

Predictive role of risk and protective factors before and after suicide intervention therapy

Paul W.G. Surgenor

Research Department, Pieta House, Dublin, Ireland

Pieta House, 6 Main Street, Lucan, Co. Dublin, Ireland

paul.surgenor@pieta.ie

While research has increasingly identified risk factors (those that increase the risk of suicide) and protective factors (those that protect against suicide), there has been little research into the impact and predictability of these factors before and after engaging in a therapeutic intervention. This research aimed to identify and compare the presence and predictive impact of risk and protective factors on suicidal ideation before and after an intervention. Clients attending a suicide intervention charity were invited to participate pre- and post- therapy. Items from the Positive and Negative Suicide Inventory were administered by a therapist before therapy had begun, and by an independent researcher one month after therapy had been completed. For protective factors there were three significant differences pre-therapy, and the greatest predictor of positive ideation was more frequent physical activity. There were no differences post-therapy. For risk factors there were five significant differences pre-therapy, with having a plan to die by suicide the greatest predictor of suicidal ideation. Post-therapy there were difference for gender and age. The risk factors that best predicted suicidal ideation pre-therapy were not significant post-therapy, suggesting that risk factors may be moderated by therapeutic intervention. The presence of age and gender as continued risk factors raised questions over the permanence and classification of risk factors, and the potential ability of different intervention approaches to effectively reduce the impact of these factors.

Keywords: risk factors; protective factors, suicide intervention; therapy; Pieta House

Introduction

Sher, Oquendo, and Mann (2001) succinctly summarise risk factors as anything that places the individual at greater potential for suicidal behaviour, and protective factors as anything that reduces the likelihood of suicide. In terms of a stress diathesis model of suicidal behaviour, risk factors can be viewed as creating a predisposing diathesis that determines an individual's response to a stressor, while protective factors may reduce the risk of a suicide attempt when faced with specific triggers (Roy, Sarchiapone, & Carli, 2007). Examples of risk factors include depression, hopelessness, or negative thoughts about stress-related events, while examples of protective factors include adequate problem-solving strategies, family connectedness, or positive friendship relationships (Osman, Gutierrez, Kopper, Barrios, & Chiros, 1998).

Two separate but related constructs (Williams, Davis, Hancock, & Phipps, 2010), protective factors are not simply the absence of risk factors (Cha & Nock, 2008), nor are they simply the opposite of risk factors (Gutierrez & Osman, 2008). Although extant research into suicidal behaviours has focused predominantly on risk (Beautrais, 2005) at the expense of protective factors (Bryan, Ray-Sannerud, Morrow, & Etienne, 2013) this imbalance has increasingly been redressed by the rise of positive psychology in mental health research (Schiffrin, 2014).

While our understanding of these two factors and their relationship has been increasingly developed in recent years, one area yet to receive research attention is the comparative impact of these factors before and after a suicidal crisis. A range of studies have explored the presence of these factors within and between various suicidal and control samples, and the association with suicidal ideation and behaviours (see Hawton, Casañas i Comabella, Haw, & Saunders, 2013; Large, Sharma, Cannon, & Ryan, 2011; McLean, Maxwell, Platt, Harris, & Jepson, 2008), but to date no research appears to

have been conducted on the impact and predictability of risk and protective factors for an individual before and after they receive a therapeutic intervention.

The aim of this study was to identify and compare the presence and predictive impact of risk and protective factors on a suicidal individual's desire to live or die, before and after such an intervention. The goal was to provide information on the permanence and variability of these factors, and whether they persisted after they had been targeted by a suicidal intervention designed to reduce risk and enhance protective factors.

Method

Participants

Clients attending a suicide intervention charity were invited to participate. The organisation provides free crisis intervention to those with suicidal ideation and the therapeutic model combines a reduction of risk factors with the identification and development of personally salient protective factors (Surgenor, Freeman, & O'Connor, in press). The therapy programme runs over the course of 15 one hour sessions, with the opportunity for additional sessions if necessary. All therapists have been accredited by the Irish Association for Counselling and Psychotherapy.

