it. You just do it.” Between 1951 when the bridge opened and 1984, 83 people jumped, and only three survived. The firemen know that there is a small chance that the jumper is alive (Lester, 2010).

Cerel, et al. (2019) have studied the trauma experienced by police officers who respond to suicides. Almost one quarter experience nightmares about the scene, and symptoms of PTSD are common.

Surviving the Suicide of a Significant Other

There has been a great deal of research on the reactions of those who lose a loved one or family member to suicide. What is often neglected in this issue is the manner of the interaction during and after the suicide between the suicidal individual and the survivor. In the simplest case, the survivor may hear that the significant other had died by suicide.

The situation is made more complex if the survivor is required to identify the body of the suicide at the local morgue. Worse is when the survivor discovers the body of the suicide, and this is affected by the manner of death used by the suicide – overdose, hanging or gunshot. At the extreme is when the suicide dies by suicide in the presence of the person, which again is affected by the method for suicide chosen by the suicide.

To give an example of an extreme case, at a conference on suicide in police officers sponsored by the FBI at the FBI Academy in Quantico, Virginia, in 1999, the wife of a police officer, who had shot himself in the head in her presence, related how she was forced to sit in the room where her husband had just shot himself while the police investigated his death, even testing her hands for residue in order to be sure that she had not murdered her husband. Subsequently, she was abandoned by her husband’s fellow officers and their wives, almost certainly because they did not know how to relate to her anymore.

How are the emotional, cognitive and behavioural reactions of the survivor affected by the factors above? Furthermore, in addition to grief, guilt and anger (and other reactions), how common are symptoms of PTSD in the survivors in the different scenarios above?

Comment

The purpose of this essay was to highlight the fact that *survivors* of suicide include emergency and rescue personnel and witnesses to the suicide. Furthermore, the circumstances of the suicidal action may have a great impact on the trauma experienced by the survivor.

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Suicidologists Should Stop Studying Non-Lethal Suicidal Behavior

David Lester

An alternative title could be: *The Method of Substitute Subjects Has No Value for Understanding Suicide*. The method of substitute subjects as a term was coined for suicidologists by Neuringer (1962). Because suicides are deceased and, so cannot be given the standardized tests and interviews developed by psychologists, Neuringer suggested turning to the study of those who have suicidal ideation or who have attempted suicide – substitute subjects The majority of studies on suicide, therefore, use suicide ideators and attempters as the subjects for research.

I would argue that this is great for getting publications, academic success and grants, but almost totally useless for understanding suicide.

You might argue that we are interested in suicide ideators and attempters themselves, and this is, of course, true, but they are not as interesting as suicides and will not help us to understand suicides. Let me give an example.

Joiner's (2005) Interpersonal Theory of Suicide proposes that thwarted belongingness and perceived burdensomeness are behind every suicide. Almost all of the research of this theory uses living subjects and, indeed, often scores on scales to measure these two constructs are associated positively with a measure of suicidality. This has been found in samples of psychiatric patients (Teismann, et al., 2016) and undergraduate students (Lockman & Servaty-Seib, 2016).

But studies of suicide notes and suicides find that there is little evidence that perceived burdensomeness plays a role in more than15% of the suicides (Gunn, et al., 2012; Lester & Gunn, 2021). How is this possible?

Giving undergraduate students Joiner's test of perceived burdensomeness (which provides scores in the range of x-x) does not mean that their scores will be high. Almost all of the students may obtain low scores. Thus, the researcher is basically comparing students with very low scores to students with somewhat low scores. If a Likert-type scale is used (with scores ranging from -3 to +3), nearly all the students might have negative scores. The correlation, therefore, between perceived burdensomeness and suicidal ideation is difficult to interpret. If you strongly disagree that you are a burden to others, you are less suicidal than if you somewhat disagree that you are a burden. This does not help us understand those who die by suicide.

This is not relevant only to Joiner's IPTS theory of suicide. It applies to the defeat-entrapment theory of suicide, the cognitive distortion theory, and all theories. I used Joiner's theory only because myself and John Gunn have studied suicides from the

point of view of Joiner's theory and found that perceived burdensomeness is rare in suicides.

These is perhaps a way out of this problem. In two paper (Lester, et al., 1975, 1979), I argued that researchers could use attempted suicides to learn about if suicide, **if and only if** they categorized the attempters into groups by their level of lethality or their level of suicide intent. They could then extrapolate to those who died by suicide, and I illustrated this technique with demographic variables (e.g., sex) and hopelessness scores. It is rare that this procedure is used.

Grants are awarded and academics are tenured and promoted on the basis of their research on living suicidal and non-suicidal individuals, but suicide remains a puzzle, difficult to predict and difficult to understand.

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Will Suicide Rates Rise or Decline During the Pandemic?

