

An exploration of attrition among clients attending a therapeutic suicide prevention programme in Ireland.

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Objective: Research has established that attrition in therapeutic suicide prevention programmes has an adverse impact on effectiveness. While there has been limited research into attrition in a general therapy population using regression techniques, no research to date has attempted to predict non-completion in a multidimensional manner using Structural Equation Modelling techniques. This study aimed to comprehensively examine attrition within a suicide intervention programme, in order to better predict clients at risk of non-completion of therapy.

Method: Secondary analyses were conducted on a range of demographic and clinical variables from 856 anonymised files of clients attending a suicide intervention charity in Ireland.

Results: Two well-fitting models of client attrition were identified: one predicting the number of sessions attended (involving depression, suicidal ideation, social support, previous attendance at therapy and GP engagement); and one predicting client drop-out (suicidal ideation, deliberate self-harm and GP engagement). **Conclusions:** Based on the interaction of factors identified in this study, therapists have an opportunity to adapt the therapeutic programmes of clients that match a particular profile to provide additional support or resources to reduce potential non-adherence.

Key words: suicide; attrition; suicide prevention; intervention; Pieta House

Introduction

Suicide and deliberate self-harm (DSH) have been widely acknowledged as public health concerns (Corcoran, Ruellbach, Perry & Arensman, 2010; WHO, 2014). Despite the increasing availability of therapeutic support for at-risk individuals (Arensman et al., 2013), client progress has been significantly impeded by poor therapy adherence in suicidal populations (Gearing, Schwalbe & Short, 2012). Furthermore, there is little consensus on the potential correlates of adherence behaviours (Barrett, Chua, Crits-Christoph, Gibbons & Thompson, 2008), particularly within an Irish context. The aim of the current study was to identify the factors that best predicted retention and attrition in an Irish suicidal population.

Attrition

Attrition, defined as the decision to end therapy before completion, without prior therapist consultation, and preceding a resolution to the presenting difficulties (Swift & Greenberg, 2012), has been a significant obstacle to service provision for decades (Mehlum & Ramberg, 2010). While it has generated much research interest (Swift & Callahan, 2011), there has been little progress in accurately explaining or predicting the prevalence of therapeutic attrition.

Documented rates of attrition from psychosocial treatment range from 6% to 47% across a range of samples (Bados, Balague & Sadana, 2007; Wells et al., 2013; Wierzbicki & Pekarik, 1993). Evidence suggests that suicidal populations have been particularly difficult to engage, with between 27% (Murphy et al., 2010) and 50% (Lizardi & Stanley, 2010) of suicidal clients refusing outpatient therapy or failing to attend. Of those who do attend therapy, more than one third are no longer in therapy after 3 months (Monti, Cedereke & Ojenhagen, 2003), with the majority terminating following six or fewer sessions (Spirito, Boergers, Donaldson,

Bishop & Lewander, 2002). Such attrition has been shown to impact negatively on client outcomes and the morale of therapeutic staff (Swift, Greenberg, Whipple & Kominiak, 2012). Given the increased risk for clients in the months following a suicide attempt (Victor & Klonsky, 2014), efforts to engage and maintain this population in therapy are crucial.

Factors associated with attrition

The factors associated with attrition remain relatively unknown (Swift et al., 2012). Issues such as higher socioeconomic status, higher educational level, employment (Fenger, Mortensen, Poulsen & Lau, 2011; Williams, Ketring & Salts, 2005), and GP attendance (Murphy et al, 2010) have received a level of consensus within the literature. However, an extensive range of issues including age and gender (Johansson & Eklund, 2005; Saxon, Ricketts & Heywood, 2010), psychiatric diagnosis, symptom severity and suicidal behaviours (Brookman-Frazer, Haine, Gabayan & Garland, 2008; DePanfilis et al., 2012), wait-times and referral source (Sherman, Barnum, Nyberg & Buhman-Wiggs, 2008), and social support (Chronister, Chou & Liao, 2013) have received less consistent support.

The majority of research into the predictive ability of variables on attrition has been in general mental health settings (Hampton-Robb, Qualls, & Compton, 2003; Sherman et al., 2008), with fewer addressing suicidal populations in particular. Existing evidence has identified lower attrition to appointments among clients engaging in self-referral (Sparks, Johnson & Daniels, 2003), and presenting with greater anxiety, illicit drug use, longer hospitalisation, and a plan to die (Granboulan, Roudot-Thoraval, Lemerle & Alvin, 2001). Higher attrition has been documented among those with more severe mental health difficulties (Preuss et al., 2012).