Clients over the age of 18 and presenting with suicidal ideation were invited to participate. Four-hundred and thirty-two (65.1%) of the 664 invited participated in the pre-therapy stage (55.6% female, 44.4% male). Of this number 147 (49.7% female, 50.3% male) also participated in the post-therapy stage. Analyses are based on this cohort who engaged both pre- and post- therapy.

Procedure

A questionnaire was administered to participating clients at the assessment stage, before any therapy had begun. To avoid misunderstanding and issues with literacy the therapist read the questions to the client and recorded their responses. One month after their therapy programme had been completed, clients were contacted by phone and the same questions administered by independent researchers.

The study received ethical approval from the Research Ethics Committee at the Adelaide & Meath Hospital, Incorporating the National Children's Hospital in Dublin.

Measures

In addition to a range of socio-demographic factors, the Positive and Negative Suicide Ideation Inventory (PANSI) (Osman et al., 1998) was administered. This involves items that assess the frequency of factors that increase the risk for suicidal ideation and behaviours (Negative Suicidal Ideation (NSI)) and those that act as buffers against suicidal behaviours (Positive Suicidal Ideation (PSI)). Responses are on a five point Likert-type scale ranging from one (none of the time) to five (most of the time).

Clients were also asked about a range of issues identified from existing literature as either risk or protective factors. A summary of these risk and protective factors is presented in Table 1.

[Insert Table 1 around here]

Results

Considering overall levels of Positive Suicidal Ideation (PSI) and Negative Suicidal Ideation (NSI) paired-sample t-tests revealed significantly higher ($t(82) = -7.62, p < .01$) mean levels of PSI post- ($M = 13.76, SD = 3.66$) than pre-therapy ($M = 9.48, SD =$

3.68). Mean NSI was significantly lower ($t(81) = 9.58, p < .01$) post- ($M = 7.77, SD = 4.82$) than pre- therapy ($M = 13.04, SD = 4.22$).

Table 1. Summary of key risk and protective factors.

Risk factors	
Factor	Research evidence
Deliberate self-harm	Chung et al., 2013; Hawton, Zahl, & Weatherall, 2003; Hepp et al., 2004
Dysfunctional family	Consoli et al., 2013; Hawton & James, 2005; Keeley, O'Sullivan, & Corcoran, 2003
Frequent self-harm	Corcoran et al., 2004; Keeley et al., 2003; Perry et al., 2012
Lives alone	Bille-Brahe & Jessen, 1994; Kinyanda, Hjelmeland, Musisi, Kigozi, & Walugembe, 2005; Nordentoft et al., 1993
Male gender	Casey, Gemmell, Hiroeh, & Fulwood, 2012; Christensen, Batterham, Soubelet, & Mackinnon, 2013; Encrenaz et al., 2012; Park, 2013
Mental illness	Beghi et al., 2013; Bergmans, Langley, Links, Lavery, & James, 2009; Chandrasekaran & Gnanaselane, 2008; Rosenberg et al., 2005
No relationship	Botega, Barros, Oliveira, Dalgarrondo, & Marín-León, 2005; Pirkis, Burgess, & Dunt, 2000; Welch, 2001
Non-heterosexuality	Haas et al., 2011; Kann et al., 2011; Marshal et al., 2011; Plöderl et al., 2013
Physical illness	Kelleher, Keohane, Corcoran, Keeley, & Neilson, 2000; O'Connor & Sheehy, 1997; O'Reilly et al., 2008
Previous attempt	Arun & Palimar, 2008; Beghi et al., 2013; Nock et al., 2008; Silverman et al., 2007
Recent loss	Cait, 2012; Goldston, Reboussin, & Daniel, 2006; Wilson & Marshall, 2010
Relationship ended	Arensman et al., 2013; Pompili et al., 2011
Social activity	Duberstein et al., 2004; Farhangdoost, 2010
Substance abuse	Biong, Karlsson, & Svensson, 2008; da Silva Cais, Stefanello, Fabrício Mauro, Vaz Scavacini de Freitas, & Botega, 2009; Sheikholeslami, Kani, & Ziaee, 2008
Suicidal ideation	Crane et al., 2007; da Silva Cais et al., 2009; Scoliers et al., 2009
Suicide plan	Borges et al., 2006; Nock et al., 2008
Unemployed	Corcoran & Arensman, 2011; Saurina, Bragulat, Saez, & López-Casasnovas, 2013; Yoon, Junger, Kim, & Koh, 2012
Younger age	Chandrasekaran & Gnanaselane, 2008; Dugas et al., 2012; Perry et al., 2012
Protective factors	
Factor	Research evidence
Academic success	Beautrais, 2000; Fergusson, Beautrais, & Horwood, 2003
Engaging with health services	Cavanagh, Owens, & Johnstone, 1999; Chesley & Loring-McNulty, 2003
Family responsibility	Marzuk et al., 1997; Oquendo et al., 2005; Qin & Mortensen, 2003
Employment	Paul Corcoran & Arensman, 2010; Kraut & Walld, 2003
Family support	Coleman, Kaplan, & Casey, 2011; Fergusson et al., 2003; Kidd et al., 2006
Female gender	Beautrais, 2006; Fraser, Geoffroy, Chachamovich, & Kirmayer, 2014; Hawton, 1998
Healthy lifestyle	Tomori & Zalar, 2000; Wasserman et al., 2012
Heterosexuality	Eisenberg & Resnick, 2006; Mathy, Kerr, & Lehmann, 2003
Local community	Neeleman, 2002
Marriage	Casey et al., 2012; Corcoran & Nagar, 2010; O'Reilly et al., 2008
Older age	Bernal et al., 2007
Physical health	Chandy, Blum, & Resnick, 1996; Nock et al., 2013
Positive relationships	Beautrais, 2000; Fergusson et al., 2003; Whatley & Clopton, 1992
Social support	Bille-Brahe & Jensen, 2004; Johnson, Wood, Gooding, Taylor, & Tarrier, 2011; Kleiman & Liu, 2013