David Lester

There has been much speculation as to whether suicide rates will rise during the current pandemic resulting from Covid-19, and there have been some articles already looking at preliminary data on suicides in limited regions and on non-fatal suicidal behavior (attempts and ideation).

It is easy to explain why suicide rates may rise.

- The lockdown ordered by governments has resulted in increased in stress as people adapt to their new living conditions.

- Working from home eliminates many, if not most, of the social contacts people have. Working in an office or large enterprise provides a large number of social interactions.

- People often experience depression in the Winter season (seasonal affective depression), and part of this is a result of being shut-in at home during the cold and snowy weather. The pandemic has resulted in people being restricted to their homes.

- There has been tremendous economic hardship as a result of workers being laid off and businesses closing. The response of governments (through stimulus checks, banning evictions, etc.) has been helpful, but far from adequate.

- Those who worked away from home or left home for education are now at home, and interpersonal tensions may rise. Hotlines have reported an increase in the frequency of domestic violence resulting from this.

- With millions of deaths from the pandemic, there have tens of million bereaved people who have to deal with this loss, a loss occurring under terrible conditions, such as isolation from their dying loved-ones in order to prevent the spread of the virus.

It is, therefore, not surprising if the mental health of people has worsened during the pandemic and, perhaps, suicidal behavior has increased.

Why might suicide rates decline during the pandemic. One of the neglected theories in suicidology has been that of Henry and Short (1954). Their theory is complex, with both sociological and psychological components. The component most relevant to the pandemic is where to what people attach blame for their misery.

Henry and Short argued that, if people have a clear external cause to blame for their misery and unhappiness, then they will be angry and direct their aggression outwards. In contrast, if individuals have no clear external cause to blame for their misery, then they will blame themselves for their misery. Something is defective in them that accounts for their unhappiness. Then they will be more likely to become suicidal.

I have used this idea to explain the suicide of people who have been given their eyesight or hearing back after long period of blindness and deafness. When they were blind and unhappy, they knew why they were unhappy. When their vision was restored and they remained unhappy, then there was no external cause to blame for this unhappiness and, therefore, no hope for happiness.

I used the idea to explain why countries and regions of countries had higher suicide rates when the quality of life in those regions was higher. A higher quality of life in a region provides fewer external causes to blame for one's misery.

The pandemic has provided clear external causes to blame for our unhappiness. There is the virus, an inadequate government response, and limitations to our lives created by the efforts that governments did make, such as closing restaurants, gyms and movie theaters. Therefore, people became angry, as evidenced by the protests and demonstrations around the world against government restrictions and lockdowns.

Did the suicide rate rise or decline in the year 2020? We can predict an increase, a decrease, and no change at all. Cleary, it will have to be a post-hoc "prediction."

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RISK VERSUS PROTECTIVE FACTORS IN PREDICTING HOPELESSNESS: DOES THE DISTINCTION MAKE SENSE?

David Lester

Summary. – This article argues that the distinction between risk and protective factors is merely a linguistic ploy. Separate scales to measure optimism and pessimism were no better at predicting hopelessness scores in a sample of 154 college undergraduates (multiple R = 0.82) than combining the two scales into a single optimism-pessimism scale (Pearson r = 0.82).

Research on suicide has typically focused on risk factors for suicide, using variables such as hopelessness, substance abuse and childhood experiences of sexual abuse to predict current suicidal ideation and behavior. Recently, there has been a suggestion that protective factors may play an important role, including gratitude (Kleinman, Adams, Kashdan & Riskind, 2013) and hope (Davidson, Wingate, Slish & Rasmussen, 2010). However, it would appear that, whereas a high score on a scale such as hopelessness could be labeled a risk factor for suicide, a low score could be labeled a protective factor. This would suggest that risk and protective factors are not two separate types of variables but merely different (high versus low) scores on a single inventory. Furthermore, some scales (such as Beck's Hopelessness Scale [Beck, Weissman, Lester & Trexler, 1974]) have some items keyed positively and some keyed negatively. Is it really that scores on the positive items constitute a risk factor whereas scores on the negative items constitute a protective factor?

Since the mid 1980's, many studies have demonstrated the impact of optimism on psychological and physical well-being. Attributional styles are a primary determinant of generalized expectancies. Optimistic people make stable-global-internal attributions for positive events and unstable-specific-external attributions for negative events, whereas pessimistic people do just the opposite. Patnaik (2013) reviewed the research on this issue and concluded that optimism was associated with better psychological health.

Abdel-Khalek and Lester (2006) devised a scale to measure optimism and pessimism using two separate 15-item subscales. This scale permits an examination, therefore, of whether scales measuring both poles of a concept is a better predictor of hopelessness than a single scale in which high versus low scores are used to predict hopelessness.