Few studies within this suicidal population have examined the potential correlates of attrition and their predictive ability (Murphy et al., 2010). Those that do so frequently limit the scope of enquiry by addressing a small number of factors (Hampton-Robb et al., 2003) which, due to the multidimensionality of attrition (Sherman et al., 2008), reduces the generalisability of findings.

Aims

Building on the regression framework employed by Pena, Matthieu, Zayas, Masyn and Caine (2012) that explored client profiles to identify risk of suicide, this study aimed to employ Structural Equation Modelling (SEM) to identify the factors that would predict client attrition at Pieta House, a suicide intervention charity in Ireland.

The present study aimed to: examine rates of attrition in an Irish sample of clients attending a suicide intervention therapy programme; identify the demographic, clinical, health service utilisation, and service variables that predict attrition; and determine the combination of factors that best predict attrition within the population of interest.

Method

Research Design

A quantitative cross-sectional design using secondary data analysis was employed to explore attrition and associated factors among clients attending a suicide intervention service.

Participants

Anonymised data were provided for 856 clients over the age of 18 years old. There were more females (52.3%) than males (47.7%). The age range was 18 to 79 years old (median 34 years

old), and more than half of the sample had not completed secondary level education (57.3%), were unemployed (68.9%), and were not in a relationship (61.3%). Of the 31.1% of clients that reported a mental illness, depression (69.6%) was the most common diagnosis. Most (78.5%) reported active suicidal ideation and 38.6% had previously attempted suicide.

Measures

In addition to basic information on socio-demographic background, family and clinical history, and presenting condition, three standardised scales were used to assess self-esteem, depression, and suicidal ideation. The Single-Item Self-Esteem Scale (SISE) (Robins, Hendin & Trzesniewski, 2001) is a single-item Likert scale that asks the extent to which the client agrees with the phrase 'I have high self-esteem'. Depression was measured by the Patient Health Questionnaire (PHQ-9) (Kroenke, Spitzer & Williams, 2001), a nine-item depression scale in which participants respond to difficulties experienced within the previous fortnight. The Positive and Negative Suicide Inventory (PANSI) (Osman et al., 2002) was used to determine the level of positive (desire to live) and negative (desire to die) suicidal ideation.

A primary outcome measure was the number of sessions attended by the client. In order to maintain consistency with measures of attrition in previous studies (Swift & Greenberg, 2012), those below the 25th percentile (8 sessions or less) were categorised as 'non-completers', and those above this (9 sessions or more) were categorised as 'treatment complete'.

Procedure

The secondary data were originally collected from clients presenting to Pieta House by qualified psychotherapists between July 2012 and November 2013. The sample of 856 represents a participation rate of 37.2%. This participation rate can be accounted for in part by the removal of clients under the age of 18, who represented 30% of the original sample. Ethical

approval was obtained from the Trinity School of Psychology Postgraduate Research Ethics Committee.

Results

Results are considered in three sections, addressing each of the three aims: to examine rates of attrition in the suicide intervention therapy; to identify the demographic, clinical, health service utilisation, and service variables that predict attrition; and to determine the combination of factors that best predicts attrition within this group.

Attrition rates in the suicide intervention therapy

The therapy programme is designed to last approximately 15 sessions. The number of sessions ranged from 1 to 38, with a median number of 13 sessions attended. Almost a quarter (22.4%) of clients were categorised as 'did not complete therapy'. Of the 77.5% that completed therapy the majority (59.2%) attended 14 sessions.