Pre-Therapy

An analysis of variance identified significant differences on levels of NSI pre-therapy for five risk factors (see Table 2), with higher NSI for clients who had a relationship end recently, expressed suicidal ideation, had a suicide plan, and reported lower levels of physical and social activity. A multiple regression was conducted to evaluate how well these five risk factors predicted the client's suicidal ideation. All five risk factors significantly predicted suicidal ideation ($F(5, 338) = 8.16, p < .01$), and accounted for approximately 11% of the variance ($R^2 = .11, \text{Adjusted } R^2 = .10$). Suicidal ideation was primarily predicted by the presence of a plan to die by suicide ($\beta = 2.92, t(332) = 3.03, p < .01$) and expressed suicidal ideation ($\beta = 2.21, t(332) = 1.94, p = .05$).

Significant differences were noted for three protective factors on levels of pre-therapy PSI, with higher levels for clients who had not engaged with any treatment service, and those who reported higher levels of physical activity and socialising. A multiple regression conducted using these three predictor variables suggest that these factors explained a significant proportion of variance in PSI scores, $R^2 = .13, F(3, 302) = 14.93, p < .001$. The greatest predictor was levels of physical activity, ($\beta = 2.03, t(301) = 4.99, p < .01$).

Post-Therapy

An analysis of variance on post-therapy NSI scores identified significantly higher scores for males ($F(1, 116) = 4.15, p < .05$) and older clients ($F(1, 116) = 4.95, p < .05$). A multiple regression revealed that both factors accounted for approximately 6% of the variance ($R^2 = .06, \text{Adjusted } R^2 = .05$), although age was the only significant predictor ($\beta = -2.20, t(131) = -2.72, p < .01$).

Analysis identified no significant post-therapy differences in for any protective factors.

Table 2. Summary of significant differences for risk and protective factors.