Method

A questionnaire was administered anonymously to 154 students enrolled in undergraduate psychology courses at a rural state college (28 males and 126 females;

mean age 21.8 years, SD 5.0) and included Beck's Hopelessness Scale (Beck, et al., 1974) and Abdel-Khalek's optimism-pessimism scale (Abdel-Khalek & Lester, 2006)

The Arabic Scale of Optimism and Pessimism (Abdel-Khalek & Lester, 2006) is a 30-item scale answered on a 5-point scale with anchors 1 (no) and 5 (very much). Typical items are "I feel that tomorrow will be a bright day" and "I wait for the worst events to happen." Abdel-Khalek and Lester found good internal consistency and construct validity in both Kuwati and American students. Mean scores for the present sample were optimism 57.8 (*SD* = 10.8), pessimism 23.9 (*SD* = 11.0).

The Hopelessness Scale (Beck, et al., 1974) is a 20-item scale answered with a true-false format. It has been used in hundreds of studies and has proven reliability and validity (Reinecke & Franklin-Scott, 2005). Research has shown that high scores on the Hopelessness Scale predict suicidal behavior. For example, Beck, Brown, Berchick, Stewart and Steer (1990) found that a score of 9 or higher on the scale predicted 16 of the 17 psychiatric outpatients (out of a sample of 1,958) who subsequently completed suicide. The mean hopelessness score for the present sample was 2.8 (*SD* = 3.4).

Results

Optimism scores were negatively with hopelessness scores (Pearson $r = -0.68$, two-tailed $p < .001$) while pessimism scores were positively with hopelessness scores ($r = 0.75$, $p < .001$). Optimism and pessimism scores were negatively associated ($r = -0.52$, $p < .001$).

In a full multiple regression, hopelessness scores were predicted significantly by optimism and pessimism scores (betas = -0.39 and 0.54, respectively, $p < .001$; $R^2 = 0.68$) with sex and age not contributing significantly. The multiple R when only optimism and pessimism scores were used to predict hopelessness scores was .82, higher than the individual correlations of optimism and pessimism scores with hopelessness scores (-0.68 and 0.75, respectively). The optimism and pessimism scores together accounted for 67% of the variance in the hopelessness scores, whereas individually they accounted for only 46% and 56% of the variance.

Combining the optimism and pessimism items into one scale, the correlation between the combined score and hopelessness ($r = -0.82$, $p < .001$), identical to the multiple R using optimism and pessimism scales separately to predict hopelessness of 0.82.

Discussion

The results of the present study indicated that hopelessness scores were associated with optimism and pessimism scores. Scores on the optimism and pessimism subscales were not strongly associated, indicating that they could be considered to be two independent but related, variables. However, treating optimism and pessimism separately as protective and risk variables rather than one single bipolar variable did not increase the

ability of optimism and pessimism to predict hopelessness. It seems, therefore, that the distinction between risk and protective factors is merely semantic and does not improve our understanding or prediction of pathological states.

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REASONS FOR LIVING, DEPRESSION AND SUICIDAL IDEATION IN SOUTH AFRICAN STUDENTS

ADEBOWALE AKANDE,
International Research GLOBE project, Vancouver, Canada
deboakande@yahoo.com

MODUPE F. ADEWUYI
Kennesaw State University, Georgia, USA
wal@myself.com

and DAVID LESTER
Stockton University, New Jersey, USA
lesterd@stockton.edu

Abstract

In a sample of South African college students, both depression and reasons for living scores predicted lifetime suicidal behavior (ideation, threats and attempts).

Much of the research into suicidal behavior has focused on the risk factors for suicide, factors such as substance abuse and psychiatric disorder (Dvorak, Lamis & Malone, 2013). More recently, research has looked at protective factors (Wang, Lightsey, & Tran, 2013), but some protective factors, such as scores on a measure of hope (Davidson, Wingate, Rasmussen, & Slish, 2009), seem to be simply the reverse of risk factors such as score of a measure of hopelessness (Neufeld & O'Rourke, 2009). One exception to this is the inventory devised by Linehan, Goodstein, Nielsen and Chiles (1983) which measures reasons for living. The Reasons for Living Scale has 48 items, answered on a 6-point Likert-scale, ranging from (1) extremely unimportant to (6) extremely important, which comprise six subscales: survival and coping beliefs, responsibility to family, child concerns, fear of suicide, fear of social disapproval, and moral objections.

The present study examined the role of reasons for living and depression in predicting a history of suicidal; behavior in a sample of South African undergraduate students.

Method

Participants

A questionnaire was administered anonymously to 142 undergraduate students enrolled in a South African university; 28 men, 112 women and 2 who declined; M_{age} = 22.8 yr., SD = 3.5. The students were asked their ethnicity, and 47 described themselves

as Xhosa, 22 as Zulu, 13 as Tswana, 59 as colored (the term in South Africa for those of mixed ethnicity) and one with missing data.