Variables that predict attrition

Preliminary chi square, Mann Whitney U, correlational, and Kruskal-Wallis analyses revealed a range of significant differences in relation to variables associated with attrition (Table 1). A higher percentage of non-completers were unemployed (24.7%) than completers (17.3%) ($\chi^2(1, n = 856) = 5.432, p = .020$), and were not attending their GP ($\chi^2(1, n = 651) = 4.206, p = .040$) (69.9%). A higher percentage of non-completers presented with lower symptom severity in relation to suicidal ideation ($\chi^2(1, n = 856) = 16.282, p = .000$), DSH ($\chi^2(1, n = 856) = 6.157, p = .013$) and mental illness ($\chi^2(1, n = 856) = 5.907, p = .015$). A higher percentage of non-completers reported not having a supportive family (26.0%) than completers (19.8%) ($\chi^2(1, n = 856) = 4.321, p = .038$). No service variables (referral source,

wait-time to first contact), or family history variables (family history of suicide or self-harm) were significantly associated with the number of sessions attended or treatment completion status. Correlational analysis of follow-up scales revealed significant association between the number of sessions attended and scores on the PHQ-9 and the PANSI. Analysis suggested that participants who attend a lower number of sessions are more likely to have lower suicide ideation ($r = -.194, p < .05$), and lower depression scores at baseline ($r = .222, p < .05$).

Table 1. *Summary of significant differences for Chi-square, Mann-Whitney, Kruskal-Wallis, and Correlational analysis for demographic, health service utilisation, clinical and service variables*

Variable	Test	p-value
<u>Chi-square analysis</u>		
	<u>χ^2</u>	
Employment status	5.43	.020
GP attendance	4.21	.040
Suicidal ideation	16.28	.000
DSH	6.16	.013
Mental Illness	5.91	.015
Supportive family	4.32	.038
<u>Mann-Whitney testing</u>		
	<u>U</u>	
Relationship status	50723	.012
Employment status	44424.5	.001
Previous counselling	45201	.000
Suicidal ideation	166641.5	.000
DSH	39676.5	.012
Mental illness	34707	.000
Emotional support	43611	.000
Supportive family	46957	.001
<u>Kruskal-Wallis testing</u>		
	<u>χ^2</u>	
Presenting condition	88.57	.000
PHQ-9	19.70	.001
<u>Correlational analysis</u>		
	<u>r</u>	
Positive suicidal ideation	-.194	.001
Negative suicidal ideation	.159	.008
Number of days experiencing SI	.173	.000
PHQ-9	.222	.000

Structural equation modelling to determine best combination of factors

Exploratory structural equation modelling (SEM) was performed using the maximum likelihood method to determine the independent effects (regression estimate, β) of the observed and unobserved (latent) predictive factors on treatment completion. Latent variables were created using variables which correlated highly and which were theoretically associated, with 'having someone for emotional support' and 'have a supportive family', re-coded into the latent variable 'social support'. To facilitate the combination of continuous and dichotomous variables two models were created, the first predicting the number of sessions attended (Model 1) and the second predicting attrition or completion (Model 2).

Model 1. Based on the preliminary analysis and prior hypothesis, a number of variables were selected for the initial model predicting the number of sessions attended (Figure 1). Correlational analysis informed the interrelationships between variables. The model included previous history of counselling or therapy, attending GP, depression, positive and negative suicidal ideation, relationship and employment status, the number of days experiencing suicidal ideation and the latent variable 'social support' (emotional support and supportive family). Variables with insignificant paths were sequentially removed until all pathways were significant ($p < .05$). The fit indices were very good ($\chi^2 = 6.282$, $df = 14$, $p = .959$) (Byrne, 2013), with a Comparative Fit Index (CFI) of 1.00, and a Root Mean Square Error of Approximation (RMSEA) of .00. The most significant predictor of number of sessions attended was negative suicidal ideation ($\beta = .943$, $p = .013$), while previous history of counselling or therapy, attending GP, baseline depression, baseline positive suicidal ideation and social support, all had significant direct effects on the number of sessions attended ($\beta = .096$, $p = .021$; $\beta = .148$, $p = .000$; $\beta = .158$, $p = .005$; $\beta = -.918$, $p = .013$; $\beta = .254$, $p = .000$, respectively).