Factor	F Values
<i>Risk Factors</i>	
Relationship recently ended	$F(1, 316) = 4.37, p < .05$
Suicidal ideation	$F(1, 316) = 9.88, p < .05$
Suicide plan	$F(1, 316) = 9.00, p < .01$
Physical inactivity	$F(1, 316) = 5.57, p < .05$
Social inactivity	$F(1, 316) = 6.67, p < .01$
<i>Protective factors</i>	
Engagement with health services	$F(1, 332) = 4.09, p < .05$
Physical activity	$F(1, 332) = 9.73, p < .01$
Social activity	$F(1, 332) = 6.01, p < .05$

Discussion

Significant differences were noted for levels of positive and negative suicidal ideation pre- and post- therapy, indicating that clients reported less frequent feelings of suicidal ideation and more frequent feelings of positivity towards life following therapy.

Analysis of protective factors identified three factors associated with higher levels of PSI: clients who had not engaged with health services, those with greater levels of social engagement, and those with greater levels of physical activity. The latter was the greatest predictor of more frequent positive attitudes towards living. The lack of significant difference for any factor post-therapy may be interpreted as the therapy providing an equalisation effect. The advantages provided by pre-existing factors may be have been subsumed by the process of developing a range of protective factors during therapy. The implication would be that these pre-existing factors have not become less important or potent in their ability to buffer against suicidal ideation, but instead the additional factors developed during the therapeutic intervention have moderated their singular impact.

In terms of risk factors, differences were observed for five factors pre-therapy, with negative suicidal ideation mainly predicted by the presence of a plan to die by suicide. Post-therapy there were no differences for these five factors, however there were differences indicating higher levels of NSI for older clients and for male clients. Higher levels of NSI among older clients was contrary to expectations, though not without precedent (Agerbo, Nordentoft, & Mortensen, 2002; Beghi, Rosenbaum, Cerri, & Cornaggia, 2013; Sachs-Ericsson, Corsentino, Rushing, & Sheffler, 2013; Scoliers et al., 2009). There are several possible interpretations for the differential impact of risk factors pre- and post- therapy. The first is that the influence of risk factors can be moderated by therapeutic intervention. This would imply that the impact of risk factors is neither constant nor permanent and can vary according to internal or external factors. Consequently, the role of existing risk factors may be lessened by appropriate interventions, and the continued differences for older age and male gender post-therapy may be attributed to either the inability of the intervention to address these issues, or the pervasiveness of these two factors with increased suicide risk (Arensman et al., 2013). A second interpretation relates to the classification of risk factors. Maris (2002) suggested that risk factors could be characterised as predisposing, vulnerability, or trigger factors. The significant pre-therapy risk factors could be categorised as either trigger or vulnerability factors, while the post-therapy factors could be construed more as predisposing factors. Due to their nature, therefore, predisposing factors may be more enduring than trigger or vulnerability factors and more challenging to address.

Limitations and future directions

One limitation of this study was the decreasing sample between pre- and post- therapy conditions. While no clients had completed suicide during this time many declined the offer to participate in the post- therapy condition because they felt that they had

progressed beyond the suicidal crisis and were reluctant to revisit those issues.

Similarly, while the oral administration of the questionnaire may affect social desirability it was felt that, due to their current suicidal crisis, this method would result in a fuller, more accurate, and less intimidating process. These issues may affect the generalizability of the findings of this research.

Future directions for research include the process during which protective factors are developed during interventions, the potential interactions this involves (with other protective factors and risk factors), and the resulting duration of these on buffering suicidal ideation and behaviours. Given the persistence of risk factors post-therapy, additional research is also required to investigate potential variability in the permanence of certain factors, the differential impact of factors across categories, and the effectiveness of different intervention methods in their ability to reduce the impact of these factors.

Conclusion

While there has been considerable research on risk, and increasingly, protective factors and their influence on suicidal ideation and behaviours, little is known about the difference in the presence and predictability of these factors pre- and post- therapy. The findings from this study suggest that there are differences in the influence of risk and protective factors before and after therapy. The initial benefit of not accessing treatment services, and greater physical activity and socialising as protective factors were subsumed by a therapy programme that developed a range of supportive buffers and networks against current and future suicidal crises. The risk factors that best predicted suicidal ideation pre-therapy were not significant post-therapy, although age and gender did emerge as predictors. These findings have implications for our perceptions of the permanence and classification of risk factors, and the potential ability of different

P.W.G Surgenor

intervention approaches to effectively reduce the impact of these factors.

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