Measures

The Beck Depression Inventory (BDI: Beck et al., 1961) is a 21 item self-report scale with each item having 4 response options in order of frequency. The BDI has been used extensively in research and has proven reliability and validity (Reinecke & Franklin-Scott, 2005). For the present sample, the mean score for the Beck Depression Inventory was 12.9 (SD = 10.4; range 0 to 51)

Reasons for Living-Short Form (RFL). A 16-item Reasons for Living Scale was adapted from a short-form developed by Osman, et al. (1996). For the present sample, the mean score was 73.7 (SD = 12.5, range 23 to 96), and the Cronbach alpha for the 16-item reasons for living scale was 0.83

The students were asked whether they had ever thought about suicide in the past (33.3% said yes), threatened suicide (17.0% said yes) or attempted suicide (12.8% said yes).

Results and Discussion

The scores for depression, shown in Table 1, did not differ significantly for the four ethnic groups ($F=1.83$, $df=3,137$, $p=0.146$), although on t-tests, the colored students tended to have lower BDI scores than the Xhosa students ($t=1.82$, $df=104$, $p=0.071$). This result is consistent with the results of a study by Lester and Akande (1999) which reported no significant differences in the BDI scores of a different sample of Xhosa, Zulu and colored students.

Mean scores for the four ethnic groups for the RFL scale are shown in Table 1, and there were no significant differences by ethnic group.

The four ethnic groups did not differ in the frequency of suicidal ideation or threats, but the Xhosa and colored students had attempted suicide in the past less often than the Zulu and Tswana students (see Table 1).

Age and sex did not correlate with any of the scores, and neither did the number of siblings or birth order. In bivariate correlations, depression and reasons for living scores were associated significantly with past suicidal behavior, and multiple regressions were run using these two scores, along with age and sex, to predict past suicidal behavior. The results are shown in Table 2.

The results of the present study supported previous research, confirming that both depression and reasons for living predicted lifetime suicidal behavior, ideation, threats and attempts.

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Table 1: Means scores for depression and reasons for living (RFL) by ethnic group

	Xhosa	Zulu	Tswana	Colored
n	47	22	13	59
Depression				
Mean	14.28	14.45	15.92	10.58
SD	8.91	8.93	11.49	11.42
				F=1.83, df=3,137, p=0.146
RFL				
Mean	72.91	69.95	71.92	76.07
SD	10.00	12.25	14.73	13/78
				F=1.43, df=3,129, p=0.236
Suicidal Behavior				
Ideation	29.8%	40.9%	46.2%	30.5%
				$\chi 2$=2.01, df=3, p=0.571
Threat	14.9%	22.7%	30.8%	13.5%
				$\chi 2$=2.90, df=3, p=0.408
Attempts	10.6%	22.7%	30.8%	6.8%
				$\chi 2$=7.83, df=3, p=0.050

Table 2: Linear regressions to predict suicidal behavior
(betas shown)

	Ideation	Threat	Attempt
Age	-.01	-.07	.16#
Sex	.02	.11	-.05
Depression	.37**#	.17#	.16#
Reasons for living	-.20*#	-.18#	-.22*#
R^2	.24	.11	.13

* two-tailed p < .05
** two-tailed p < .001
# significant in a backward multiple regression

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ECTOMORPHY AND METHOD FOR SUICIDE

STEVEN STACK, DAVID LESTER, & JOHN. F. GUNN III

Abstract

In a study of 373 suicides, no significant differences were found between suicides using different methods for suicide. However, the trends identified warrant replication of the study on larger samples.

In a study of 126 completed suicides by white males, Lester (1987) compared the ectomorphy scores of those using different methods. Those using suffocation had significantly higher ectomorphy scores (mean = 13.21) than those using guns (mean = 12.56). The present study was to examine this possible association using a larger data set.

Method

The data (Stack & Lester, 2007) were taken from the National Mortality Followback Survey (NMFS; US National Center for Health Statistics, 1990). The NMFS was based on a nationally representativesample of deaths in 1986. It refers to 18,733 adults, all over 25 years of age, who died in the United States. Complete data were available for 373 suicides (84 females and 289 males).Suicides by a particular method were compared with all other suicides using logistic regression.

Following Stack and Lester (2007), a proxy measure of ectomorphy was used to describe physique: height in inches divided by the cube root of weight in pounds. Controls were introduced for alternative predictors of suicide. Social integration was measured using two dichotomous variables: married vs. all others (0, 1), and living alone vs. all others (0, 1). Alcohol abuse was measured as a binary variable, i.e., the respondent was re-ported as drinking three or more drinks per day (0,1). Demographic controls included race where 1 = African American and 0 = all others, age (in years), and a series of binaryvariables for region of the country: Midwest (0, 1), South (0, 1), and West (0, 1), with the Northeast region serving as the benchmark category.