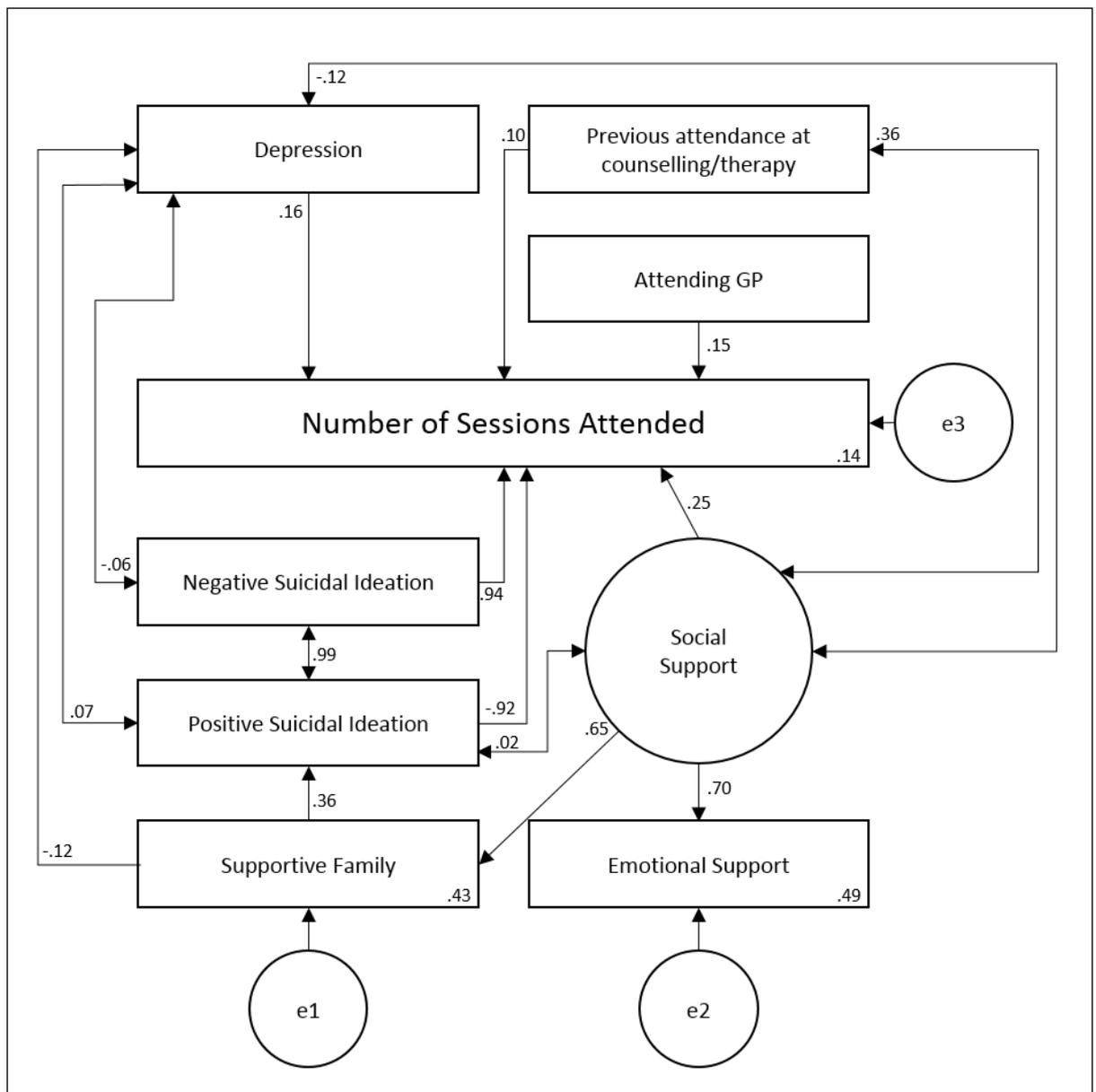


Figure 1: Model 1 - Multivariate analysis of significant clinical, health service utilisation and social support variables and their relative weight in predicting the number of sessions attended

Model 2. Based on the preliminary analysis and prior hypothesis, a number of variables were selected for the initial model predicting drop out. Correlational analysis informed the interrelationships between variables. The model included GP attendance, employment and

relationship status, mental illness, suicidal ideation, DSH and supportive family. Variables with insignificant paths were sequentially removed until all pathways were significant ($p < .05$). The final model is presented in Figure 2. The fit indices for this model were very good ($\chi^2 = .226, df = 2, p = .893$) (Byrne, 2013), the CFI was 1.00 and the RMSEA was .000. The most significant predictor of treatment completion was suicidal ideation ($\beta = .134, p = .013$). Engaging in DSH and attending the GP had significant direct effects on drop out ($\beta = .077, p = .023$; $\beta = .088, p = .023$, respectively).