Results

The results of logistic regression analyses for males are provided in Tables 1 and 2. The effect of ectomorphy was not significant on male suicides by hanging. A unit increase in BMI decreased the risk of suicide by hanging by 26% (1-0.74). However, the logistic coefficient is only slightly higher than its standard error. The probability that this association is due to chance is 0.21, much higher than the standard of $p < .05$ for a two tailed test of significance. A test for suppressor effects was done by adding a series of socio-demographic control variables (race, marital status, region of the nation, living

alone, and heavy drinking). The addition of these controls did not alter the results on the BMI.

Table 2 provides the results of the regression analysis where the dependent variable is male suicide by drugs vs. all other methods of suicide. Again, ectomorphy was not a significant predictor of method of suicide. However, the results just missed statistical significance ($p < .07$).

Tables 3 and 4 present the results for females. In neither case did ectomorphy predict the method for suicide, although the results for suicide by hanging approached statistical significance ($p=.06$).

Discussion

The results of this study comparing the ectomorphy scores of men and women using different methods for suicide failed to find statistically significant differences. However, the sample sizes were small, and a study employing larger samples is warranted on the basis of the tendencies identified in the present study.

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Table 1. The effect of ectomorphy (height/cube root of pounds) on male suicide by hanging,: logistic regression results (289 male suicides): National Mortality Followback Survey, 1986.

Variable	Coefficient	s.e.	Wald Chi Square	Odds Ratio
Ectomorphy	- 0.29	0.24	1.54	0.74
Constant	2.03	3.03	0.45	
Model chi squared	1.53			
Nagelkerke R-squared	0.009			

Notes: the addition of controls for marital status, race, living alone, heavy drinking, and region of the nation did not significantly alter these results (the OR for ectomorphy became 0.76).

Table 2. The effect of ectomorphy (height/cube root of pounds) on male suicide by drugs: logistic regression results (289 male suicides): National Mortality Follow-back Survey, 1986).

Variable	Coefficient	s.e.	Wald Chi Square	Odds Ratio
Ectomorphy	-0.60*	0.33	3.34	0.54
Constant	4.94	4.12	1.43	
Model chi squared	3.22			
Nagelkerke R-squared	0.029			
Notes	*p<.07			

Notes: the addition of controls for marital status, race, living alone, heavy drinking, and region of the nation did not significantly alter these results (the OR for ectomorphy became 0.52).

Table 3. The effect of ectomorphy (height/cube root of pounds) on female suicide by hanging: logistic regression results (84 female suicides): National Mortality Followback Survey, 1986.

Variable	Coefficient	s.e.	Wald Chi Square	Odds Ratio
Ectomorphy	-0.51*	0.376	1.77	0.60
Constant	4.40	4.77	0.85	
Model chi squared	1.67			
Nagelkerke R-squared	0.038			
Notes	*p=.06 after controls			

Notes: the addition of controls for marital status, race, living alone, heavy drinking, and region of the nation did not significantly alter these results (the OR for ectomorphy became 0.37, p =.06).

Table 4. The effect of ectomorphy (height/cube root of pounds) on female suicide by drugs: logistic regression results (84 female suicides): National Mortality Followback Survey, 1986.

Variable	Coefficient	s.e.	Wald Chi Square	Odds Ratio
Ectomorphy	.25	.36	.48	1.28
Constant	-4.55	4.69	.94	
Model Chi Square	.51			
Nagelkerke R-squared	.009			

Notes: the addition of controls for marital status, race, living alone, heavy drinking, and region of the nation did not significantly alter these results (OR for ectomorphy became 1.50).

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WELL-BEING AND SUICIDE IN THE AMERICAN STATES

DAVID LESTER

Abstract

An index of well-being for the American states was not significantly associated with the suicide rates of the states, thereby failing to confirm a prediction made on the basis of Henry and Short's theory of suicide.

Lester predicted, on the basis of Henry and Short's (1954) theory of suicide, that regions with a higher quality of life would have higher suicide rates, and this was confirmed in a series of studies (Lester, 1984, 1985a, 1985b, 1986, 1987, 1989, 1990, 1993, 1996). The reasoning is that, when people have a clear external cause to blame for their misery, then there will tend to be angry and, in the extreme, homicidal. When there is no clear external cause for their misery, people will hold themselves responsible for their misery and direct their anger onto themselves, that is, become suicidal.

Pesta, et al. (2010) constructed an index of well-being for the American states for the year 2008, and the present note examines the association between this index and suicide rates for 2008 (obtained from www.suicidology.org). The Pearson correlations for the 48 contiguous, continental states were

Suicide rate and

Well-being	-0.207
Religiosity	-0.129
Crime	-0.053
Education	-0.232
Health	-0.148
Income	-0.341 ($p<.05$)
IQ	-0.137

The only significant predictor of the suicide rate in a multiple regression was income.

It can be seen that all of the correlations were negative, opposite to the prediction based on Henry and Short's theory of suicide, but only one was statistically significant.

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AGGREGATE STUDIES OF SUICIDE AND ANTIDEPRESSANTS: A CRITIQUE[2]

Tamás Zonda, David Lester, Károly Bozsonyi, & Zoltán Kmetty

Abstract

Background and objectives: There are many ecological studies in the literature which have reported inverse connections between suicide rates and the use of antidepressants (ADs), suggesting that the increase in antidepressant use could be the cause of the decrease in suicide rates. ("antidepressant theory").

Methods: Authors in an earlier study has shown that aggregate studies have many theoretical-methodological problems. In this paper they detail the practical issues. They have collected ecological (aggregate) studies which found no inverse (or mixed) relationship between increasing AD use and decreasing suicide rates. There was also studied the distribution of the antidepressants use of the different diagnostic groups.

Results: 1. In the aggregate studies there is not known the really use of AD of suicide victims which clearly implies that possibility of ecological fallacy. 2. In several countries the decrease in suicide rates started earlier than a measurable increase in the sale of ADs. 3. Authors revealed on a database, that only 53.93% of the ADs were purchased per year for the patients with F25 and F30-39 ICD codes, who carries a high suicide risk.

Conclusions: The results called into question the theory, that the increase in antidepressant use could be the determinant reason of the decrease in suicide rates in a given population. The results of all ecological studies in suicide research are questionable where the distribution of antidepressant use is not separated according to medical indication. The results of the ecological models should be treated with caution in general.

Keywords: suicide rate, antidepressants, ecological studies, methodological problems.

Suicide rates started to decrease across Europe during the 1980s, but the reasons for this decline remain unknown. This decrease coincided with increases in the gross domestic product of the countries and decreases in inflation and unemployment [1, 2]. In the majority of former members of the Soviet Block, this decrease came later, between 1988-1992, a period that coincided with the liberation of these countries, which involved fundamental social, political, economic and moral changes[3,4]. Research carried out to investigate the causes of decrease in these rates led to the birth of the "antidepressant theory" which argued that an increase in the use of new antidepressants was the cause of the decrease in the number of suicides [5, 6] .

[2] The Hungarian version of this paper is: Zonda, T., Bozsonyi, K., & Kmetty, Z. Öngyilkosság és antidepresszívumok, ökológiai vizsgálatok. Mentálhigiéné es Pszichoszomatika, 2016, 17(2):97-116. It is also available on ResearchGate.net

Aggregate time-series studies of nations and regions were the major methodology used in order to investigate the relationship between the amount of antidepressants (AD) prescribed or purchased and the suicide rate in a given population over a given period. If these studied found negative (inverse) correlations between the two variables, this was viewed as support for the hypothesis that an increase in AD sales (or use) was the only cause for the decrease in suicide rates.

Time-series studies present theoretical and methodological problems, and the present paper describes a couple of these problems and explores whether they raise doubts about the validity of the antidepressant-suicide hypothesis.

The Dilemmas Raised by Time-Series Studies of Suicide

The aggregate nature of the data

The aggregate nature of the data raises a fundamental problem. In an aggregate study, we know the size of the population studied and we know how many of them died by suicide. However, we do not know

1. how many of these suicides suffered from a major depressive disease (MDD) (which carries a high suicide risk and for which ADs are prescribed),
2. how many of them received a relevant treatment,
3. whether the suicides purchased the prescribed antidepressant and, if yes,
4. were they taking it as prescribed (compliance), and
5. whether was there any antidepressive effect at all (that is, how many of the suicides were non responders).
6. It is important also emphasize that there is an obvious difference between the words *prescribe, purchase* and *use* of a medicine. Studies need to make it quite clear which of these terms are involved in their definition of the variables are employed in the research.

Because of these issues, it might well be that the decrease (or part of the decrease) in the number of suicides attributed to increased AD usage is in fact be attributable to those who did not receive any AD treatment at all [7-9]. These results are incorrect and clearly show an ecological fallacy.

Problems in regression analyses

First, regression analyses differ in the time periods studied, the regions studied, the measurement of variables, and the use of control variables[10, 11]. It is well-known that regression and correlational studies do not establish cause and effect. The present situation is further complicated by the fact that ADs do not influence suicide directly, but rather that they affect a psychiatric illness. ADs, therefore, are hypothesized to have an indirect effect on an unknown percentage of depressed patients of whom an unknown number die from suicide.

Prescription practices

These is no information in the literature about the distribution of ADs prescribed for different psychiatric disorders. ADs are prescribed for many disorders other than depression, including anxiety disorders, obsessive-compulsive disorders, panic disorders, PTSD, eating disorders, premenstrual dysphoria, tinnitus, pain syndromes, dementias, enuresis, etc.). Since different disorders have different risks for suicide, it may be that ADs are less commonly prescribed for MDD than for other psychiatric disorders.