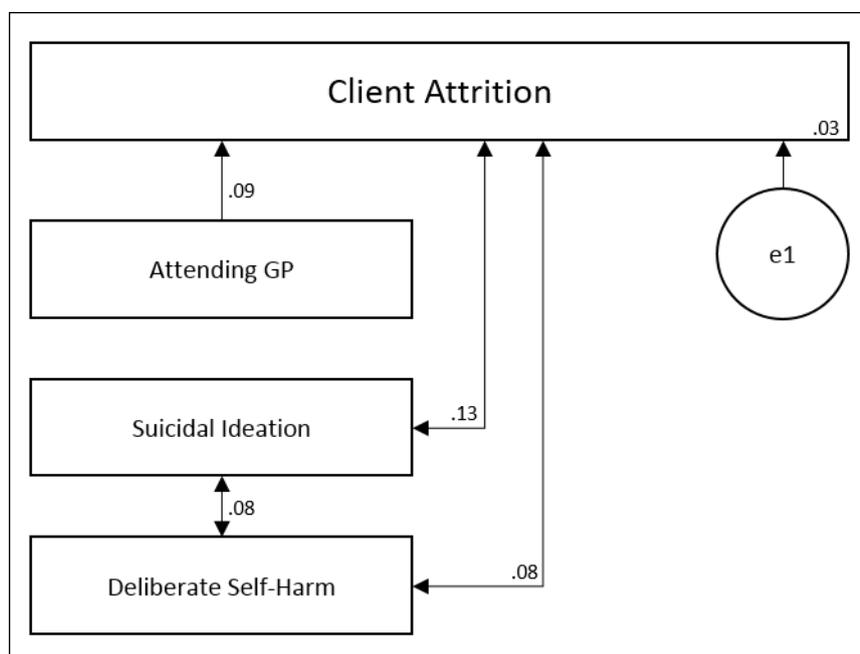


Figure 2: Model 2 - Multivariate analysis of significant clinical and health service utilisation variables and their relative weight in predicting attrition

Discussion

Therapy attrition

The present study aimed to comprehensively explore attrition and its correlates within an Irish sample engaging in a suicide intervention therapy programme. Exploration of therapy adherence demonstrated relatively conservative rates of attrition compared to existing research, with a median of 13 sessions attended, and a drop-out rate (attending 8 sessions or less) of 22.4%. While definitional ambiguity and inconsistent measurement techniques tend to reduce comparability (Westmacott, Hunsley, Best, Rumstein-McKean, & Schindler, 2010), cautious interpretation suggests that findings are widely supported in relation to recent reports of 22-24% drop-out in psychosocial treatment and 18-27% in suicidal populations (Lerner & Levinson, 2012; Murphy et al., 2010; Spirito et al., 2002). The range of factors associated with therapy attrition were largely related to symptomology, and so clients matching a profile of lower symptom severity, lower social support and lesser GP engagement were at greater risk of non-completion of therapy.

Structural Equation Modelling

Structural Equation Modelling was used to produce two models, one predicting the number of sessions a client would attend, and a second to predict attrition.

In Model 1 (Figure 1), higher depression and suicidal ideation, increased social support, previous attendance at therapy, and increased GP attendance produced the best fitting model for the number of sessions attended. The positive associations between depression, suicidal ideation, and higher adherence to therapy is contrary to research that suggests a negative effect of depression on help-seeking (Burns, Cortell & Wagner, 2008). However, these findings are supported by Thoits (2011) and Brookman-Frazer and colleagues (2008) who posit that higher symptom severity in relation to psychological difficulties and functional impairment is predictive of service use and adherence. In accordance with previous research (Murphy et al., 2010; Wang, 2007) higher GP attendance and previous therapy were also predictive of therapy

retention, and may reflect recent primary care initiatives in Ireland which have increased multidisciplinary primary care services and ease of access to mental health services (HSE Working Group on Mental Health in Primary Care, 2006). While there is limited data in relation to suicidal clients, the significant predictive effect for social support is in line with general therapy adherence, where research has indicated the importance of emotional support from family and friends for therapy retention (Chronister et al., 2013).