To illustrate this problem, we used the aggregated quantity of antidepressants (NO6AA, NO6AB, NO6AG, NO6AX) used by outpatients between 2007-2010, in the DDD/1000people/day format from the official database of the Hungarian National Health Insurance Fund (OEP). (97.5% of the annual consumption of ADs takes place in patients using pharmacies by outpatients in Hungary, so our sample is adequate.)

It was possible to separate the groups of patients who have purchased the prescribed ADs based on their BNO-10 codes (compatible with DSM-IV-TR): F00-F03 (dementias), F063 (organic affective disorders); F25 (schizoaffective disorders); F30-39 (affective disorders); F40-48 (neurotic, stress-related and somatoform disorders); F50 (eating disorders) and all others. The database of the Hungarian Central Statistical Office provided the data on suicide. The analysis revealed (see Table 1) that, during the period examined (2007-2010), 53.9% of the ADs were purchased by patients with F25 and F30-39 codes who are in fact high-risk groups for suicide, while almost half of ADs (46.1%) were purchased for non-depressed patients. Hungary may not be atypical in this regard.

It is important to stress, therefore, that the number of prescriptions for ADs cannot be used as a proxy indicator of the number of patients with major depressive disorders. Thus, the conclusions of all aggregate studies of the AD-suicide hypothesis are questionable if the distribution of antidepressant use is not separated according to the psychiatric disorder for which the ADs were prescribed or purchased.

Aggregate Studies with Contradictory Results

Many aggregate studies exist which have failed to find a negative relationship between increasing AD prescriptions (or use) and suicides rates or where results were mixed (inconsistent). A meta-analysis of ecological studies published between 1970 and 2007 identified 19 studies of which only eight supported a relationship between the increased sale of ADs and decreasing suicide rates[12].

For the present paper, we searched the literature to identify studies whose results either did not support the AD-suicide hypothesis or which produced mixed results. We used the databases of Medline, PubMed and Cochrane Database of Systematic Review for the period 1999-2017. The studies identified are shown in Table 2[12-28,11].

A couple of studies explored the association between AD use and suicide rates in *many countries*. Although this methodology seems to be an improvement, the more countries involved in aggregate studies, the greater the chance of distortions due to different databases, health care systems and culture.

Ludwig et al.[29,] studied data from 26 different countries and concluded that, overall, an increase in sales on ADs was associated with a decrease in suicide rates. The authors themselves drew attention to several limitations of their findings. For example, they found that the decrease in suicides differed by age group, but the distribution of SSRI use by age group was unknown. The problems of the mathematical procedure they used, was already detailed[11]. There are additional problems with the paper that the data used for the use of ADs are not accurate in some of the countries. They have worked probably factory marketing's data, but not the date of official permit of the given AD. ((e.g. for Austria, Belgium, Denmark and Spain). The same situation happened also in Hungary: it was in 1994 that the *first tangible increase in SSRI* sales could be observed, but at that point suicide rates had already been decreasing for six years and among elderly for 10 years [4]. Also in several Scandinavian countries, the consumption of ADs started later than the decrease in suicides[30].

Gusmáo et al.[31] studied 29 European countries between 1980 and 2009. Their sources of data are not uniform (understandably), and there was a high degree of multicollinearity between the variables used (e.g., between GDP and ADs) (Recent authors have already detailed the problems of the mathematical procedure they used[11)]. Another problem is the same as the above mentioned: Gusmáo at al. concluded that, *overall, increasing AD use was associated with decreasing suicide rates*, but their tables show that the decrease the suicide rates had already started before the increase use of ADs in many countries (Bulgaria, Croatia, Czechia, Estonia, Hungary, Latvia, Slovakia, Slovenia, and Switzerland). During the period under their investigation, *stagnation* of suicide rates was characteristic of some countries (Holland, Iceland and Israel), while there was an *increase in* Ireland, Poland and Spain and a steep increase in Malta[2].

Kamat, et al.[32] in a study of OECD countries for the period 1995-2008, found a *positive relationship* between AD prescription rates and suicide rates. The reasons for the discrepancy between the result of this study and the two aforementioned studies[29,31,32] are not clear, but this discrepancy clearly indicates that much extensive research is required to ascertain whether the association between AD use and suicide rates is positive or negative.

The Role of Mental Policies

Burgess et al.[33] have tested (in 100 countries) the hypothesis that the presence of national mental health policies, programs and legislation would be associated with lower national suicide rates. Contrary to the hypothesized relationship, their study found that after introducing mental health initiatives (with the exception of substance abuse policies), countries' *suicide rates rose.*

Shah, Bhandarkar & Bhatia[34] in a cross-national study, found a significant *positive correlation* between the number of suicides and the percentage of the total healthcare budget spent on mental health. The ratio of suicides was higher in those countries where mental health services were better (more psychiatric beds, psychiatrists, psychiatric nurses, qualified mental health specialists).

Rajkumar et al.[35] examined suicide and mental health parameters of 191 countries and found a *significant positive relationship* between suicide rates and the mental hygiene system ($p< 0.001$), number of psychiatrists ($p< 0.006$), and of psychiatric beds ($p < 0.001$)). This study also identified a paradoxical situation in which suicide rates were higher in countries with better psychiatric service systems. Since the issue is complex, the interpretation of this finding requires caution, but the authors seem to suggest that *population-based national health strategies* might have better results on national suicide rates than health services acting at level of individuals.

It is clear from these three studies that the studies of the association between AD use and suicide rates needs to control for the mental health policies and facilities in the countries studied.

Discussion and Conclusions

1. Our analysis of the research reviewed suggests that theoretical-methodological and practical problems in the aggregate studies of the association between AD use and suicide rates over time in countries throw doubt on the validity of this association. In particular, in aggregate studies, it is not known the extent to which depressed and suicidal people use ADs and the results of such studies always carry the possibility of the *ecological fallacy.*

2. Based on a four-year sample of the National Health Insurance Fund database in Hungary, *almost half (46.07%) of ADs were purchased for disorders other than major depression*. Consequently, the number of ADs prescribed and really purchased is *not a valid indicator of the number of patients under effective treatment.* Therefore, the results of all aggregate studies are invalid when the distribution of antidepressant use is not separated according to medical indication.

3. When reviewing the ecological studies published, it was revealed that many aggregate studies were inconsistent or with mixed results. Furthermore, in several countries the *decrease in suicide rates started earlier* than a measurable increase in the sale of ADs.

4. We would like to emphasise that patients affected by depression need to be treated (major depression usually with ADs), and if the patients cooperate, many of them will experience remission and some of them will be cured. An *unknown percentage* of them will commit suicide. Unfortunately, the ecological studies can not measure the level of prevention; such models should be treated with caution in general.

According to the aggregate studies in suicide research we have cite the De Leo' words: "Since suicide is the worst of all human tragedies, the desire to find solutions inevitably brings us to adopt unrealistic simplifications and unfruitful searches for unifying theories. Not surprisingly, the state of the art of suicide prevention currently shows very few evidence-based results."[36]

Declaration of interest

The authors report no conflicts of interests. The authors alone are responsible for the content and writing of the paper.

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Table 1. Distribution of purchase of antidepressants by the different groups of outpatients by diagnosis (%) in Hungary in the years 2007-2010 (DDD/1000 person/day

ICD code	**Year**				**Diagnostic group**
	2007	**2008**	**2009**	**2010**	
Others	9.86	7.9	7.33	6.98	
F40-F50	32.92	32.76	32.23	31.8	Anxiety and eating dísorders
F06.3	3.67	4.58	5.47	6.16	Organic mood disorders
F25-F25.9	1.13	1.19	1.11	0.09	Schizoaffective disorders
F30-F39	51.64	53.04	53.45	54.09	Affective disorders

Table 2. Ecological (aggregate) studies which found no inverse (or mixed) relationship between increasing AD use and decreasing suicide rates

Researcher(s)	Country	Date of research	Comment	Effect
Oravecz (1999)[13]	Slovenia	1986–1990		NA
Oravecz et al. (2003)[14]	Slovenia	1985–1997		NA
Kapusta et al. (2009)[15]	Austria	1991–2005	AD use ↑ density of psychotherapists also ↑	MA
Barbui et al. (1999)[16]	Italy	1998–1996		MA
Guaiana et al. (2005)[17]	Italy	1955–2000		NA
Guaiana et al. (2011)[18]	Italy	2000–2005		NA
Kelly et al. (2003)[19]	Ireland	1988–1999	AD-use ↑ suicide rate ↑	NA
Largey et al. (2009)[20]	Ireland	1984–2002	AD-use ↑ suicide rate ↑	NA
Wheeler et al. (2008)[21]	UK	2003–2008	AD-use ↑ / suicide rate: no change	NA
Kessler et al. (2005)[22]	USA	1990–1992 2001–2003		MA
Safer & Zito (2007)[23]	WHO, USA	2007		NA
Helgason et al. (2004)[24]	Iceland	1950–2000	AD- ↑ / suicide rate: no change	NA
Dahlberg & Lundin (2005) [25]	Sweden	1990'years	Decrease among youth only	MA
Zahl et al. (2010)[26]	Scandinavian countries	1990–1998		NA
Blüml et al. (2017)[27]	Germany	2010-2013		MA
Alameda-Palacios et al. (2013)[28]	Andalusia	1975–2012		NA
Kmetty, Bozsonyi, Zonda (2016)[11]	Hungary	1982-2011		NA

Note: ↓ = decrease; ↑ = increase; NA = No association; MA = mixed association