In Model 2 (Figure 2), analyses revealed that lower suicidal ideation, less frequent deliberate self-harming, and lower GP attendance produced the best fitting model for predicting attrition, a finding that corroborates existing research (Barnicot, Katsakou, Marougka & Priebe, 2011; Murphy et al., 2010). The association between attrition and deliberate self-harm is contrary to previous studies that suggest that clients who engage in frequent self-harming behaviour are more difficult to engage and maintain in therapy (Gratz & Roemer, 2006). However, within the context of the current findings and the relative importance of suicidal ideation and depression, this observation complements the prominence of symptom severity and its potential influence on therapy completion (Brookman-Frazer et al., 2008; Thoits, 2011). Furthermore, in crisis mental health services, lower symptom severity is commonly associated with longer wait-times (Compton, Rudisch, Craw, Thompson & Owens, 2006), which has been shown to increase the probability of attrition and diminish motivation to engage in services (Sherman et al., 2008).

A range of variables were insignificant within the final models, most notably age and gender, which have been predictive in previous research (Thormahlen et al., 2003). However, on-going debate regarding the contributory role of these factors suggest that the role of age and gender is inconsistent (Barrett et al., 2008; Murphy et al., 2010). Other factors, such as marital status, were significant at the univariate level but were insignificant in the final models. Exploration of multivariate associations in this case suggests that gender and relationship status

may predict social support tendencies (Hawton, 2000), indicating that the influence of marital status may be accounted for by the strength of social support in the final model. Other notable absences in the final models concern the service variables, which is in contrast to the previous literature, in which longer wait-times and third party referrals were strong predictors of drop-out (Hampton-Robb et al., 2003; Sherman et al., 2008). Differences in the services studied may be attributable to this finding, with shorter wait-times characteristic of crisis intervention services (Surgenor, 2013).

Strengths and Limitations

The main strength of this study is the use of Structural Equation Modelling analyses, enabling a more comprehensive evaluation of adherence rates and associated factors than previous regression approaches. Following an in-depth literature search, it seems that this is the first study of this type within a population of clients attending suicide intervention therapy, and so makes considerable contributions to the understanding of the multidimensionality of attrition. Consequently, the results provide significant insights into the adherence behaviours of individuals presenting with suicidal ideation and DSH, both in terms of the factors associated with therapy adherence, and the interrelationships between the demographic, clinical, health service utilisation and service factors.

The study has several key limitations. Definitional ambiguity is a prominent concern in relation to suicide (Surgenor, Freeman, & O'Connor, in press) and early therapy termination (Swift & Greenberg, 2012). Therefore, while the present study employed widely used definitions and measurement techniques (Brookman-Frazer et al., 2008) comparability is limited as a result of substantial variation and a lack of precise measurement in this respect (Westmacott et al., 2010). In terms of the sample, the combination of missing values and the

self-selecting nature of the participating clients reduce the generalisability of the reported findings to a subset of suicidal clients (Rubin & Little, 2002).

Clinical Implications

Building on previous literature in predicting drop-out, the present study highlights the contributory role of symptom severity and the GP in relation to client adherence to crisis intervention services, and the potential subtype of clients at risk of attrition. Identified subtypes of clients at risk of dropping out can be potentially utilised to tailor training protocols and service provision. Adapting appointment reminders, incorporating motivational interviewing and increasing the integration of social support may be implemented to augment adherence (Henriques, Beck & Brown, 2003; Oldham, Kellett, Miles & Sheeran, 2012).

The prominent role of the GP in the present study reiterates the need for emphasis on early identification, clearer referral pathways and ongoing support for suicidal clients in primary care settings (Connolly et al., 2012). Findings support preliminary work enacted from current Irish primary care initiatives, and further fuel the need for increased education and training for GPs (Hooper et al., 2012).

Future Research

Of primary concern in future research should be the reduction of definitional and measurement ambiguity with the development of consistent measurement techniques (Brookman-Frazer et al., 2008). Additional factors should also be considered in order to further explore the multidimensionality of attrition, most notably, the therapeutic alliance (Sharf, Primavera & Diener, 2010).

Conclusions

Client attendance at an Irish suicide intervention centre is broadly in line with previous reports, and significantly influenced by a range of factors, most notably symptom severity, social support and health service use. The present study advances current levels of understanding by adopting a multidimensional approach to attrition, and by identifying key predictors of attrition that enable clinicians to identify clients most at-risk of attrition, and amend their therapy programme to provide additional supports to encourage retention. While further investigation is required to replicate these findings in a larger sample, the scope of the present study broadens insight into the comparative role of a variety of factors on attrition.

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